Exhibit 6 Patent Local Rules 3-1 and 3-2 from Cellspin for TikTok

**U.S. Patent No. 8,904,030 v. ByteDance/TikTok Apps**
**Claims 1, 2, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18**

While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

[634 pages]





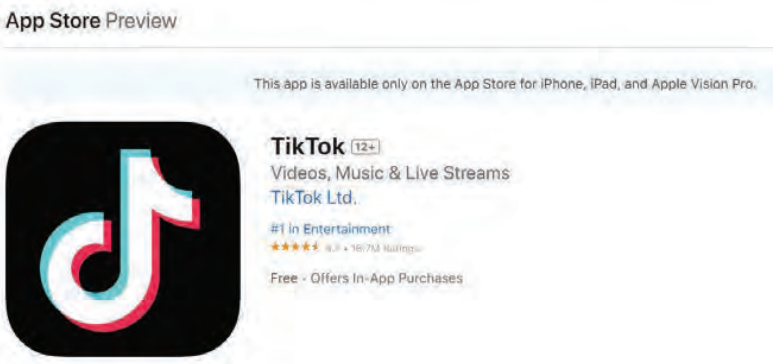
LifeScan, Inc. Ex. 1036
Page 1 of 2225
IPR2025-00102

## 1. Claim Chart

| Claim | Analysis |
|---|---|
| [1.P] A method for transferring data from a Bluetooth enabled data capture device to a remote internet server via a Bluetooth enabled mobile device comprising: | TikTok/ByteDance ("Defendant") performs and/or induces others to perform a method for transferring data from a Bluetooth enabled data capture device to a remote internet server via a Bluetooth enabled mobile device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, Defendant provides TikTok[1] app which is installed in a mobile device such as iPhone and an Android phone ("Bluetooth enabled mobile device"). The TikTok app installed in the mobile device can be remotely controlled through Bluetooth devices such as AirPods and Bluetooth remotes[2] ("Bluetooth enabled data capture device"). The TikTok app utilizes the processor and Bluetooth technology of the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided to the Bluetooth devices.<br><br>Further, the TikTok app uploads ("transferring") data provided by the user, via the Bluetooth Devices, on the Defendant's servers ("remote internet server"). The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'.<br><br>For example, mobile devices such as iPhones and Android phones on which the TikTok app is installed are sold on the TikTok app using the TikTok Shop functionality. |

[1]While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

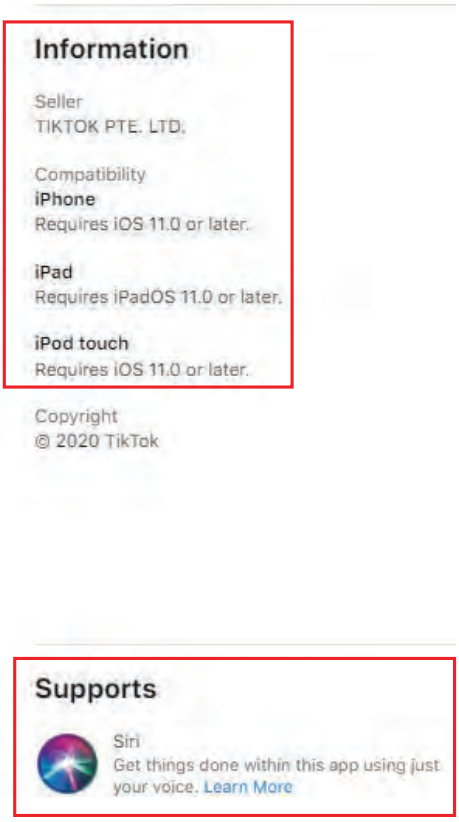
[2] TikTok app is compatible with a wide variety of Bluetooth remotes, for example, Smart Ring Controller and other Bluetooth remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

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| |  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |





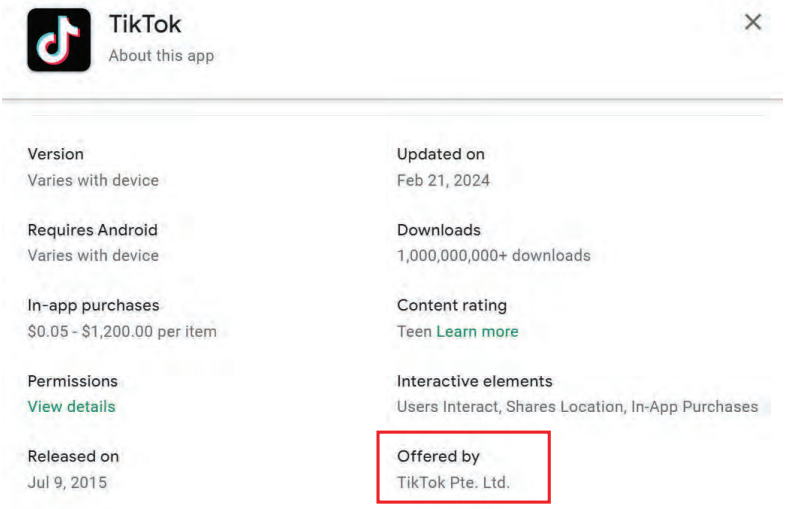
LifeScan, Inc. Ex. 1036
Page 3 of 2225
IPR2025-00102



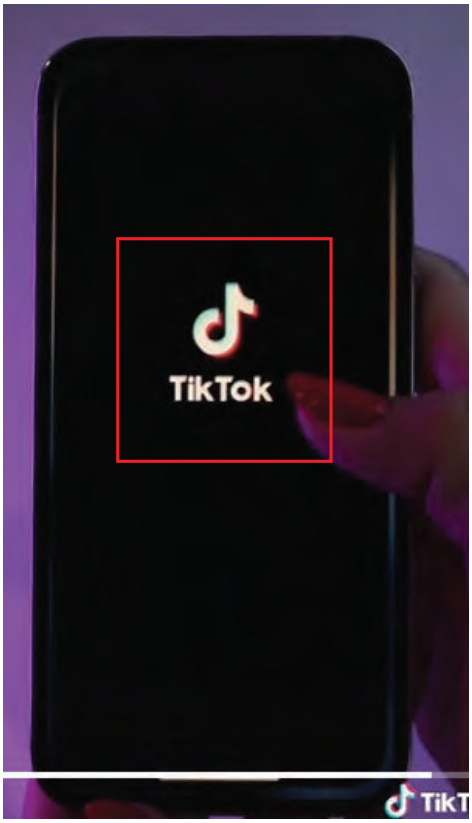

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |





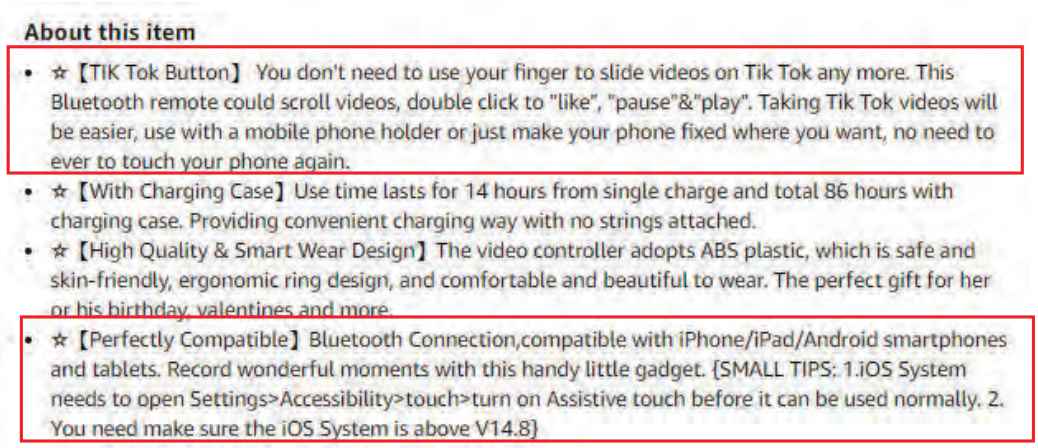
LifeScan, Inc. Ex. 1036
Page 6 of 2225
IPR2025-00102

| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |





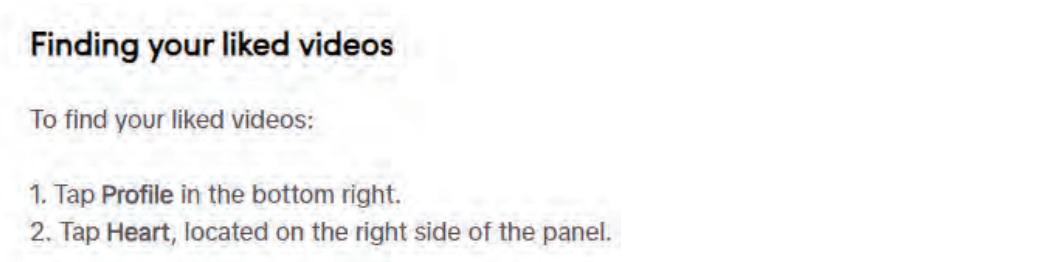
LifeScan, Inc. Ex. 1036
Page 7 of 2225
IPR2025-00102



**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa



**Finding your liked videos**

To find your liked videos:

1. Tap **Profile** in the bottom right.
2. Tap **Heart**, located on the right side of the panel.

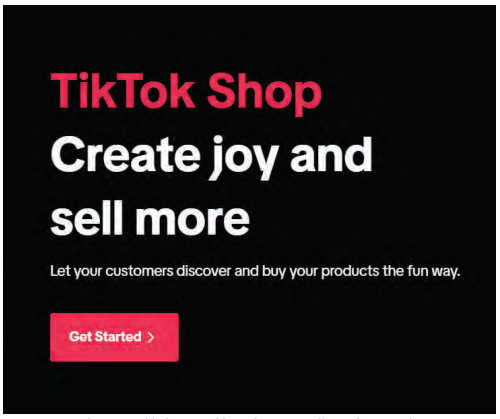
Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking

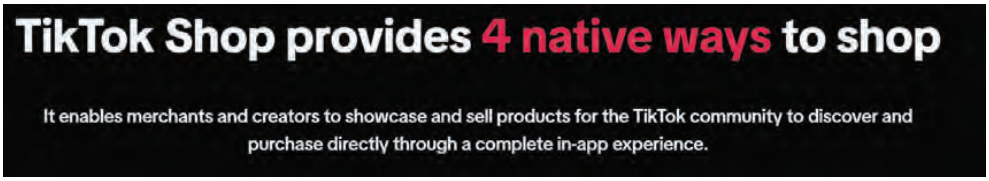
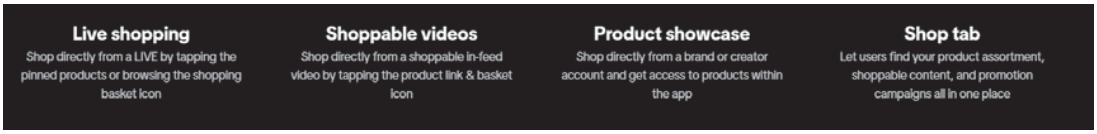
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| | If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/<br><br>**Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |

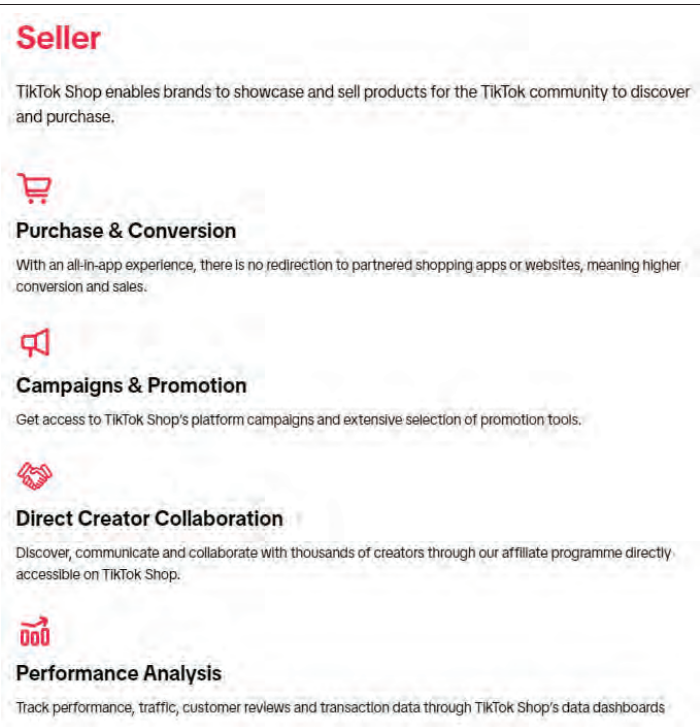




LifeScan, Inc. Ex. 1036
Page 9 of 2225
IPR2025-00102

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| | For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance<br>  <br>Source: https://shop.tiktok.com/business/en |

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| |  <br>Source: https://shop.tiktok.com/business/en<br>  <br>Source: https://shop.tiktok.com/business/en |

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| |  <br>Source: https://shop.tiktok.com/business/en |





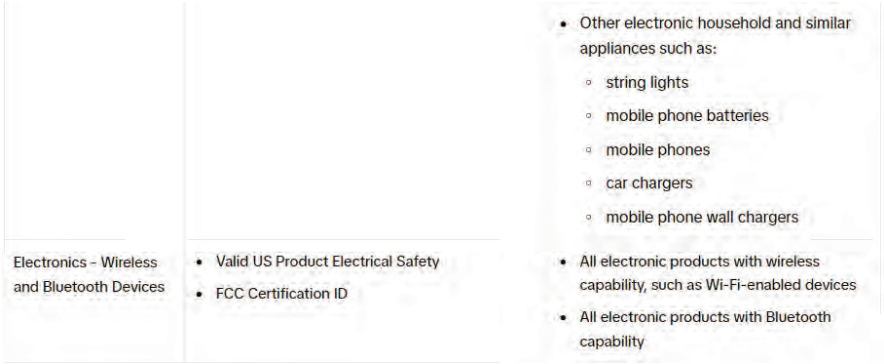
LifeScan, Inc. Ex. 1036
Page 12 of 2225
IPR2025-00102

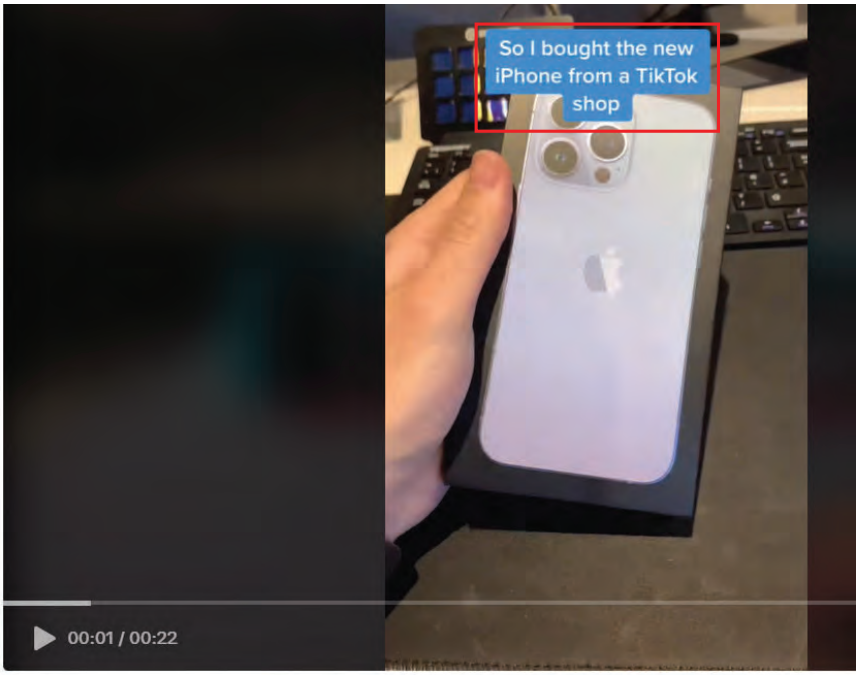
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| | **How does TikTok Commerce work?**<br><br>TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en<br><br>**About TikTok Shop**<br><br>TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.<br><br>Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.<br><br>• See TikTok Shop and Showcase<br>• See How to Add Product Links to TikTok Videos<br><br>With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en |

13



LifeScan, Inc. Ex. 1036
Page 13 of 2225
IPR2025-00102

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| | **Electrical Products and Electronics**<br>Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.<br>Electrical and electronic products include but are not limited to:<br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy<br>  <br>Electronics - Wireless and Bluetooth Devices<br>• Valid US Product Electrical Safety<br>• FCC Certification ID<br>• Other electronic household and similar appliances such as:<br>◦ string lights<br>◦ mobile phone batteries<br>◦ mobile phones<br>◦ car chargers<br>◦ mobile phone wall chargers<br>• All electronic products with wireless capability, such as Wi-Fi-enabled devices<br>• All electronic products with Bluetooth capability<br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

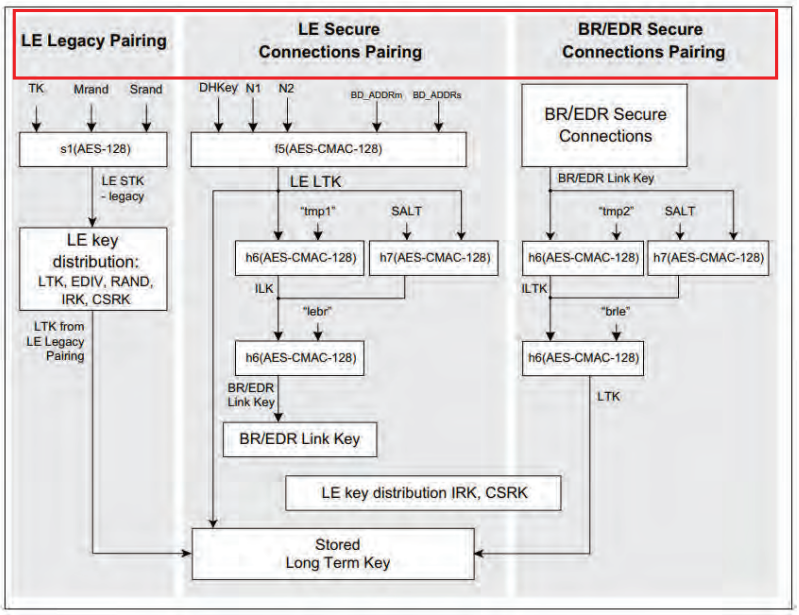
| | |
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| |  <br>So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime<br>Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502, at 0:01<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |





LifeScan, Inc. Ex. 1036
Page 15 of 2225
IPR2025-00102

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| [1.1] performing at a Bluetooth enabled data capture device: establishing a paired secure Bluetooth connection between the Bluetooth enabled data capture device and the Bluetooth enabled mobile device, wherein the paired secure Bluetooth connection uses cryptographic encryption key; | Defendant performs and/or induces others to perform the step of performing at a Bluetooth enabled data capture device: establishing a paired secure Bluetooth connection between the Bluetooth enabled data capture device and the Bluetooth enabled mobile device, wherein the paired secure Bluetooth connection uses cryptographic encryption key.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device ("Bluetooth enabled mobile device") which comprises Bluetooth. Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("Bluetooth enabled data capture device"). The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the mobile device and the Bluetooth device are connected through an encrypted connection created by exchanging secret keys ("cryptographic encryption key"). The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries |

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| | Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240<br>  <br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242 |

| | | |
|---|---|---|
| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

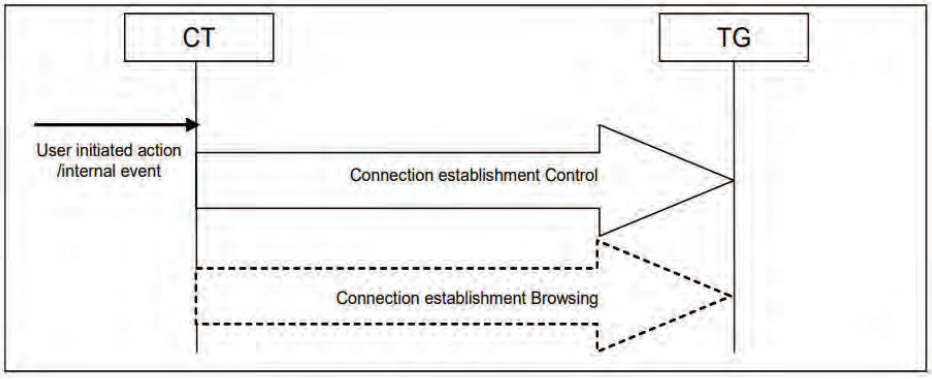



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 24

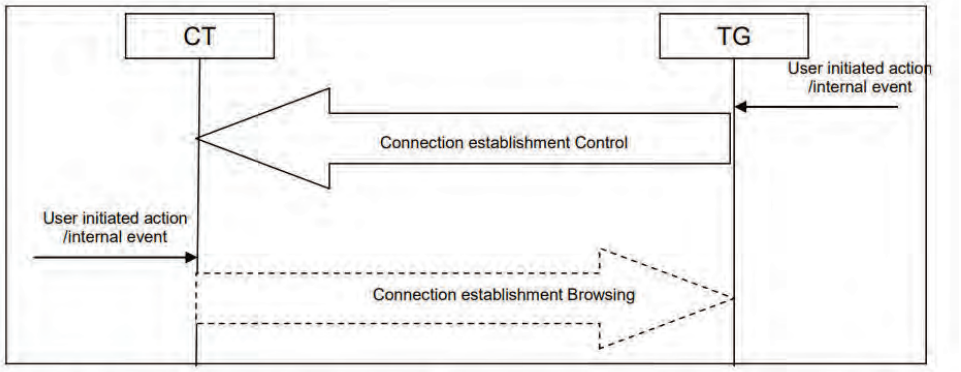



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082 Page 25

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

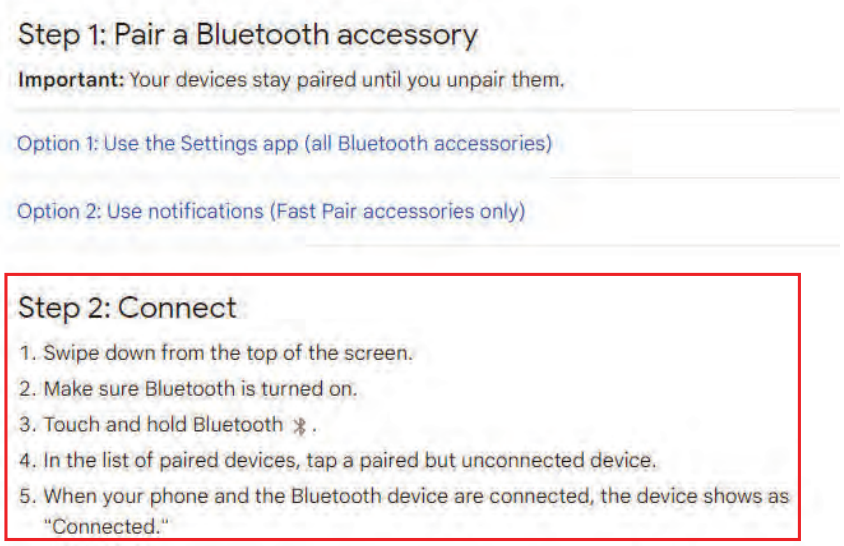
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

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| | Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br><br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web<br>**Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US |

21




Source: https://support.google.com/android/answer/9075925?hl=en



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

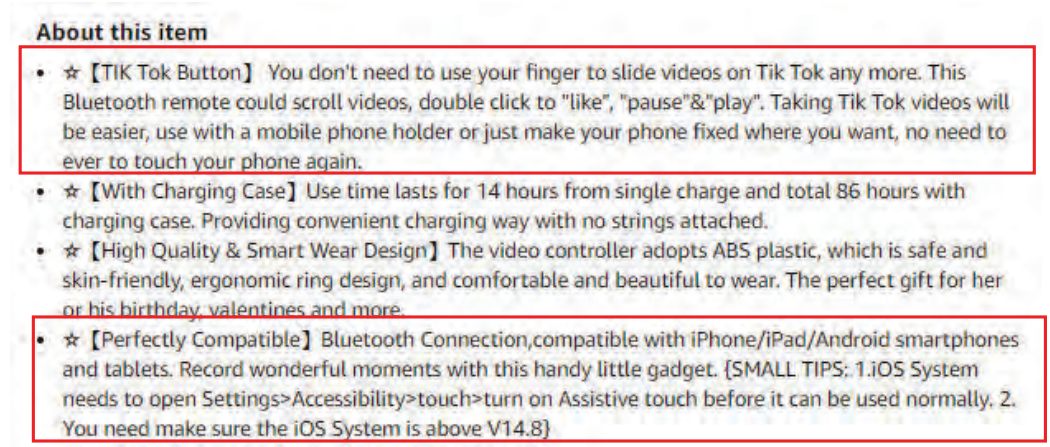
Source: https://developer.android.com/guide/topics/connectivity/bluetooth





LifeScan, Inc. Ex. 1036
Page 23 of 2225
IPR2025-00102

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|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

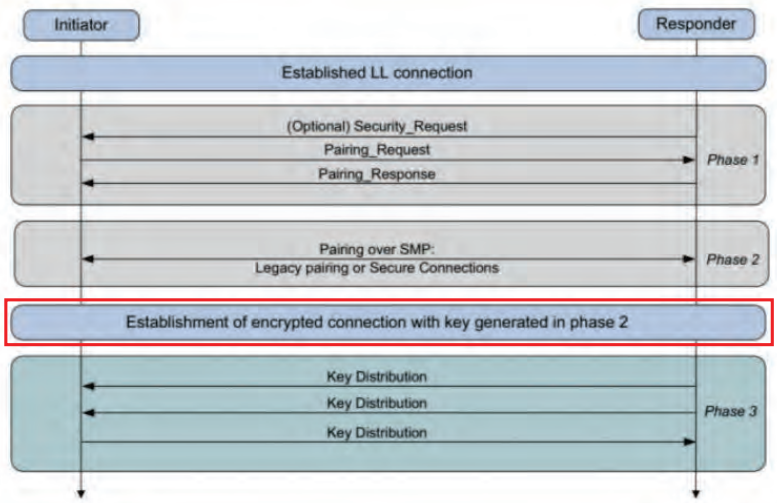
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

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| | Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>**2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.<br>5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.9 Authentication**<br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

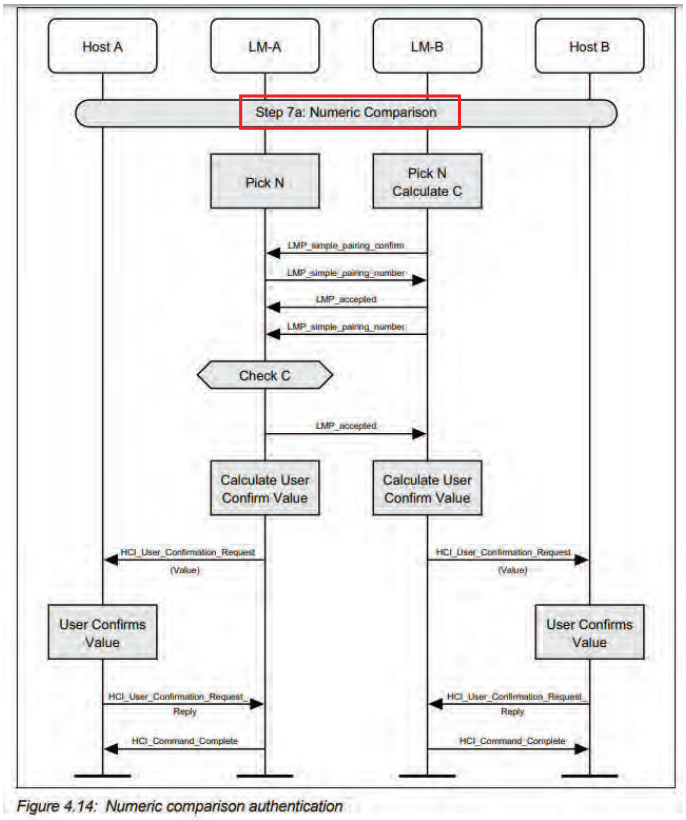



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

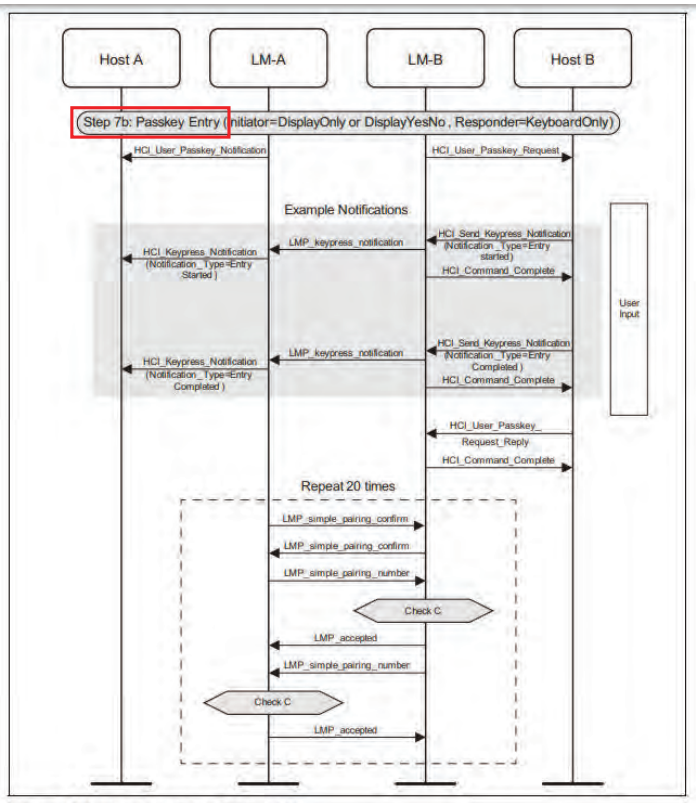
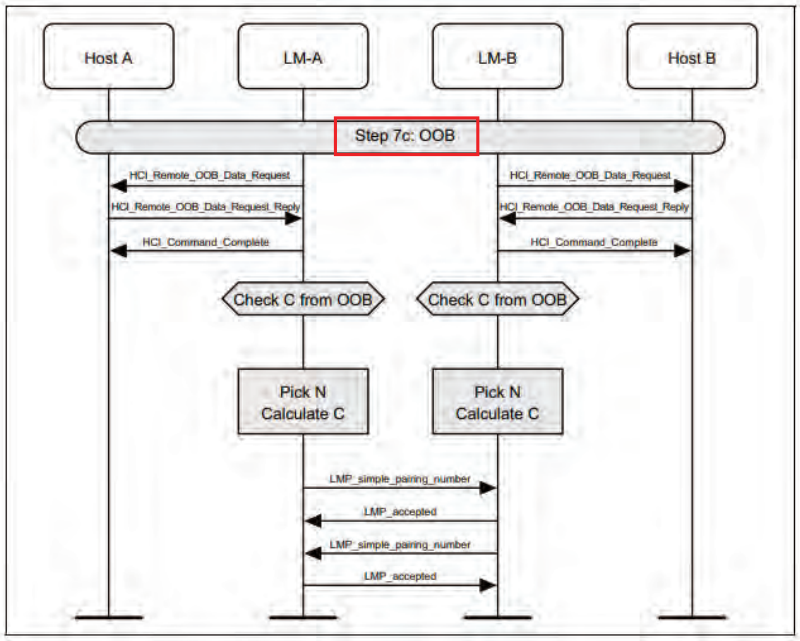



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

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| |  <br>*Figure 4.20: OOB authentication (P-192)*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.2] sending a message to the Bluetooth enabled mobile device, corresponding to | Defendant performs and/or induces others to perform the step of sending a message to the Bluetooth enabled mobile device, corresponding to supported data capability of the Bluetooth enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| supported data capability of the Bluetooth enabled data capture device; | For example, as is inherent to how the Bluetooth Low Energy (BLE) works, after a Bluetooth connection is established between the mobile device and Bluetooth device such as AirPods, Earphones, and Bluetooth remote ("Bluetooth enabled data capture device"), the mobile device receives information sent by the Bluetooth device such as data formats, protocols, or functionalities ("supported data capability") supported by the Bluetooth device. Further, through the HCI (Host Controller Interface), the host (Bluetooth enabled mobile device) retrieves information about the controller (Bluetooth enabled data capture device), including its capabilities and supported features.<br><br>In addition to L2CAP, LE provides two additional protocol layers that reside on top of L2CAP. The Security Manager protocol (SMP) uses a fixed L2CAP channel to implement the security functions between devices. The other is the Attribute protocol (ATT) that provides a method to communicate small amounts of data over a fixed L2CAP channel. The Attribute protocol is also used by devices to determine the services and capabilities of other devices. The Attribute protocol may also be used over BR/EDR.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 172<br><br>**5.2.4 Association Models**<br><br>Secure Simple Pairing uses four association models referred to as Numeric Comparison, Just Works, Out Of Band, and Passkey Entry. Each of these association models are described in more detail in the following sections.<br><br>The association model used is deterministic based on the I/O capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 244 |

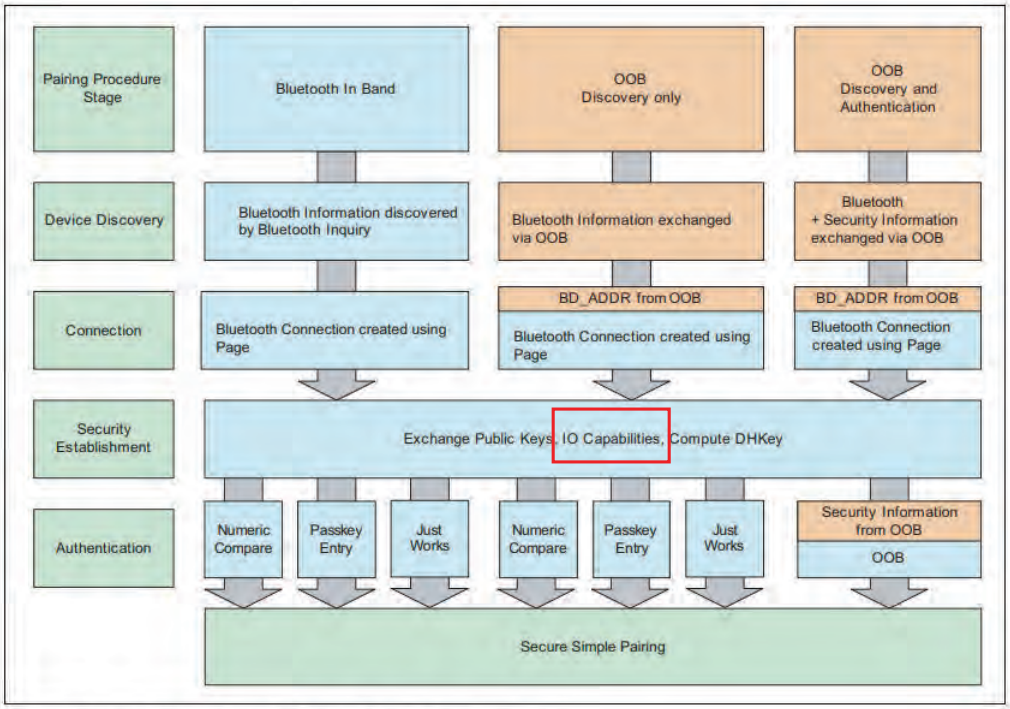


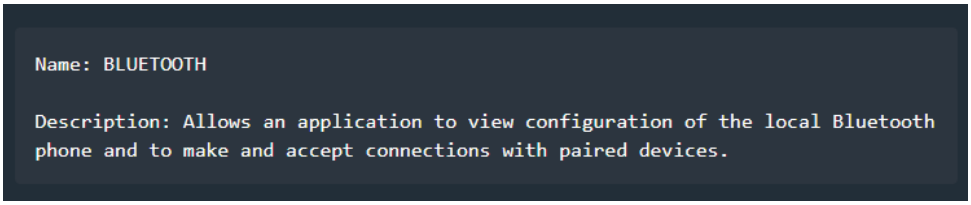

*Figure 5.3: Secure Simple Pairing Association Models*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 247

32

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| | This Part of the Bluetooth Core Specification describes the functional specifications for the Host Controller Interface (HCI). The HCI provides a uniform interface method of accessing a Bluetooth Controller's capabilities. The next three sections provide a brief overview of the lower layers of the Bluetooth software stack and of the Bluetooth hardware. Section 2 provides an overview of the Lower HCI Device Driver Interface on the Host device. Section 4 describes the flow control used between the Host and the Controller. Section 7 describes each of the HCI Commands in detail, identifies parameters for each of the commands, and lists events associated with each command.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 670<br><br>Bluetooth devices may contain a collection of special data entities, known as *services*, *characteristics*, and *descriptors*, each of which is a type of *attribute*. Attributes of all types are organized within something called an *attribute table*.<br>Characteristics are instances of state data and reflect some aspect or capability of the device.<br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 8<br><br>In the world of Bluetooth low energy, a device has something called a profile which defines the way other devices are able to communicate over Bluetooth with it. In a way, the Bluetooth® profile defines the way a device appears to other devices in terms of its features and the things it can do.<br>To put it another way, a Bluetooth profile is really an interface specification. It defines the data which a device has, what another device can do with that data over a Bluetooth connection and how the device with the profile should respond when a connected device acts upon its data in some way. Let's look at that description in a little more technical detail.<br>Source: https://www.bluetooth.com/blog/a-developers-guide-to-bluetooth/ |

33

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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>**Bluetooth** — Allows to to connect to paired bluetooth devices.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices |

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| | Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.3] acquiring new data in the Bluetooth enabled data capture device, wherein new data is data acquired after the paired secure Bluetooth connection is established | Defendant performs and/or induces others to perform the step of acquiring new data in the Bluetooth enabled data capture device, wherein new data is data acquired after the paired secure Bluetooth connection is established.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device ("Bluetooth enabled data capture device"), the Bluetooth device captures the user's command ("new-data") using its data capture circuitry, processes it and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is processed and transferred to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down", the Bluetooth devices such as AirPods or earphones capture the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button, the Bluetooth remote captures the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video. |





LifeScan, Inc. Ex. 1036
Page 35 of 2225
IPR2025-00102

| | |
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| | **Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro |

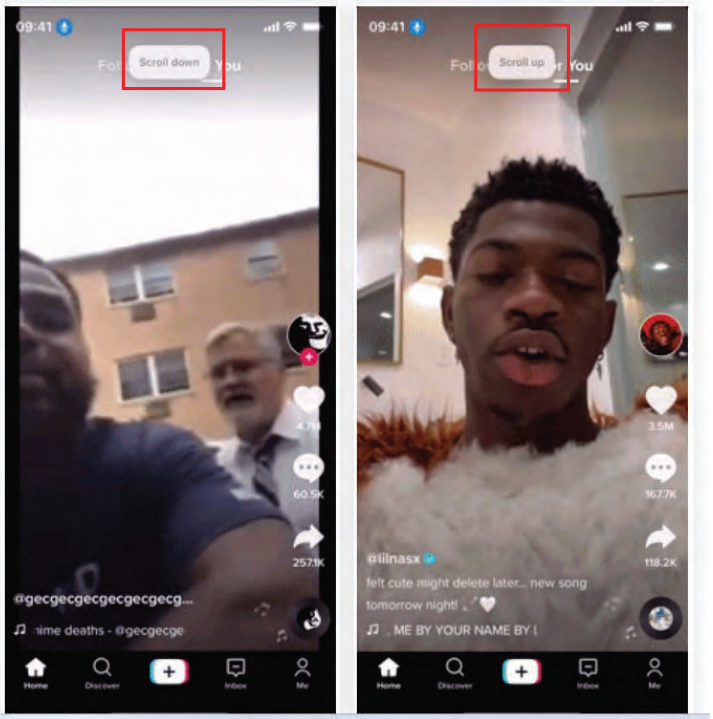
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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

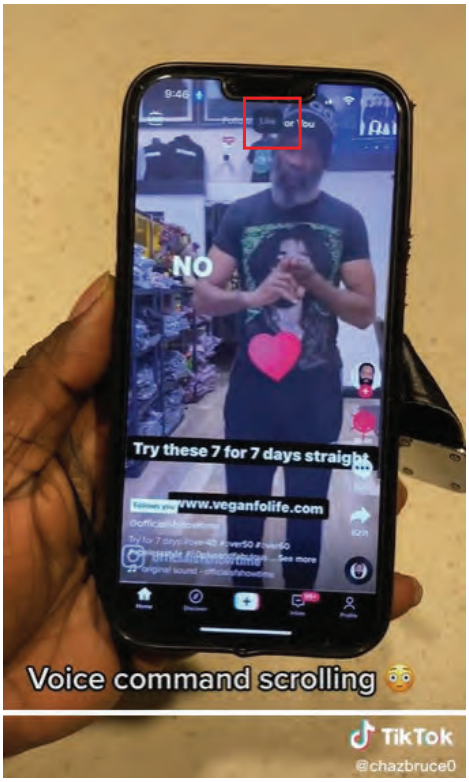
| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |





LifeScan, Inc. Ex. 1036
Page 38 of 2225
IPR2025-00102

| | |
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

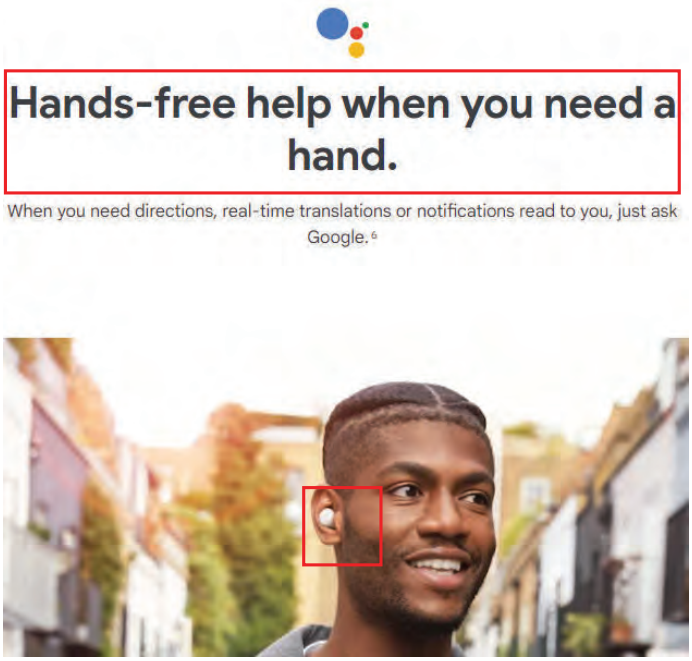
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| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |





LifeScan, Inc. Ex. 1036
Page 42 of 2225
IPR2025-00102




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |





LifeScan, Inc. Ex. 1036
Page 44 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



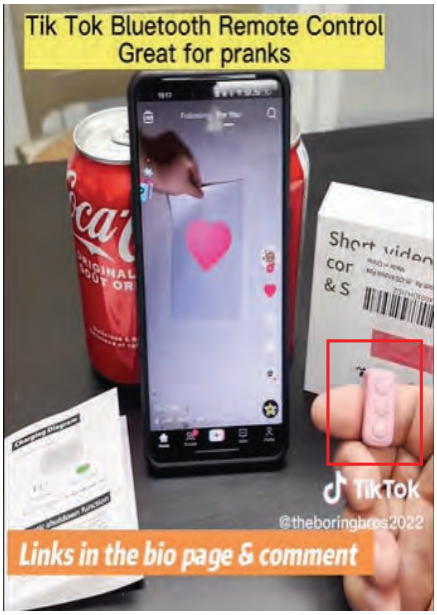


LifeScan, Inc. Ex. 1036
Page 45 of 2225
IPR2025-00102




Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.4] detecting and signaling the new data for transfer, to the Bluetooth enabled mobile device, | Defendant performs and/or induces others to perform the step of detecting and signaling the new data for transfer, to the Bluetooth enabled mobile device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

| | |
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| | For example, the TikTok app installed on the mobile device receives the command provided through Bluetooth devices such as AirPods, earphones or Bluetooth remote. As is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled data capture device acquires new data (audio command or the button pressed on the Bluetooth remote) and then notifies the Bluetooth module (of the mobile device) about the availability of the transfer of the new data by sending an event notification ("signaling the new data for transfer").<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("new-data") on AirPods or earphones, the TikTok app detects the user's command. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app detects the user's command.<br><br>A new Data Channel PDU is a Data Channel PDU sent for the first time by the Link Layer. A last Data Channel PDU is a Data Channel PDU that is resent by the Link Layer. When resending a Data Channel PDU, the LLID field, the SN field and the payload of the sent Data Channel PDU shall be equal to those of the last Data Channel PDU sent by the Link Layer.<br><br>For each new Data Channel PDU that is sent, the SN bit of the Header shall be set to *transmitSeqNum*. If a Data Channel PDU is resent, then the SN bit shall not be changed.<br><br>Upon reception of a Data Channel PDU, the SN bit shall be compared to *nextExpectedSeqNum*. If the bits are different, then this is a resent Data Channel PDU, and *nextExpectedSeqNum* shall not be changed. If the bits are the same, then this is a new Data Channel PDU, and *nextExpectedSeqNum* may be incremented by one (see Section 4.5.9.1).<br><br>When a Data Channel PDU is sent, the NESN bit of the Header shall be set to *nextExpectedSeqNum*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649 |

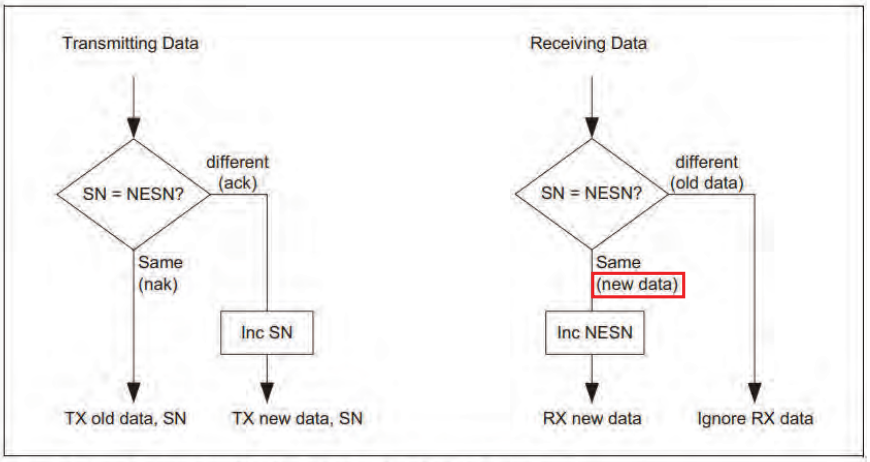



*Figure 4.39: Transmit and Receive SN and NESN flow diagram*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649

Connectionless Slave Broadcast packets are transmitted at each scheduled Connectionless Slave Broadcast Instant. If no new data is available, the Connectionless Slave Broadcast Transmitter shall transmit a packet with the last available data in the payload.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 441

| Value | Parameter Description |
|---|---|
| Variable | Data to send in future Connectionless Slave Broadcast packets. This data will be repeated in future Connectionless Slave Broadcast instants until new data is provided |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1030

If Operation indicates the start of new data (values 0x01 or 0x03), then any existing partial or complete advertising data shall be discarded. If the Advertising_Data_Length parameter is zero and Operation is 0x03, any existing partial or complete data shall be deleted (with no new data provided).

If Operation is 0x04, the behavior is the same as if the current advertising data had been sent again; this can be used to cause the Advertising DID value to be updated (see [Vol 6] Part B, Section 4.4.2.11).

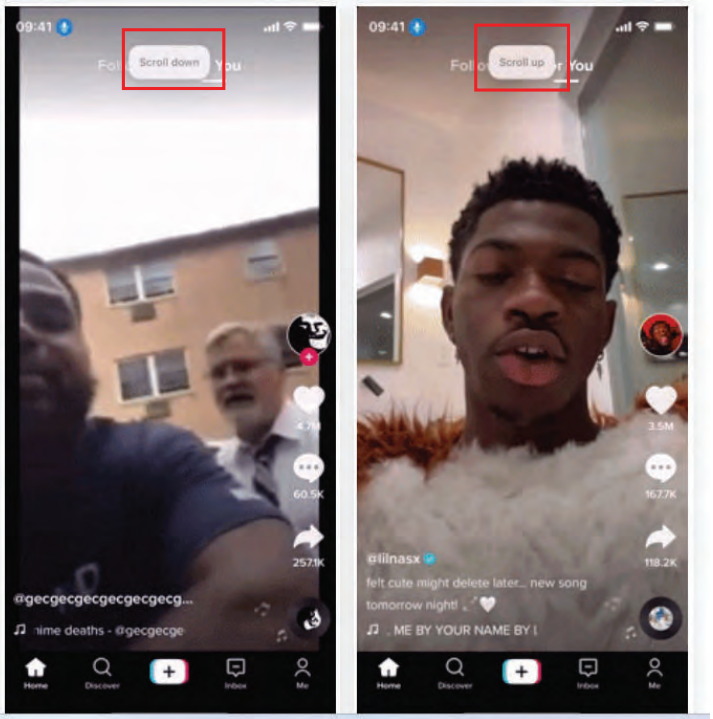
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1345

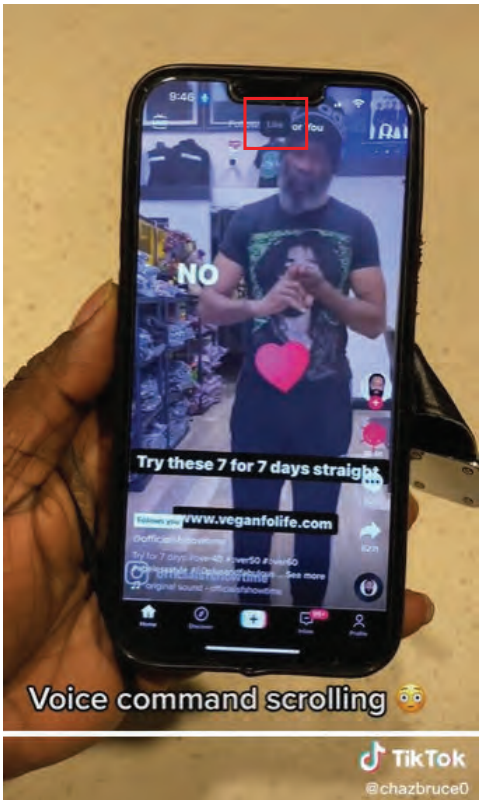
| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |





LifeScan, Inc. Ex. 1036
Page 52 of 2225
IPR2025-00102

| | |
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

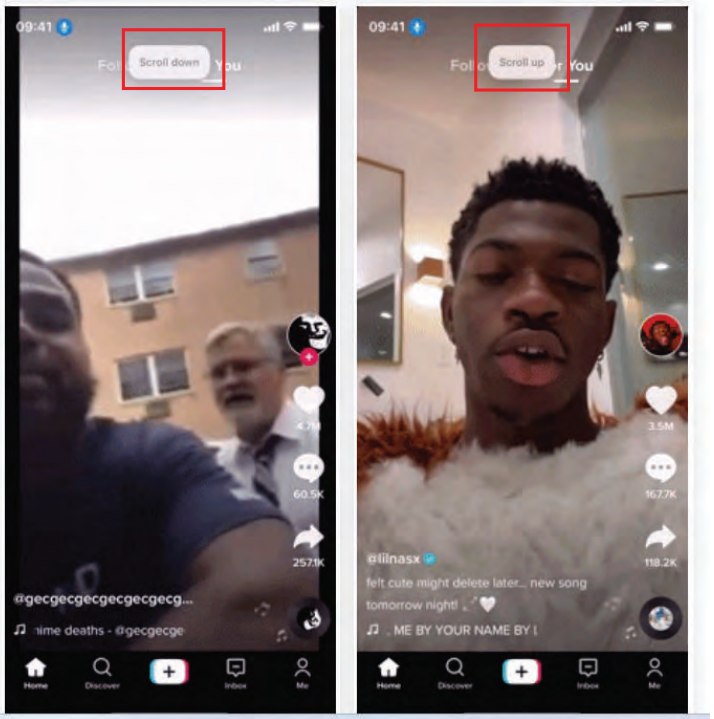
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

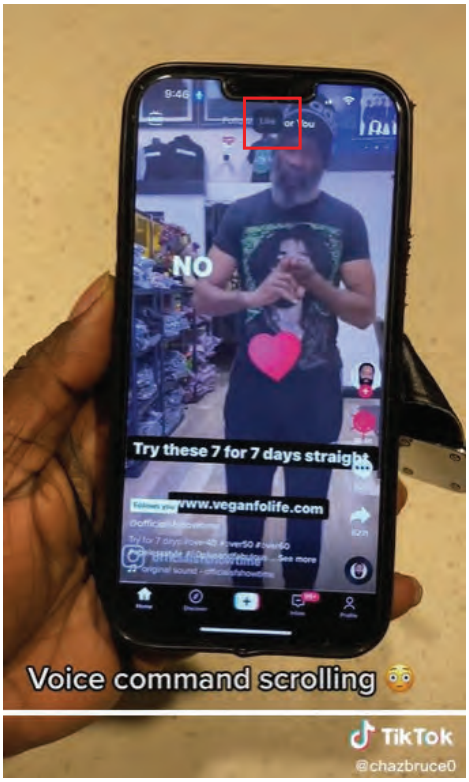
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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.5] wherein detecting and signaling the new data for transfer comprises: receiving a request to get new data, at the Bluetooth enabled | Defendant performs and/or induces others to perform the step wherein detecting and signaling the new data for transfer comprises: receiving a request to get new data, at the Bluetooth enabled data capture device, from the Bluetooth enabled mobile device, over the established paired Bluetooth connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| data capture device, from the Bluetooth enabled mobile device, over the established paired Bluetooth connection; | For example, after receiving notification about capturing of the new data for the TikTok app installed in the mobile device, the Bluetooth enabled mobile device receives the new data captured by the Bluetooth device ("Bluetooth enabled data capture device"). It would be apparent to a person having ordinary skill in the art that the mobile device sends a request to the Bluetooth device to retrieve new data for transfer.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data's (audio command and information corresponding to button press) notification is received in the mobile device on which the TikTok app is installed and the mobile device requests to receive the command in order to perform the corresponding functionality in the TikTok app.<br><br>Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro |

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

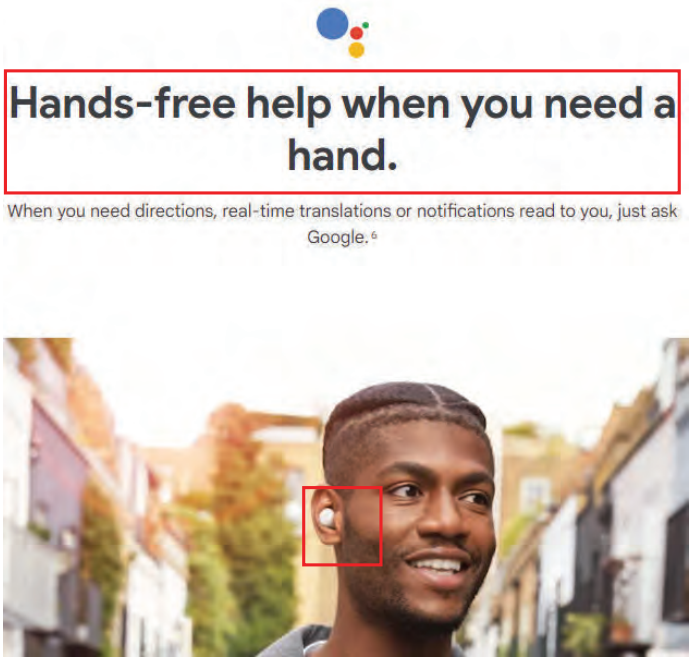
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| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |





LifeScan, Inc. Ex. 1036
Page 64 of 2225
IPR2025-00102




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

| | |
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| | BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

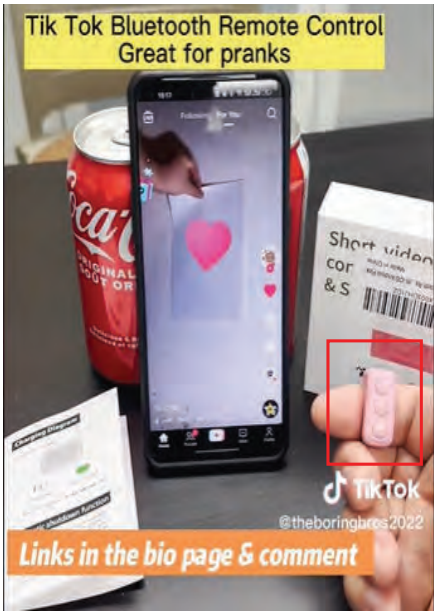




LifeScan, Inc. Ex. 1036
Page 67 of 2225
IPR2025-00102

| | |
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.6] receiving a request to enable event notifications for new data on the Bluetooth enabled data capture device, from | Defendant performs and/or induces others to perform the step of receiving a request to enable event notifications for new data on the Bluetooth enabled data capture device, from the Bluetooth enabled mobile device, over the established paired secure Bluetooth connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| the Bluetooth enabled mobile device, over the established paired secure Bluetooth connection; | For example, after establishing Bluetooth connection, BLE allows the mobile device ("Bluetooth enabled mobile device") to send a message ("request") to the Bluetooth device ("Bluetooth enabled data captured device"), intending to enable event notifications on the Bluetooth device, notifying the mobile device when the new data is acquired.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized to transfer the data from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control specification), including, but not limited to, AirPods, Earphones and Bluetooth remotes, to the Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed. The mobile devices request the Bluetooth devices, to register and send them notifications when the new data is acquired.<br><br>3. CT devices have the capability to provide a NOTIFY AV/C command to the TG, to register for specific events on the TG.<br>4. The TG shall for every supported NOTIFY AV/C command send an INTERIM response to the CT with the current status of the registered event within $T_{MTP}$ from the time of registration.<br><br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 38<br><br>**6.7 Notification PDUs**<br>The Notification PDUs are used to obtain synchronous as well as asynchronous updates from the TG based on change of status at the target's side.<br><br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/ |

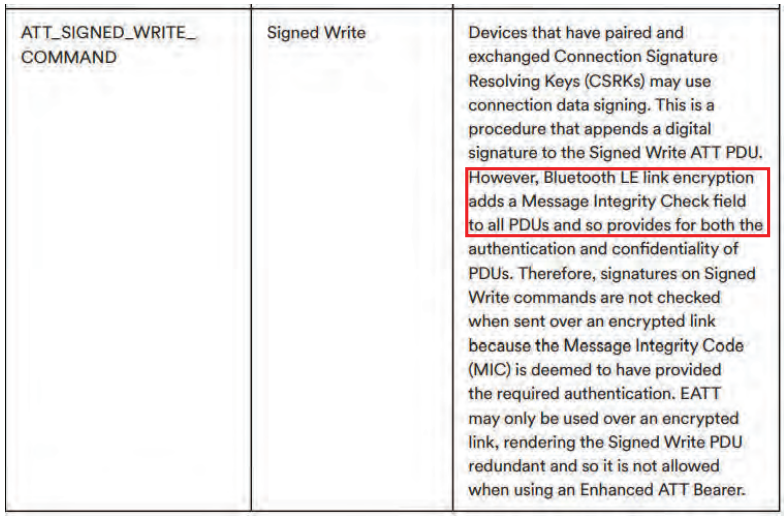
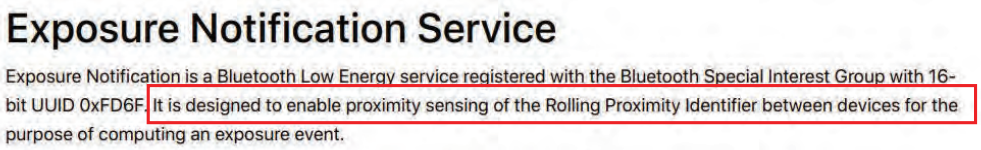
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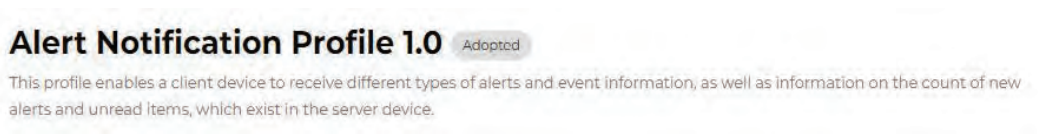
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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |



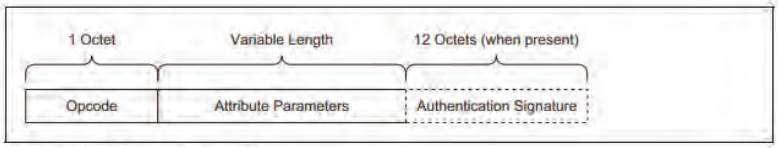


LifeScan, Inc. Ex. 1036
Page 72 of 2225
IPR2025-00102

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| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

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| |  <br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.7] enabling event notification on Bluetooth enabled data capture device, corresponding to new data. | Defendant performs and/or induces others to perform the step of enabling event notification on Bluetooth enabled data capture device, corresponding to new data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after establishing a Bluetooth connection with the Bluetooth device ("Bluetooth enabled data capture device"), the mobile device ("Bluetooth enabled mobile device") is allowed to enable event notification for a command captured through the Bluetooth device for the TikTok app installed in the mobile device. Based on the received event notification, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data's (audio command and information corresponding to button press) notification is received in the mobile device on which the TikTok app is installed.<br><br>Further, after establishing Bluetooth connection, when an audio command is sent through the Bluetooth devices, such as AirPods or earphones, or when a button is pressed on the Bluetooth remote control, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client (e.g., |

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| | a mobile device) establishes a connection with a GATT server (e.g., a Bluetooth device), it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>Further, when an audio command is sent from the Bluetooth devices or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>**Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br><br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

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| | The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br>  <br><br>*Figure 2.3: Attribute Protocol PDU*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |





LifeScan, Inc. Ex. 1036
Page 76 of 2225
IPR2025-00102

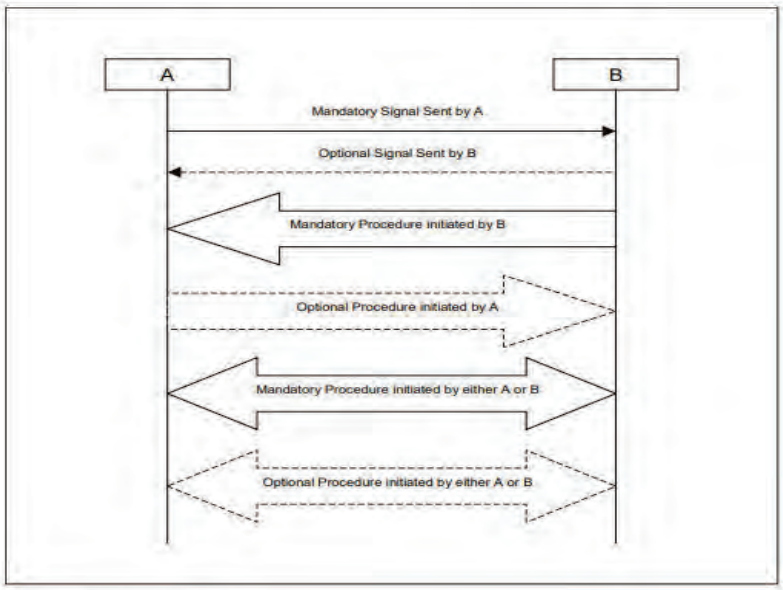



*Figure 1.2: Signaling conventions*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11

77

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

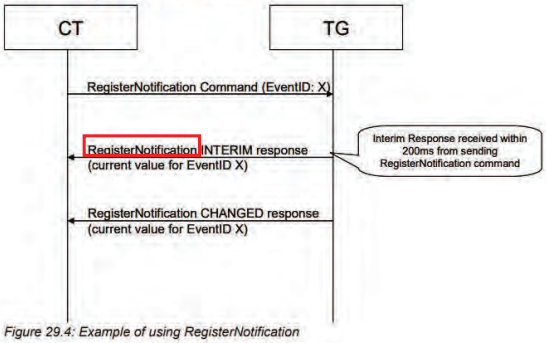



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

### 5.13 Browsing

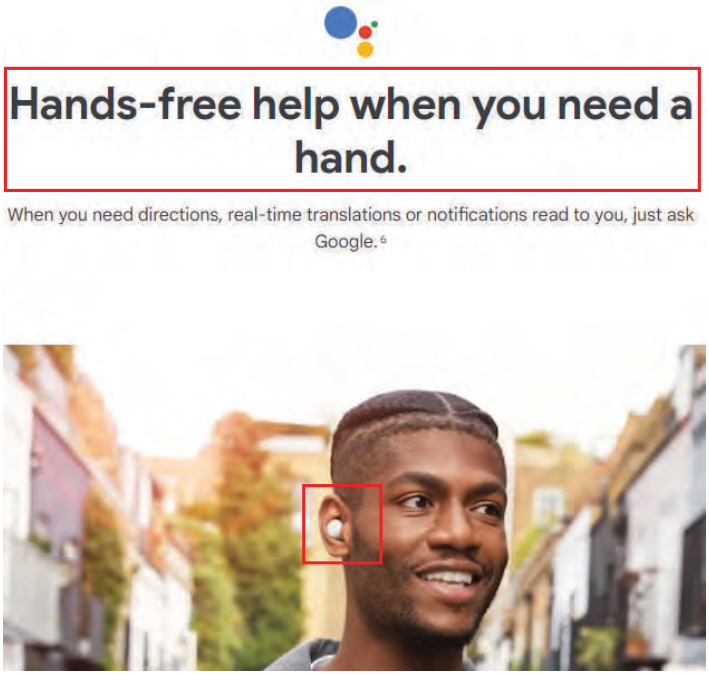
Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





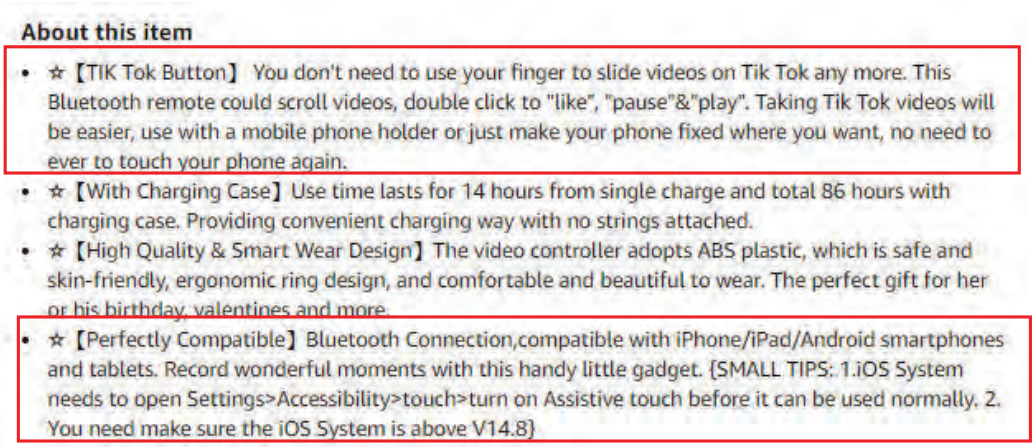
LifeScan, Inc. Ex. 1036
Page 85 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 86 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.8] determining existence of the new data for transfer; and | Defendant performs and/or induces others to perform the step of determining existence of the new data for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, once the Bluetooth pairing is done securely between the Bluetooth enabled cellular phone and the Bluetooth enabled data capture device, and the event notification is enabled, the mobile device receives notification when the Bluetooth device captures the new data for the TikTok app installed in the mobile device. Based on the received event notification, the TikTok app determines the existence of the new data and performs the functionality corresponding to the received command. |





LifeScan, Inc. Ex. 1036
Page 87 of 2225
IPR2025-00102

## Alert Notification Profile 1.0 Adopted

This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.

Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/

## Exposure Notification Service

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4

The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.

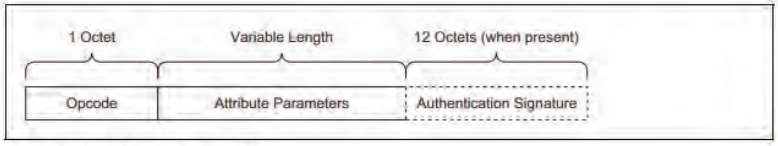



*Figure 2.3: Attribute Protocol PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225

88

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

## 29.3 RegisterNotification

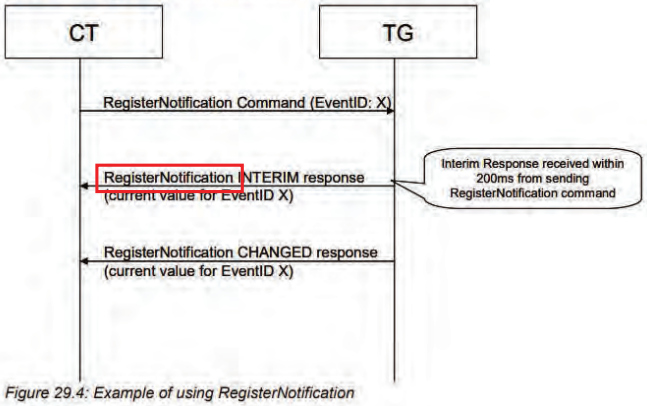



*Figure 29.4: Example of using RegisterNotification*

89

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| | Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139<br><br>**4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

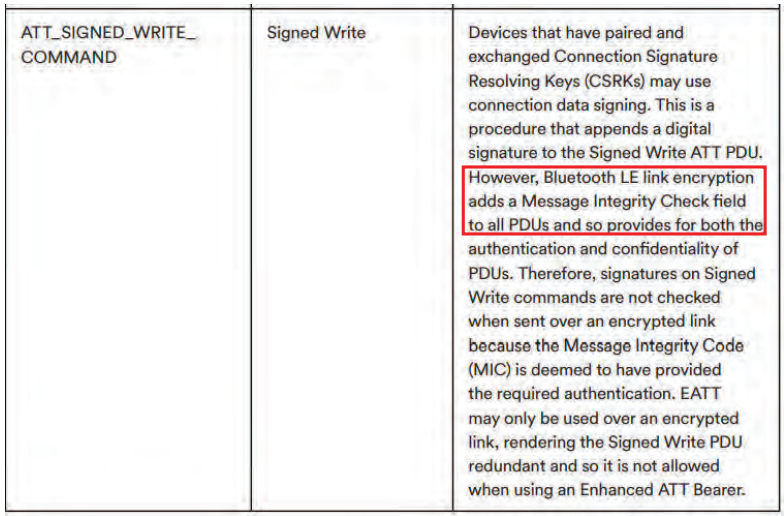
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

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| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17 |

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|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

93

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| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

| | |
|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

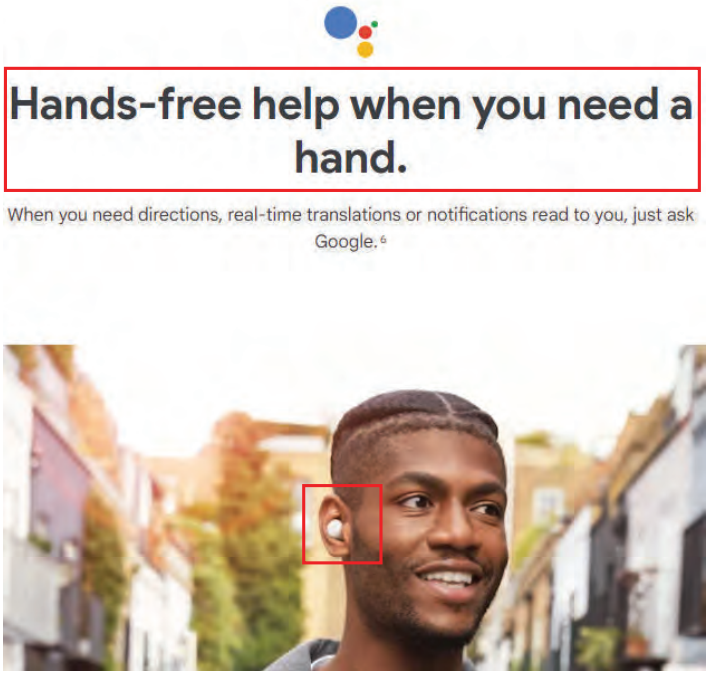
*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

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| | **5.13 Browsing**<br>Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help





LifeScan, Inc. Ex. 1036
Page 99 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

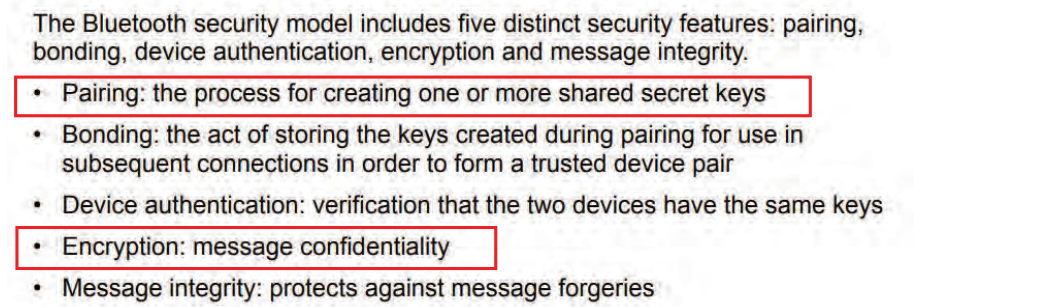
| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

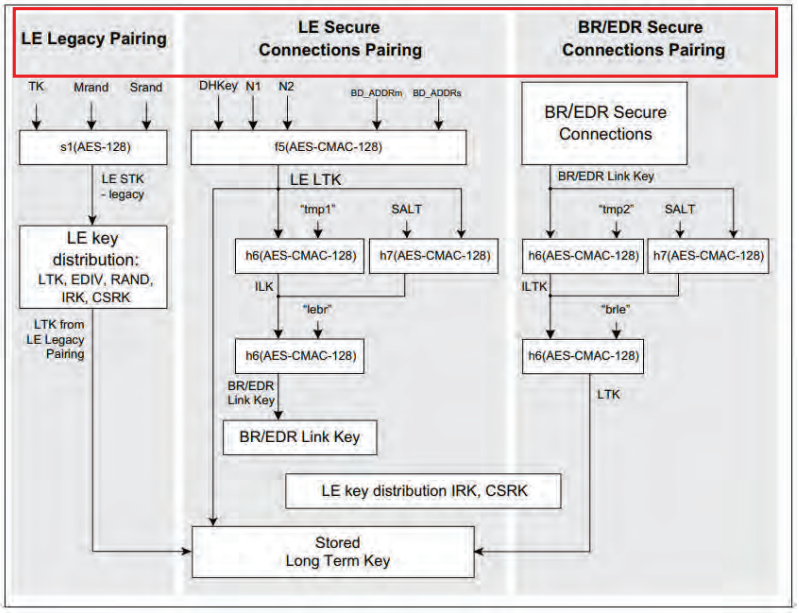
Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa



The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.

- Pairing: the process for creating one or more shared secret keys
- Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair
- Device authentication: verification that the two devices have the same keys
- Encryption: message confidentiality
- Message integrity: protects against message forgeries

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

| | | |
|---|---|---|
| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

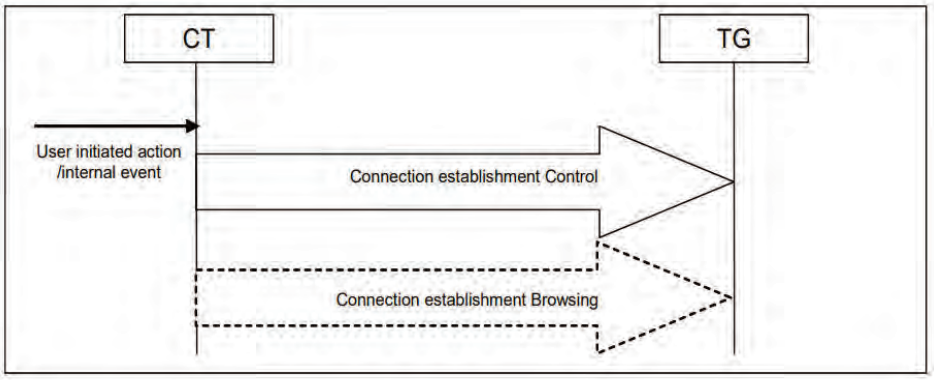



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

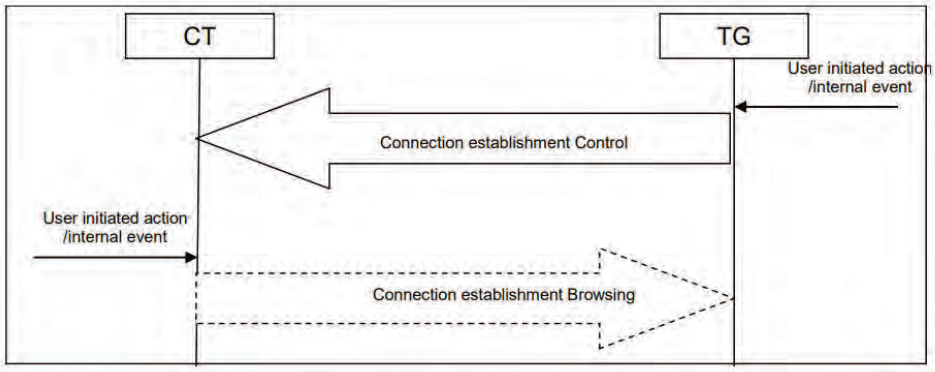



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

| | |
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| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.9] sending event notification as a signal to the Bluetooth enabled mobile device, corresponding to existence of new data for transfer, over the established paired secure Bluetooth connection, wherein the Bluetooth enabled mobile device listens for the event notification sent from the Bluetooth enabled data capture device; | Defendant performs and/or induces others to perform the step of sending event notification as a signal to the Bluetooth enabled mobile device, corresponding to existence of new data for transfer, over the established paired secure Bluetooth connection, wherein the Bluetooth enabled mobile device listens for the event notification sent from the Bluetooth enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, once the Bluetooth pairing is done securely between the Bluetooth enabled cellular phone and the Bluetooth enabled data capture device, and the event notification is enabled, when the Bluetooth device ("Bluetooth enabled data capture device") captures the new data for the TikTok app installed in the mobile device, it sends a notification to the mobile device ("Bluetooth enabled mobile device"). Based on the received event notification, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data's (audio command and information corresponding to button press) notification is received in the mobile device on which the TikTok app is installed.<br><br>Further, after establishing Bluetooth connection, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT as part of their BLE |

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| | functionality that defines a framework for organizing and exchanging data between the BLE devices. When a GATT server, has new data or an event to notify the GATT client, it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data to Bluetooth enabled mobile device on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>**Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br><br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |





LifeScan, Inc. Ex. 1036
Page 108 of 2225
IPR2025-00102

The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.

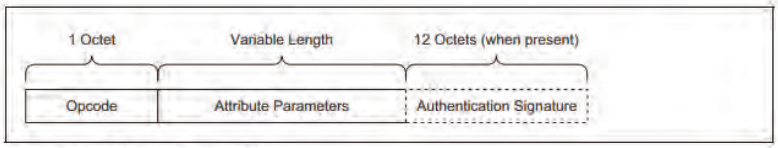



*Figure 2.3: Attribute Protocol PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

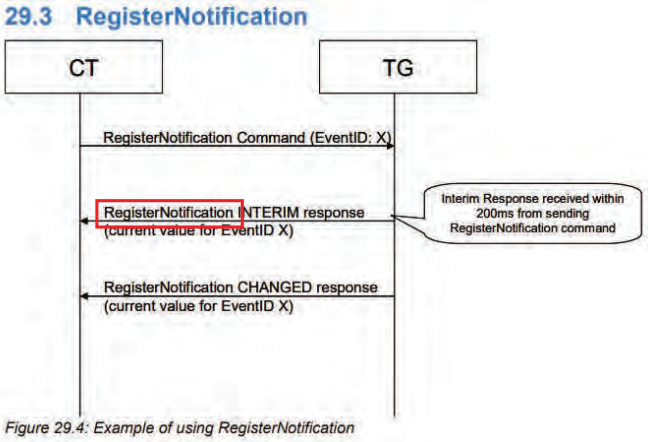



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139

| | |
|---|---|
| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

| | |
|---|---|
| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

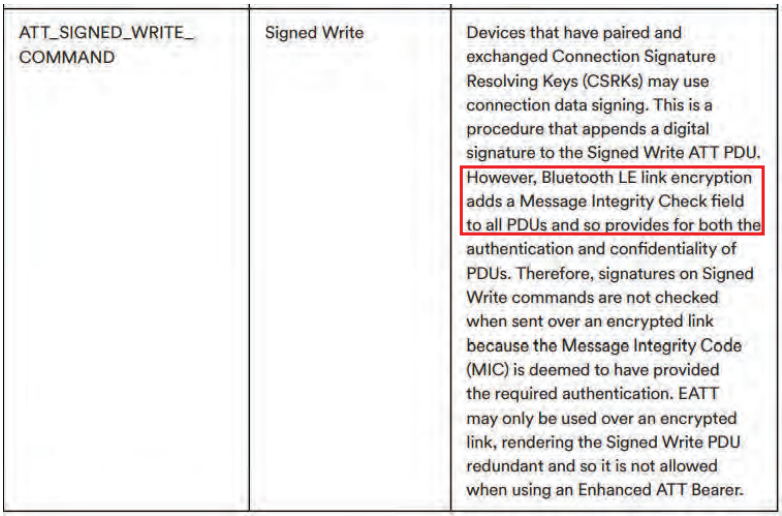
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

| | |
|---|---|
| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17 |

| | | |
|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

114

| | |
|---|---|
| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

| | |
|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

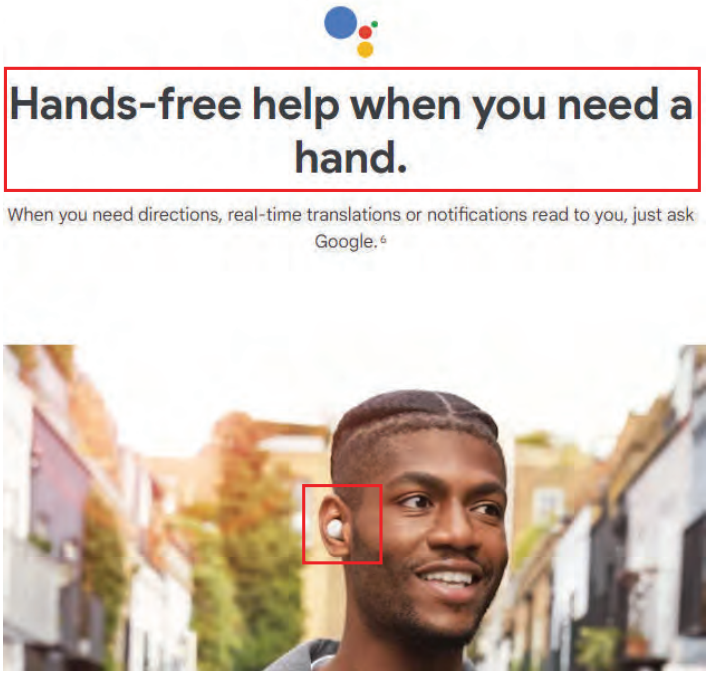
*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

| | |
|---|---|
| | **5.13 Browsing**<br>Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help





LifeScan, Inc. Ex. 1036
Page 120 of 2225
IPR2025-00102

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





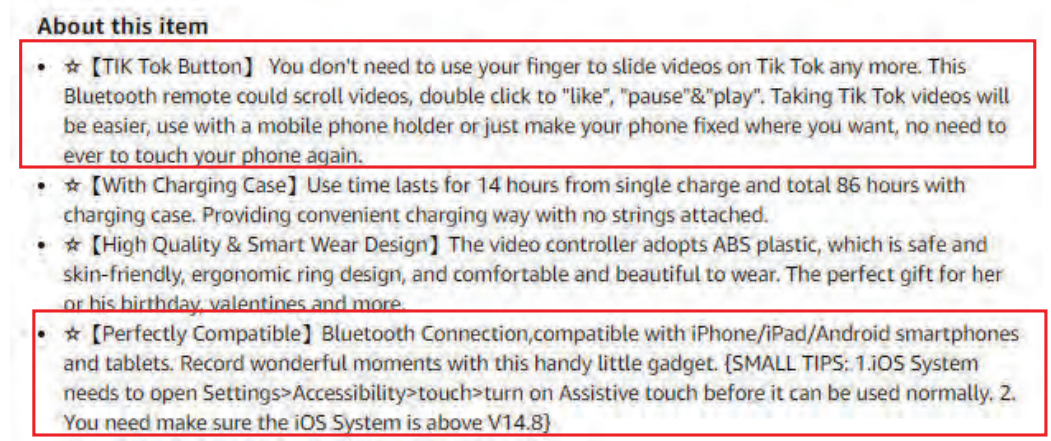
LifeScan, Inc. Ex. 1036
Page 121 of 2225
IPR2025-00102

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 122 of 2225
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**About this item**

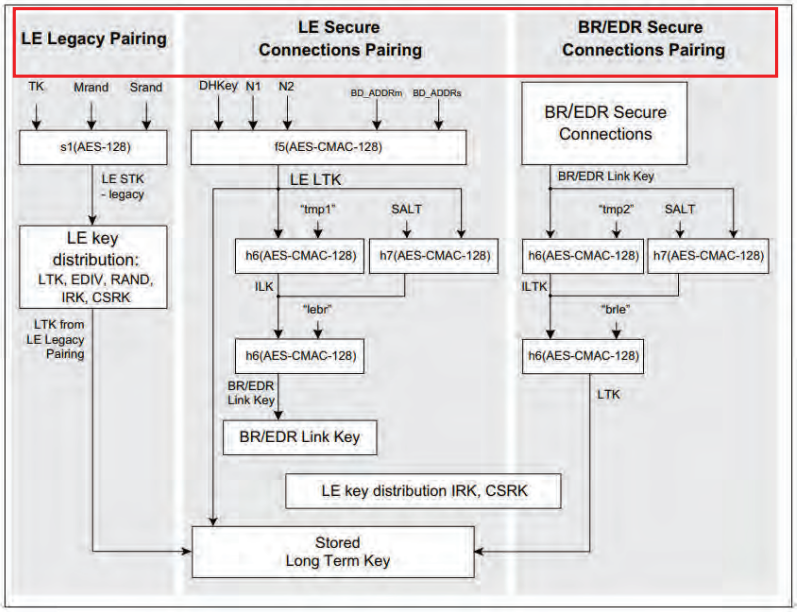
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.

- Pairing: the process for creating one or more shared secret keys
- Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair
- Device authentication: verification that the two devices have the same keys
- Encryption: message confidentiality
- Message integrity: protects against message forgeries

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

| | | |
|---|---|---|
| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

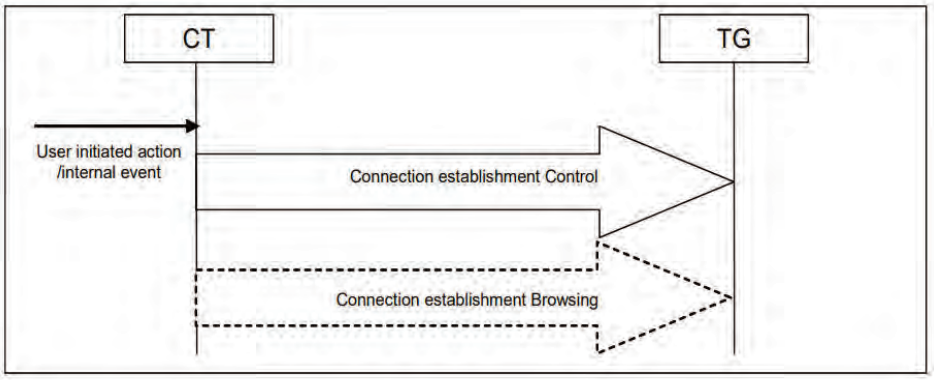



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

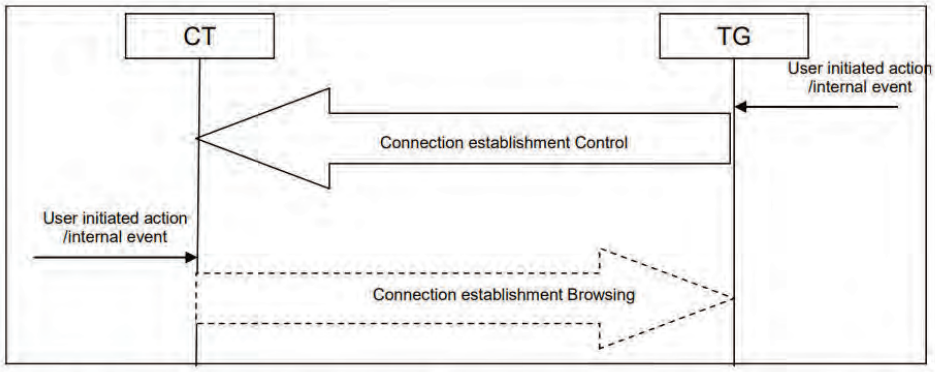



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/

## 2.4 Profile fundamentals

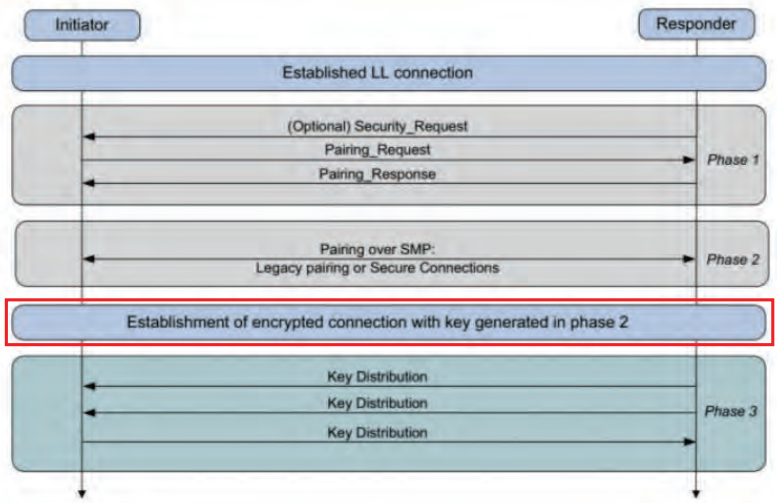
The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

| | |
|---|---|
| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.10] encrypting, using cryptographic encryption key, the new data acquired in the Bluetooth enabled data capture device; and | Defendant performs and/or induces others to perform the step of encrypting, using cryptographic encryption key, the new data acquired in the Bluetooth enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the devices, the Bluetooth devices capture the user's command and send the command to the mobile device through the Bluetooth connection in an encrypted form. The TikTok application in the mobile device receives the user command in the encrypted form and performs the functionality corresponding to the received command. The BLE defines two types of encryption mechanisms: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM is used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 is used when encryption is enabled.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command securely, in the encrypted form, in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote ("Bluetooth enabled data capture device"), the TikTok app receives the user's command in order to like the subsequent video. |

| | |
|---|---|
| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth<br><br>In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

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2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

### 4.2.5 Encryption

If at least one authentication has been performed encryption may be used. Two encryption mechanisms are defined: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM shall be used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 shall be used when encryption is enabled.

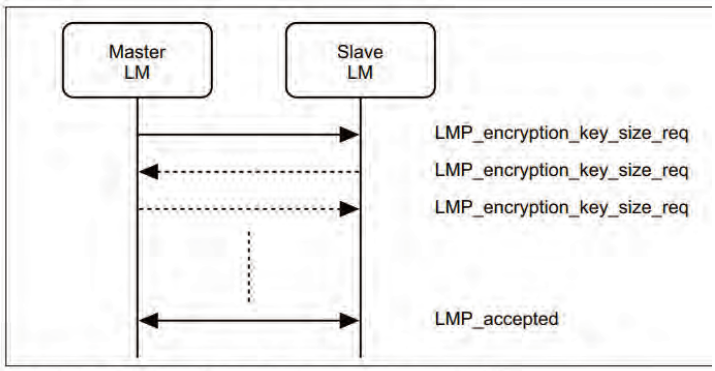
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 567

| M/O | PDU | Contents |
|---|---|---|
| O | LMP_encryption_mode_req | encryption mode |
| O | LMP_encryption_key_size_req | key size |
| O | LMP_start_encryption_req | random number |
| O | LMP_stop_encryption_req | - |
| O (42) | LMP_pause_encryption_req | |
| O (42) | LMP_resume_encryption_req | |
| O (136) | LMP_pause_encryption_aes_req | random number |

*Table 4.21: Encryption handling PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 568

| | |
|---|---|
| | ***4.2.5.2 Encryption Key Size***<br><br>Note: This section uses the same terms as in [Vol 2] Part H, Section 4.1. The master sends an LMP_encryption_key_size_req PDU including the suggested key size $L_{sug, m}$, that is initially equal to $L_{max, m}$. If $L_{min, s} \leq L_{sug, m}$ and the slave supports $L_{sug, m}$ it shall respond with an LMP_accepted PDU and $L_{sug, m}$ shall be used as the key size. If both conditions are not fulfilled the slave sends back an LMP_encryption_key_size_req PDU including the slave's suggested key size $L_{sug, s}$. This value shall be the slave's largest supported key size that is less than $L_{sug, m}$. Then the master performs the corresponding test on the slave's suggestion. This procedure is repeated until a key size agreement is reached or it becomes clear that no such agreement can be reached. If an agreement is reached a device sends an LMP_accepted PDU and the key size in the last LMP_encryption_key_size_req PDU shall be used. After this, encryption is started; see Section 4.2.5.3. If an agreement is not reached a device sends an LMP_not_accepted PDU with the error code *Unsupported*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 569 |



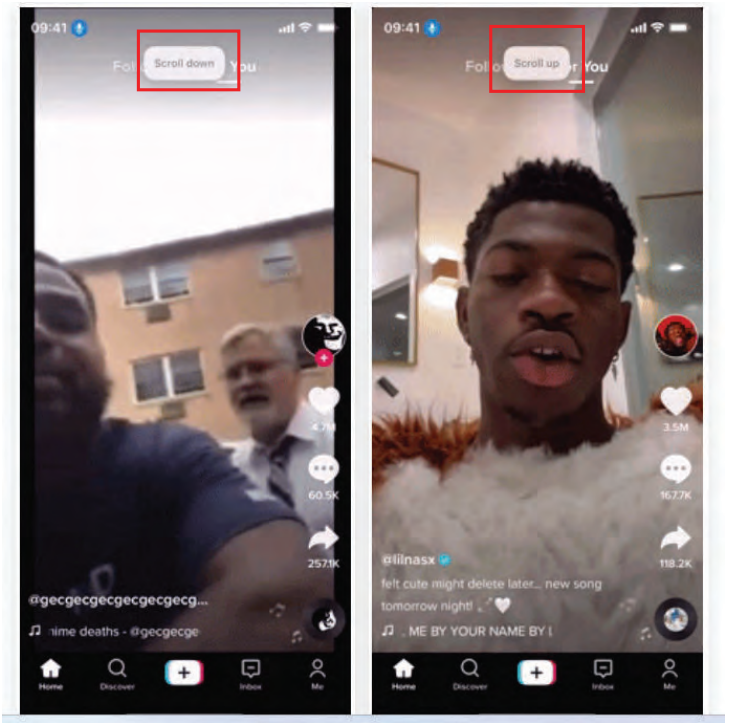

*Sequence 45: Encryption key size negotiation successful*

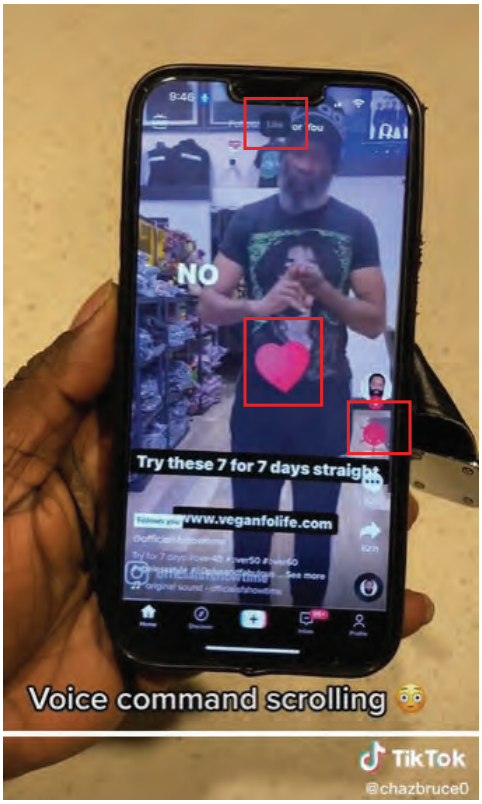
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 570

## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

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| | Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br>  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |





LifeScan, Inc. Ex. 1036
Page 136 of 2225
IPR2025-00102

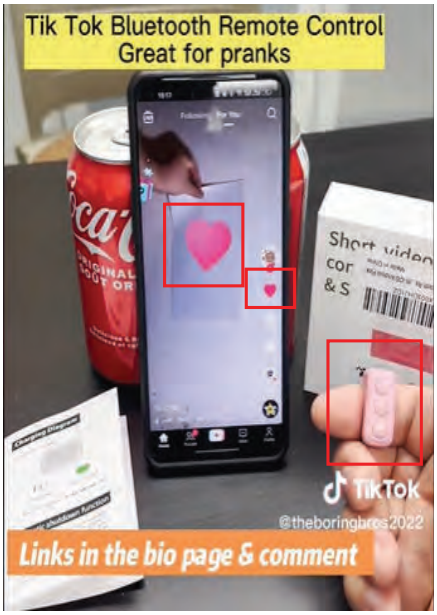
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



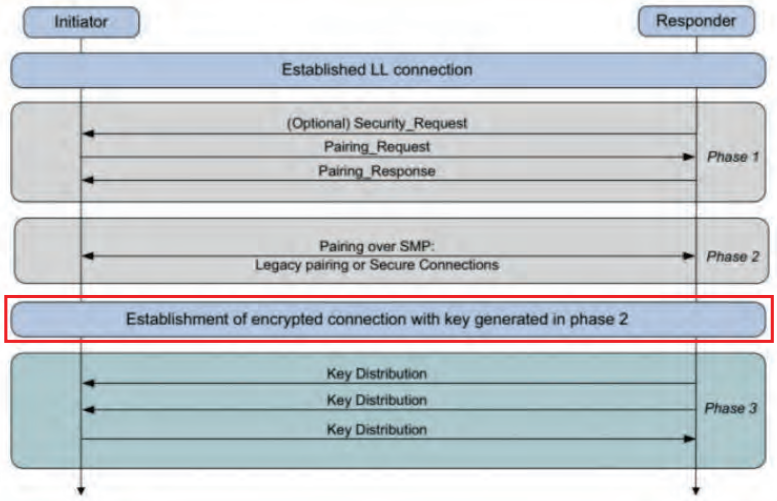


LifeScan, Inc. Ex. 1036
Page 137 of 2225
IPR2025-00102

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.11] transferring the encrypted data from the Bluetooth enabled data capture to the Bluetooth enabled mobile device, over the paired secure | Defendant performs and/or induces others to perform the step of transferring the encrypted data from the Bluetooth enabled data capture to the Bluetooth enabled mobile device, over the paired secure Bluetooth connection, wherein the Bluetooth enabled mobile device has access to the internet, wherein the Bluetooth enabled mobile device is configured to receive the encrypted data and obtain the new data from the encrypted data using cryptographic encryption key. |

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| Bluetooth connection, wherein the Bluetooth enabled mobile device has access to the internet, wherein the Bluetooth enabled mobile device is configured to receive the encrypted data and obtain the new data from the encrypted data using cryptographic encryption key, | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the devices, the Bluetooth devices capture the user's command and send the command to the mobile device through the Bluetooth connection in an encrypted form. The TikTok application in the mobile device receives the user command in the encrypted form and decrypts the received data using an encryption key in order to access the user commands in order to perform the functionality corresponding to the received command. Further, the mobile device comprises built-in wireless connectivity features, such as Wi-Fi and cellular capabilities that enable access to the internet and allows the user to use TikTok app, that requires an internet connection to function.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command securely, in the encrypted form, in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote ("Bluetooth enabled data capture device"), the TikTok app receives the user's command in order to like the subsequent video.<br><br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

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| | In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>  <br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

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| | **2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.5 Encryption**<br>If at least one authentication has been performed encryption may be used. Two encryption mechanisms are defined: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM shall be used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 shall be used when encryption is enabled.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 567 |

| M/O | PDU | Contents |
|---|---|---|
| O | LMP_encryption_mode_req | encryption mode |
| O | LMP_encryption_key_size_req | key size |
| O | LMP_start_encryption_req | random number |
| O | LMP_stop_encryption_req | - |
| O (42) | LMP_pause_encryption_req | |
| O (42) | LMP_resume_encryption_req | |
| O (136) | LMP_pause_encryption_aes_req | random number |

*Table 4.21: Encryption handling PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 568

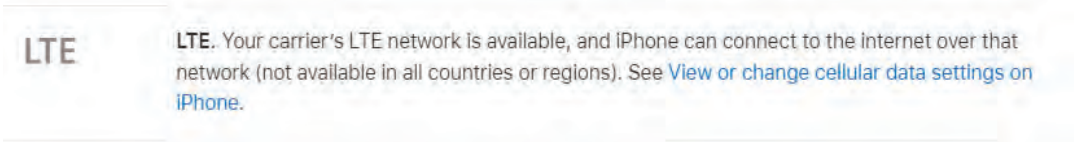
Check Internet connection

Weak data or Wi-Fi signal can also impact your experience on TikTok. Try switching from Wi-Fi to mobile data to troubleshoot whether or not the issue is related to connectivity.

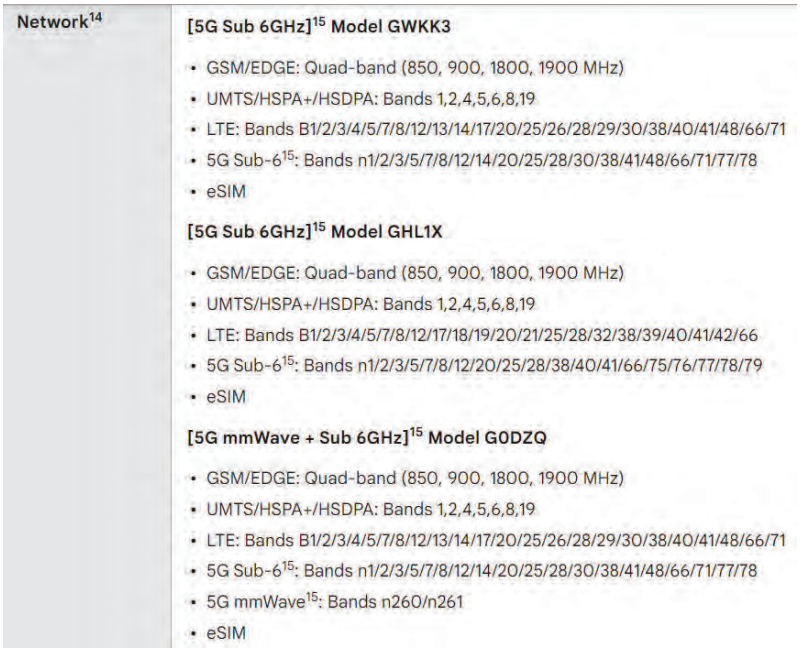
Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps

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| | If iPhone is connected to the internet using the cellular data network, an icon identifying the cellular network appears in the status bar.<br><br>5G, LTE, 4G, and 3G service on GSM cellular networks support simultaneous voice and data communications. For all other cellular connections, you can't use internet services while you're talking o the phone unless iPhone also has a Wi-Fi connection to the internet. Depending on your network connection, you may not be able to receive calls while iPhone transfers data over the cellular network—when downloading a webpage, for example.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Choose cellular data options for data usage, performance, battery life, and more**<br><br>To turn Cellular Data on or off, go to Settings > Cellular.<br><br>To set options when Cellular Data is on, go to Settings > Cellular > Cellular Data Options, then do any of the following:<br><br>• *Reduce cellular usage:* Turn on Low Data Mode, or tap Data Mode, then choose Low Data Mode. This mode pauses automatic updates and background tasks when iPhone isn't connected to Wi-Fi.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Cell signal.** The number of bars indicates the signal strength of your cellular service. If there's no signal, "No Service" appears.<br><br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0 |

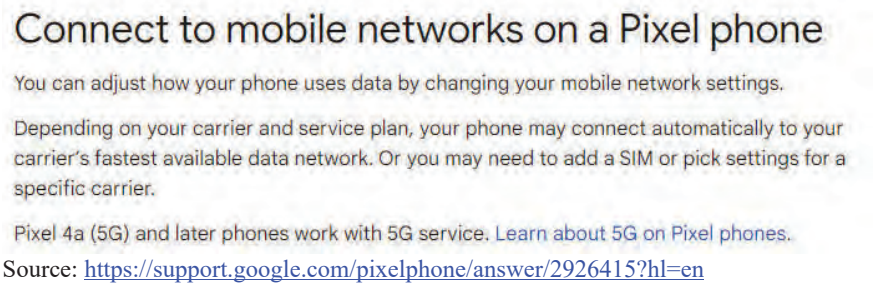
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Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0




Source: https://support.google.com/pixelphone/answer/7158570?hl=en

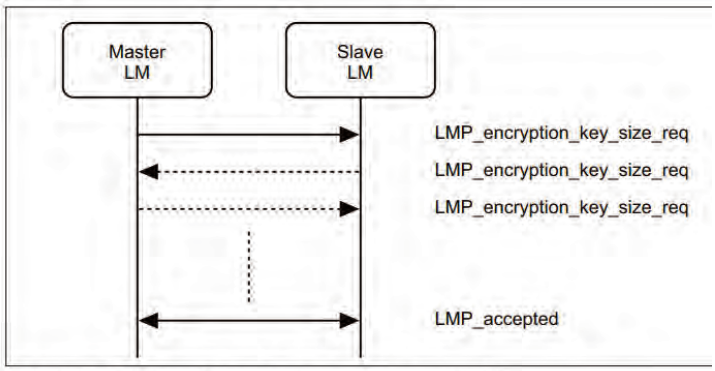



Source: https://support.google.com/pixelphone/answer/2926415?hl=en

**4.2.5.2 Encryption Key Size**

Note: This section uses the same terms as in [Vol 2] Part H, Section 4.1. The master sends an LMP_encryption_key_size_req PDU including the suggested key size $L_{sug, m}$, that is initially equal to $L_{max, m}$. If $L_{min, s} \leq L_{sug, m}$ and the slave supports $L_{sug, m}$ it shall respond with an LMP_accepted PDU and $L_{sug, m}$ shall be used as the key size. If both conditions are not fulfilled the slave sends back an LMP_encryption_key_size_req PDU including the slave's suggested key size $L_{sug, s}$. This value shall be the slave's largest supported key size that is less than $L_{sug, m}$. Then the master performs the corresponding test on the slave's suggestion. This procedure is repeated until a key size agreement is reached or it becomes clear that no such agreement can be reached. If an agreement is reached a device sends an LMP_accepted PDU and the key size in the last LMP_encryption_key_size_req PDU shall be used. After this, encryption is started; see Section 4.2.5.3. If an agreement is not reached a device sends an LMP_not_accepted PDU with the error code *Unsupported*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 569




*Sequence 45: Encryption key size negotiation successful*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 570

Note that there is a significant difference from a cryptographic point of view between Numeric Comparison and the PIN entry model used by Bluetooth Core Specification and earlier versions. In the Numeric Comparison association model, the six digit number is an artifact of the security algorithm and not an input to it, as is the case in the Bluetooth security model. Knowing the displayed number is of no benefit in decrypting the encoded data exchanged between the two devices.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 245

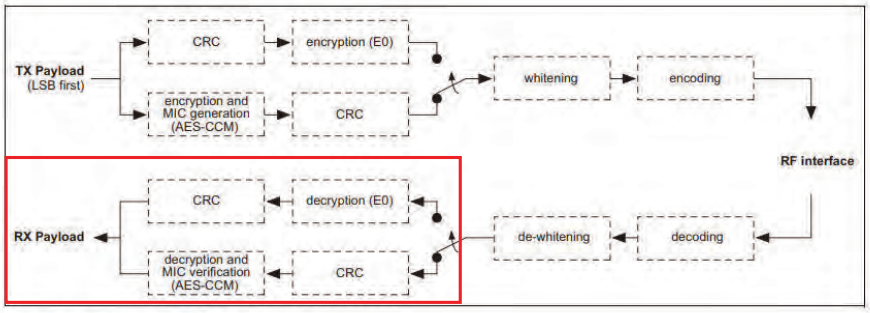



*Figure 7.2: Payload bit processes*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 428

### 4.3.1. Device Time Service characteristic discovery

The Client shall perform either the GATT Discover All Characteristics of a Service sub-procedure or the GATT Discover Characteristics by UUID sub-procedure to discover the characteristics of the service.

The Client should read and evaluate the DT Feature characteristic to learn what fields are to be expected within each DTS characteristic before reading the other characteristics of the DTS or enabling indications and notifications for characteristics.

The Client shall perform the GATT Discover All Characteristic Descriptors sub-procedure to discover the characteristic descriptors as revealed in the remainder of this section.

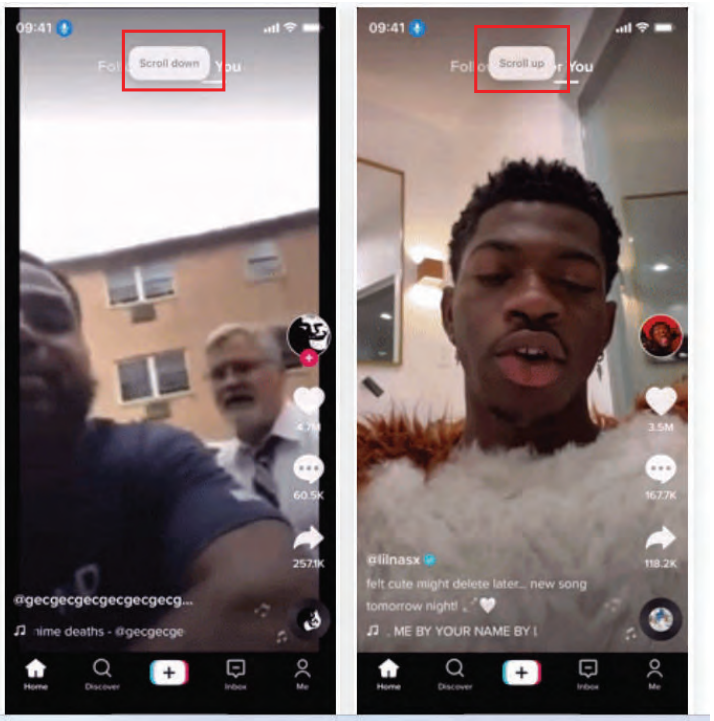
Source: https://www.bluetooth.com/specifications/dtp-1-0/

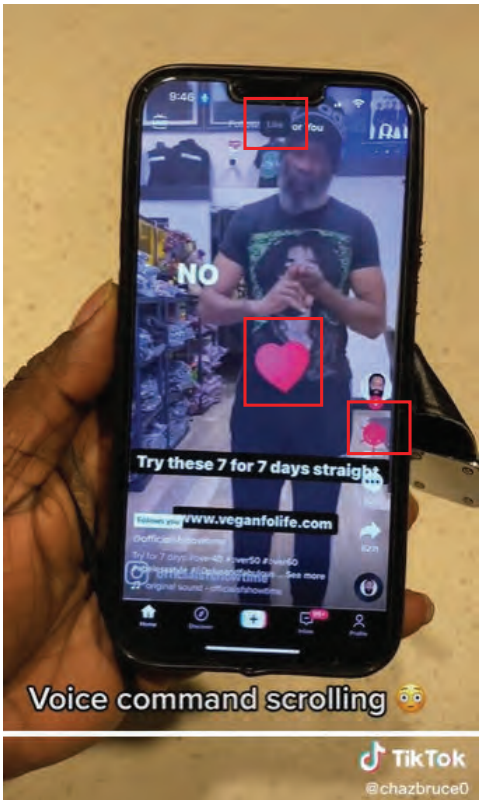
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| | **4.8. Time Change Log Data characteristic behavior**<br><br>The Time Change Log Data characteristic reveals the historical time changes logged by the Server due to changes in time value, time quality, and DT Parameters.<br><br>Clients can use the Segmentation_Header field within the notifications of the Time Change Log Data characteristic to properly reconstruct individual records of time change events by piecing together the Time_Change_Log_Data_Record field of multi-segmented records.<br><br>Clients can then use the Time_Change_Log_Data_Record field within the notifications of Time Change Log Data characteristic to verify timestamps of stored measurements, to audit time change events on the Server, and to evaluate the operational stability of the Server's clock over extended periods of time.<br><br>The Client shall read the DT Feature characteristic to obtain information about whether the Server supports time change logging and the supported time change logging methods implemented by the Server as further specified in the DT Parameters to understand the supported logging fields and thresholds.<br>Source: https://www.bluetooth.com/specifications/dtp-1-0/<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |





LifeScan, Inc. Ex. 1036
Page 149 of 2225
IPR2025-00102

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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LifeScan, Inc. Ex. 1036
Page 152 of 2225
IPR2025-00102

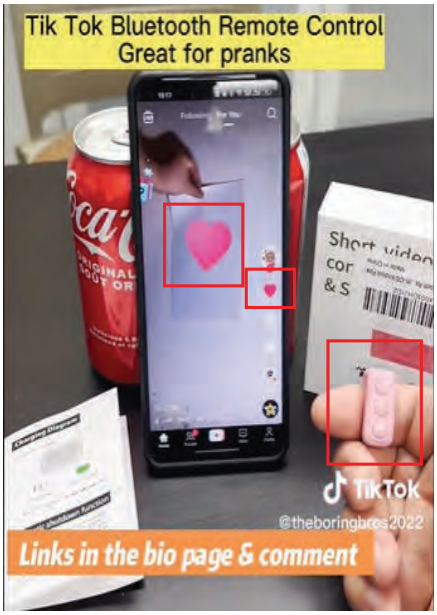
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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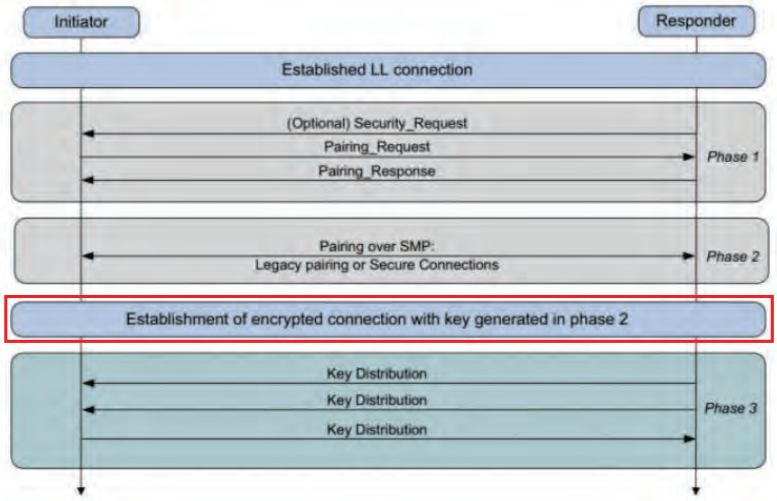


LifeScan, Inc. Ex. 1036
Page 153 of 2225
IPR2025-00102

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.12] wherein the Bluetooth enabled mobile device is configured to apply action setting and destination web address of a remote internet server | Defendant performs and/or induces others to perform the step wherein the Bluetooth enabled mobile device is configured to apply action setting and destination web address of a remote internet server to the obtained new data, wherein action setting comprises one of a remote procedure call (RPC) method and hypertext transfer protocol (HTTP) method, wherein the Bluetooth enabled mobile device is configured to send the obtained new data along with a user identifier to a remote internet server, wherein the user identifier uniquely identifies a particular user of internet service provided by the remote internet server. |

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| to the obtained new data, wherein action setting comprises one of a remote procedure call (RPC) method and hypertext transfer protocol (HTTP) method, wherein the Bluetooth enabled mobile device is configured to send the obtained new data along with a user identifier to a remote internet server, wherein the user identifier uniquely identifies a particular user of internet service provided by the remote internet server. | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to transfer (or backup) the encrypted data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok App for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app.<br><br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

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| | In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>  <br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

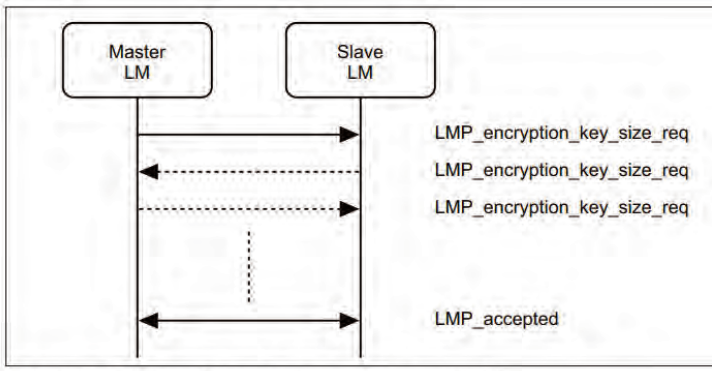
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| | **2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.5 Encryption**<br>If at least one authentication has been performed encryption may be used. Two encryption mechanisms are defined: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM shall be used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 shall be used when encryption is enabled.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 567 |

| M/O | PDU | Contents |
|---|---|---|
| O | LMP_encryption_mode_req | encryption mode |
| O | LMP_encryption_key_size_req | key size |
| O | LMP_start_encryption_req | random number |
| O | LMP_stop_encryption_req | - |
| O (42) | LMP_pause_encryption_req | |
| O (42) | LMP_resume_encryption_req | |
| O (136) | LMP_pause_encryption_aes_req | random number |

*Table 4.21: Encryption handling PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 568

| | |
|---|---|
| | ***4.2.5.2 Encryption Key Size***<br><br>Note: This section uses the same terms as in [Vol 2] Part H, Section 4.1. The master sends an LMP_encryption_key_size_req PDU including the suggested key size $L_{sug, m}$, that is initially equal to $L_{max, m}$. If $L_{min, s} \leq L_{sug, m}$ and the slave supports $L_{sug, m}$ it shall respond with an LMP_accepted PDU and $L_{sug, m}$ shall be used as the key size. If both conditions are not fulfilled the slave sends back an LMP_encryption_key_size_req PDU including the slave's suggested key size $L_{sug, s}$. This value shall be the slave's largest supported key size that is less than $L_{sug, m}$. Then the master performs the corresponding test on the slave's suggestion. This procedure is repeated until a key size agreement is reached or it becomes clear that no such agreement can be reached. If an agreement is reached a device sends an LMP_accepted PDU and the key size in the last LMP_encryption_key_size_req PDU shall be used. After this, encryption is started; see Section 4.2.5.3. If an agreement is not reached a device sends an LMP_not_accepted PDU with the error code *Unsupported*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 569 |




*Sequence 45: Encryption key size negotiation successful*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 570

## Send Video to TikTok Servers

Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.

Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.

| | |
|---|---|
| HTTP URL | Returned in `upload_url` |
| HTTP Method | PUT |

Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

## Initialize video upload

To upload a video to a TikTok user's account, the first step is to initialize the upload.

| | |
|---|---|
| HTTP URL | /v2/post/publish/inbox/video/init/ |
| HTTP Method | POST |
| Scope | video.upload |

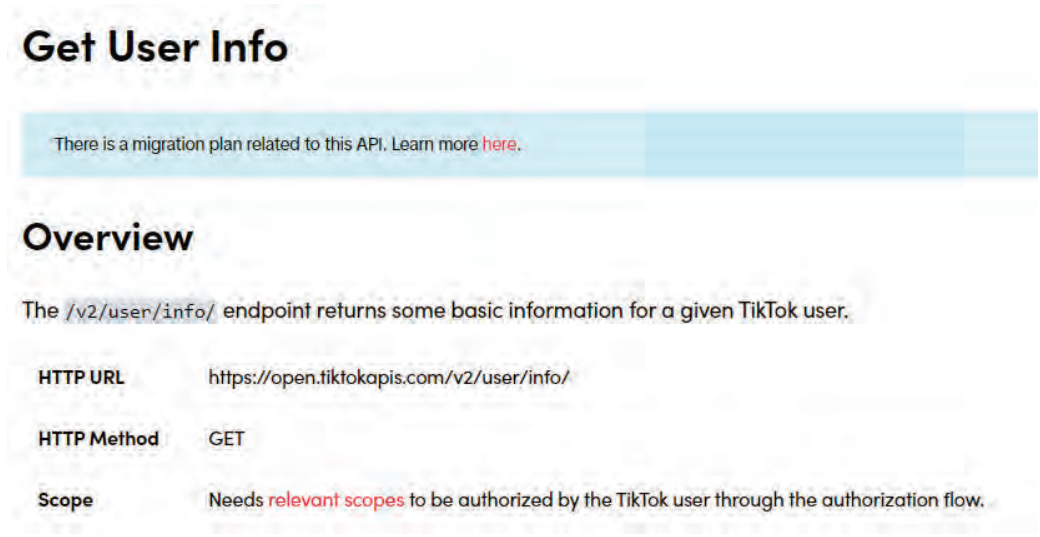
Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

## File upload

Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.

To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference.

Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide



# Get User Info

There is a migration plan related to this API. Learn more here.

## Overview

The `/v2/user/info/` endpoint returns some basic information for a given TikTok user.

| | |
|---|---|
| **HTTP URL** | https://open.tiktokapis.com/v2/user/info/ |
| **HTTP Method** | GET |
| **Scope** | Needs relevant scopes to be authorized by the TikTok user through the authorization flow. |

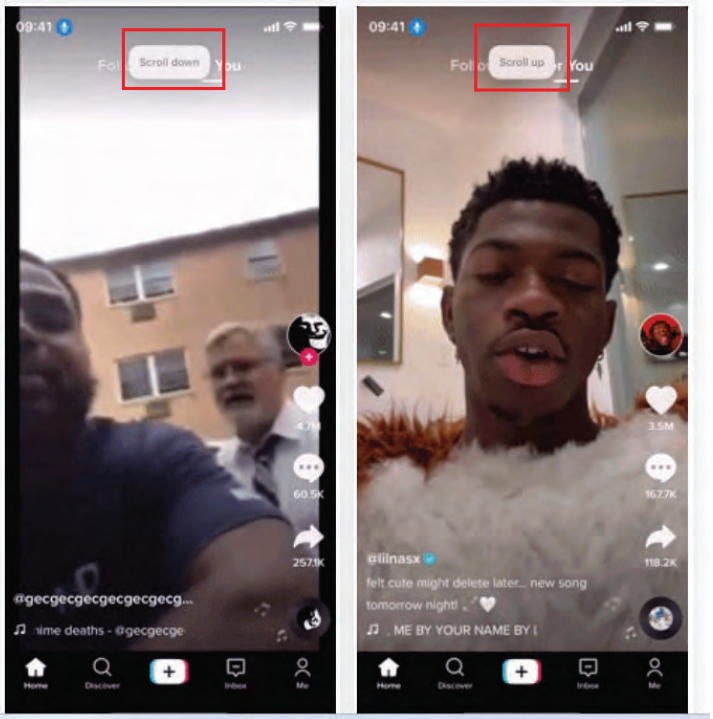
Source: https://developers.tiktok.com/doc/tiktok-api-v2-get-user-info

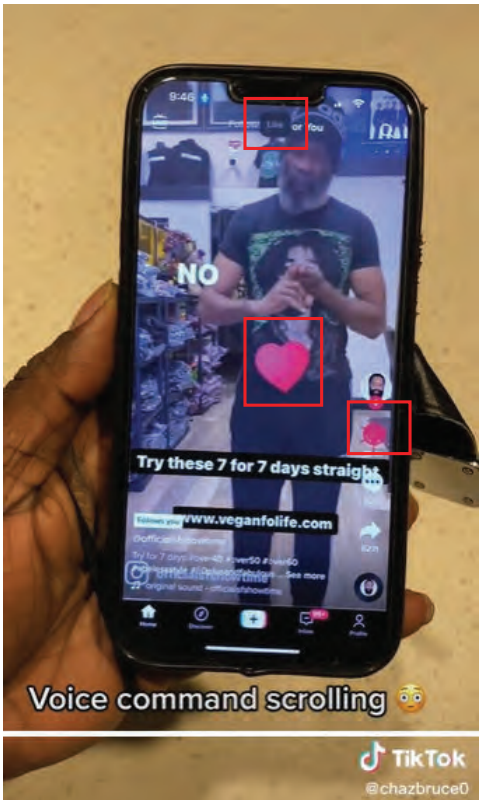
## Information You Provide

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

Source: https://www.tiktok.com/legal/Page/row/privacy-policy/en

| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

166

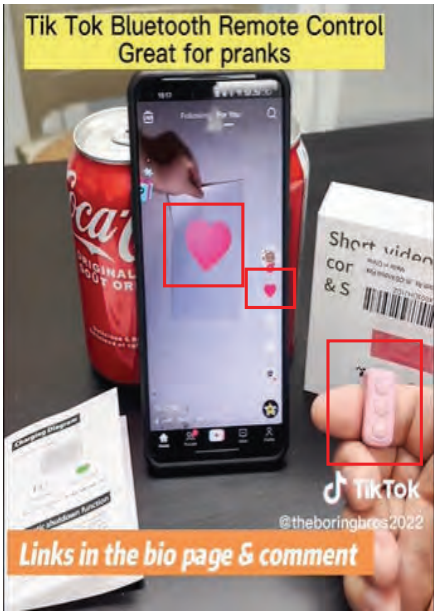
| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 168 of 2225
IPR2025-00102

| | |
|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [2] The method of claim 1, wherein Bluetooth capability is provided internally in the | Defendant performs and/or induces others to perform the method of claim 1, wherein Bluetooth capability is provided internally in the Bluetooth enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

| | |
|---|---|
| Bluetooth enabled data capture device. | For example, the Bluetooth devices ("Bluetooth enabled data capture device") including, but not limited to, AirPods, Bluetooth enabled earphones, and Bluetooth remotes contains Bluetooth functionality which includes a software module that allows the Bluetooth devices to connect and communicate with the mobile device on which the TikTok app is installed. The user is allowed to remotely control the TikTok app installed on the mobile device via Bluetooth devices.<br>  <br><br>Source: https://developer.apple.com/bluetooth/ |





LifeScan, Inc. Ex. 1036
Page 170 of 2225
IPR2025-00102

| | |
|---|---|
| | **Bluetooth**<br><br>Android provides a default Bluetooth stack that supports both Classic Bluetooth and Bluetooth Low Energy. Using Bluetooth, Android devices can create personal area networks to send and receive data with nearby Bluetooth devices.<br><br>  <br><br><br>In Android 4.3 and later, the Android Bluetooth stack provides the ability to implement Bluetooth Low Energy (BLE). To fully leverage the BLE APIs, follow the Android Bluetooth HCI Requirements. Android devices with a qualified chipset can implement either Classic Bluetooth or both Classic Bluetooth and BLE. BLE is not backwards compatible with older Bluetooth chipsets.<br><br>In Android 8.0, the native Bluetooth stack is fully qualified for Bluetooth 5. To use available Bluetooth 5 features, the device needs to have a Bluetooth 5 qualified chipset.<br><br>Source: https://source.android.com/docs/core/connect/bluetooth |





LifeScan, Inc. Ex. 1036
Page 171 of 2225
IPR2025-00102

| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

172



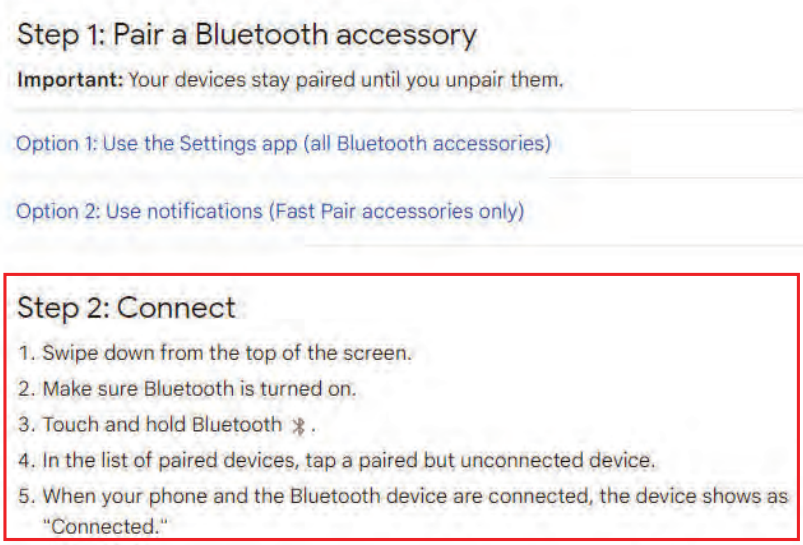
LifeScan, Inc. Ex. 1036
Page 172 of 2225
IPR2025-00102

| | |
|---|---|
| | **If an app would like to use Bluetooth on your device**<br>Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.<br><br>**About Bluetooth privacy settings**<br>Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.<br>Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.<br>Source: https://support.apple.com/en-us/HT210578 |





LifeScan, Inc. Ex. 1036
Page 173 of 2225
IPR2025-00102




Source: https://support.google.com/android/answer/9075925?hl=en

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

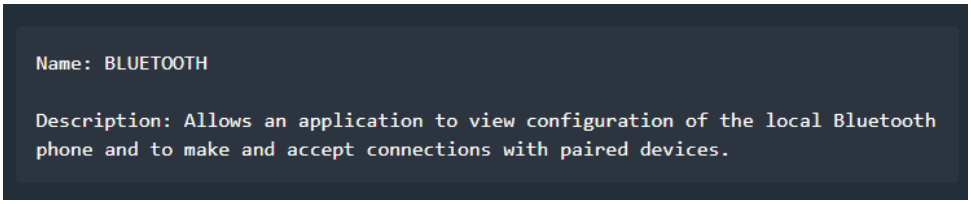
In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

### Bluetooth permissions

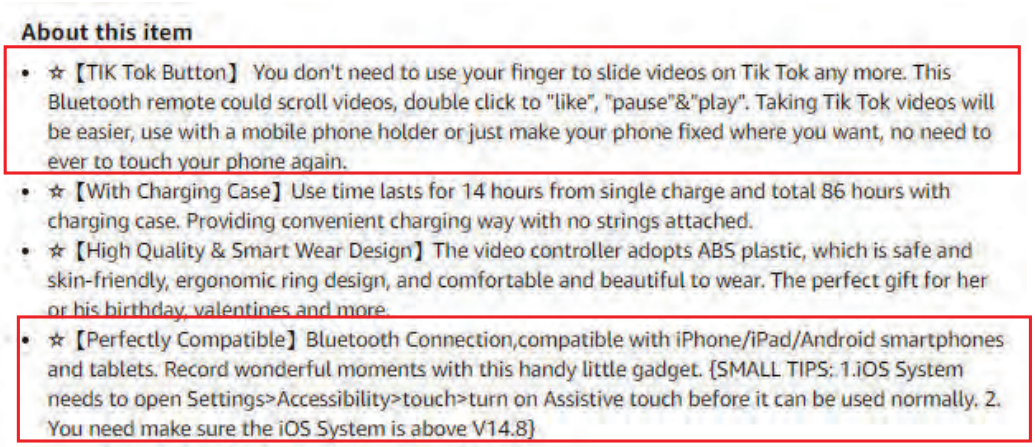
In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth

| | |
|---|---|
| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

177

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4] The method of claim 1, wherein the new data for transfer comprises one or more of audio data, video data, image data, text data, or digital data. | Defendant performs and/or induces others to perform the method of claim 1, wherein the new data for transfer comprises one or more of audio data, video data, image data, text data, or digital data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command ("audio data") provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and |

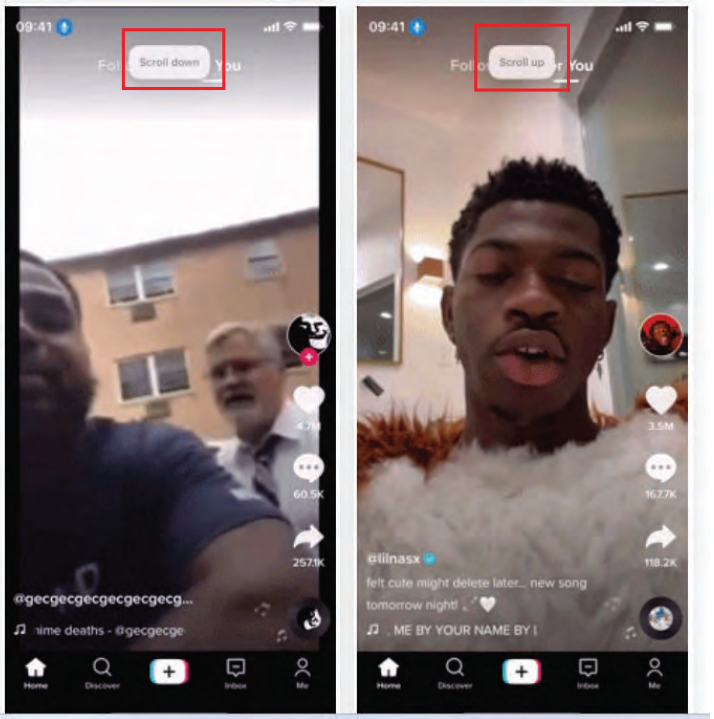
| | |
|---|---|
| | information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as “Double Tap” or “Scroll Down” (“new-data”) on AirPods or earphones, the TikTok app receives the user’s command in order to ‘like’ or ‘scroll down’ the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user’s command as a signal notification in order to like or scroll the subsequent video.<br><br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

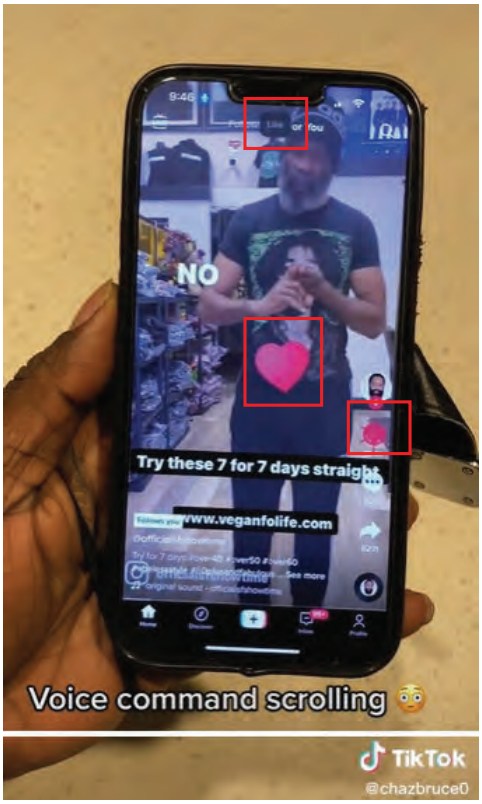
| | |
|---|---|
| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



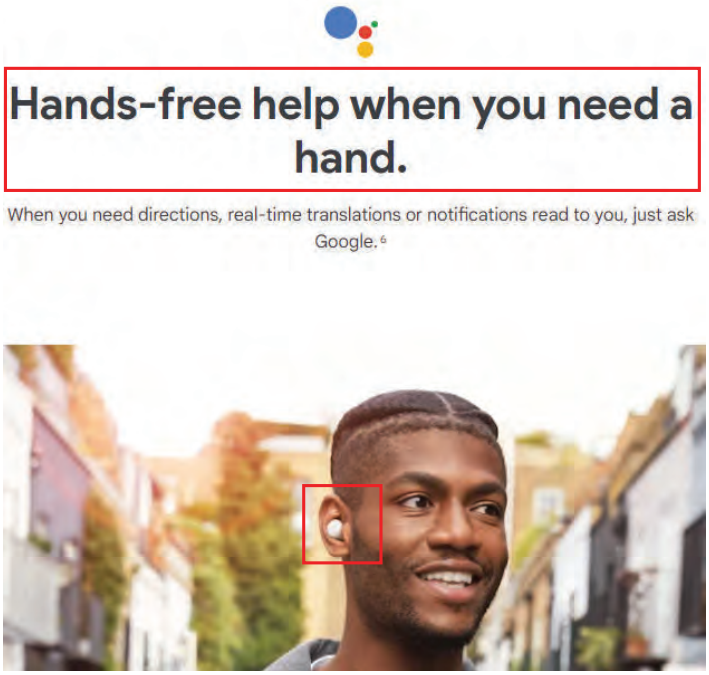


LifeScan, Inc. Ex. 1036
Page 180 of 2225
IPR2025-00102

| | |
|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

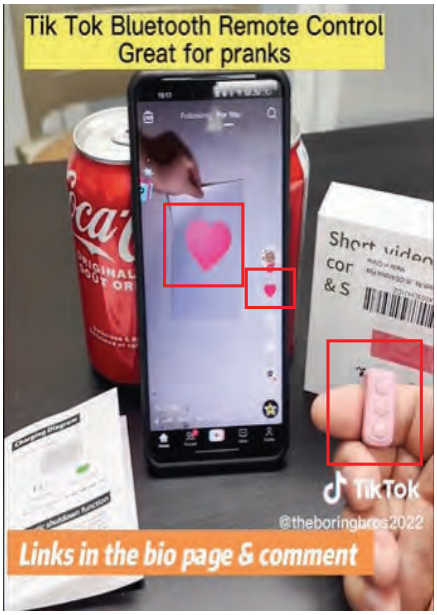




LifeScan, Inc. Ex. 1036
Page 185 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

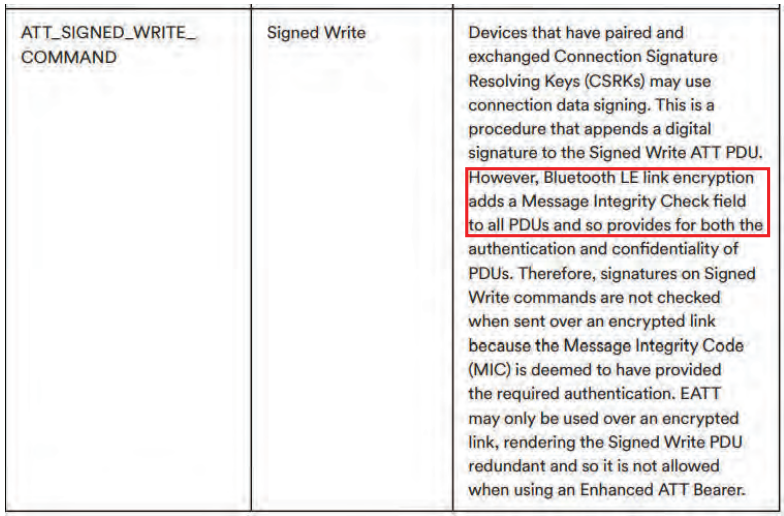
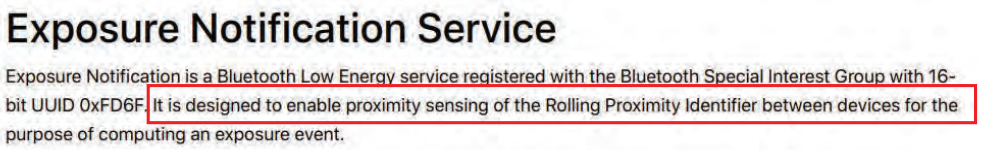
| | |
|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [5] The method of claim 1, wherein event notification corresponds to creation of new data for transfer or change in | Defendant performs and/or induces others to perform the method of claim 1, wherein event notification corresponds to creation of new data for transfer or change in status of new data for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

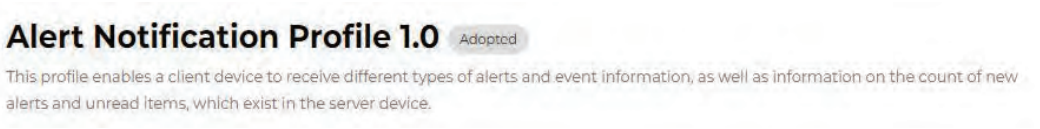
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| status of new data for transfer. | For example, after establishing Bluetooth connection, BLE allows the mobile device to send a message to the Bluetooth device, intending to enable event notifications on the Bluetooth device, notifying the mobile device when the new data is acquired. Therefore, the event notification corresponds to creation of new data for transfer.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized to transfer the data from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control specification), including, but not limited to, AirPods, Earphones and Bluetooth remotes, to the Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed. The mobile devices notify ("sending a message") the Bluetooth devices, to register and send them notifications when the new data is acquired.<br><br>3. CT devices have the capability to provide a NOTIFY AV/C command to the TG, to register for specific events on the TG.<br>4. The TG shall for every supported NOTIFY AV/C command send an INTERIM response to the CT with the current status of the registered event within $T_{MTP}$ from the time of registration.<br><br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 38<br><br>**6.7 Notification PDUs**<br>The Notification PDUs are used to obtain synchronous as well as asynchronous updates from the TG based on change of status at the target's side.<br><br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/ |

189

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

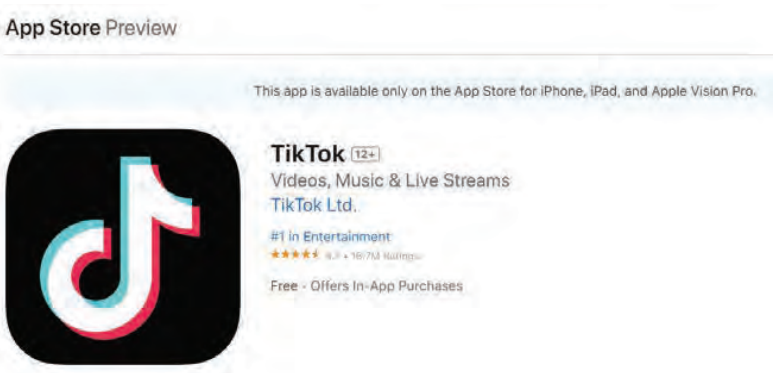
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| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

191

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| |  <br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6.P] A method for transferring data from a Bluetooth enabled data capture device to a remote internet server via a Bluetooth enabled mobile device comprising: | ByteDance ("Defendant") performs and/or induces others to perform a method for transferring data from a Bluetooth enabled data capture device to a remote internet server via a Bluetooth enabled mobile device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, Defendant provides TikTok[3]app which is installed in a mobile device such as iPhone and an Android phone ("Bluetooth enabled mobile device"). The TikTok app installed in the mobile device can be remotely controlled through Bluetooth devices such as AirPods and Bluetooth remotes[4]. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided to the Bluetooth devices.<br><br>Further, the TikTok app uploads ("transferring") data provided by the user, via the Bluetooth Devices, on the Defendant's servers ("remote internet server"). The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'.<br><br>For example, mobile devices such as iPhones and Android phones on which the TikTok app is installed are sold on the TikTok app using the TikTok Shop functionality. |

[3]While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

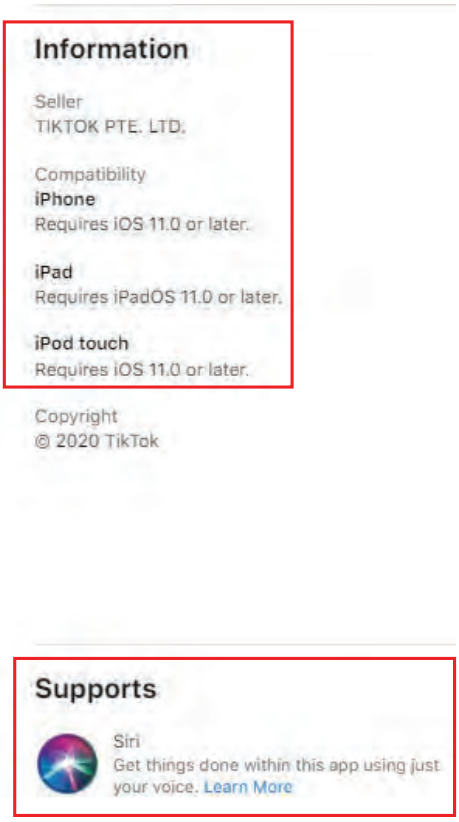
[4] TikTok app is compatible with a wide variety of Bluetooth remotes, for example, Smart Ring Controller and other Bluetooth remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

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| |  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

193



LifeScan, Inc. Ex. 1036
Page 193 of 2225
IPR2025-00102




Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

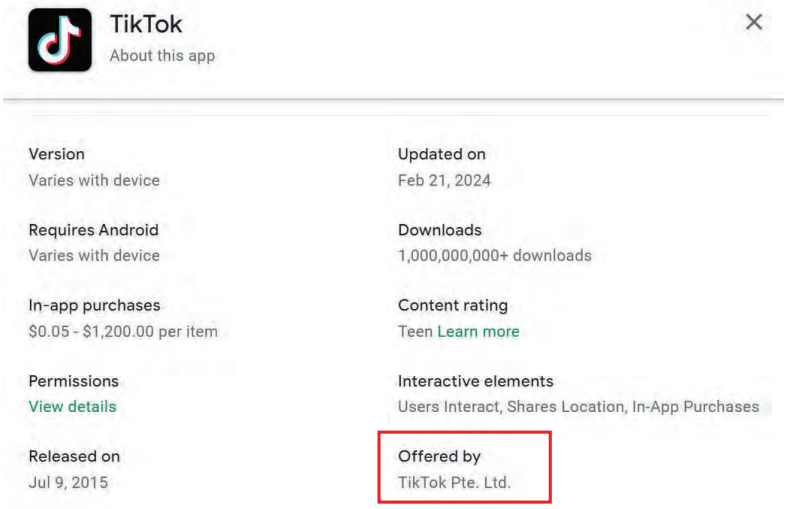




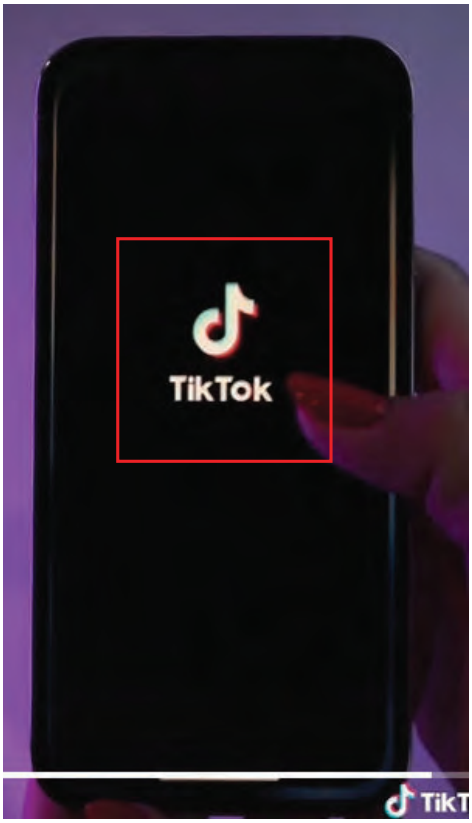
LifeScan, Inc. Ex. 1036
Page 194 of 2225
IPR2025-00102




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

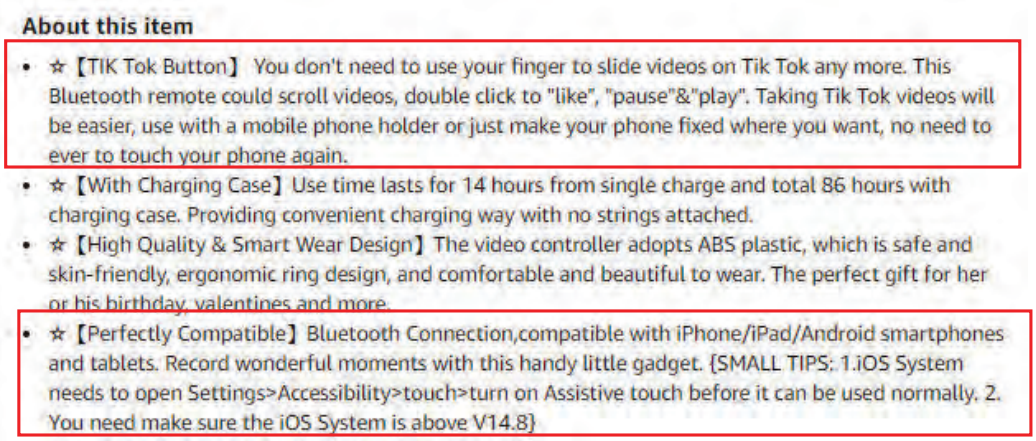
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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |





LifeScan, Inc. Ex. 1036
Page 196 of 2225
IPR2025-00102

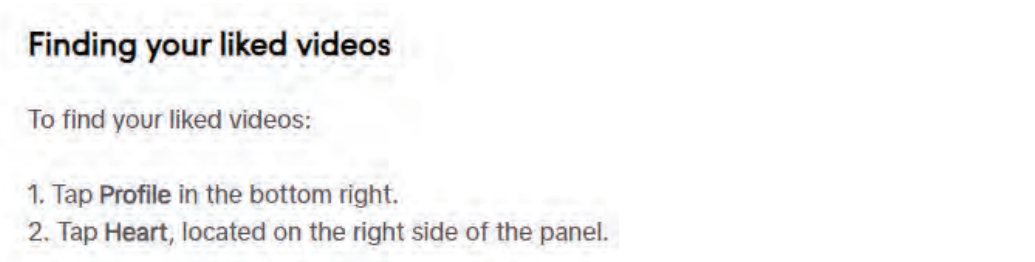
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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa



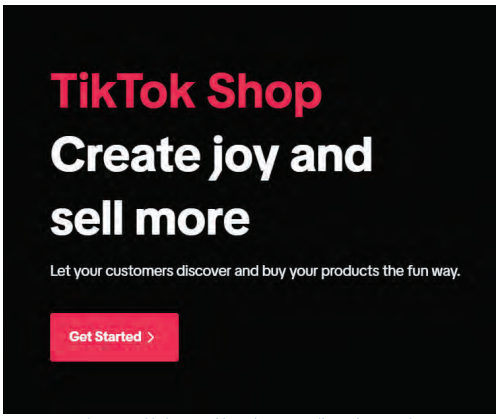
**Finding your liked videos**

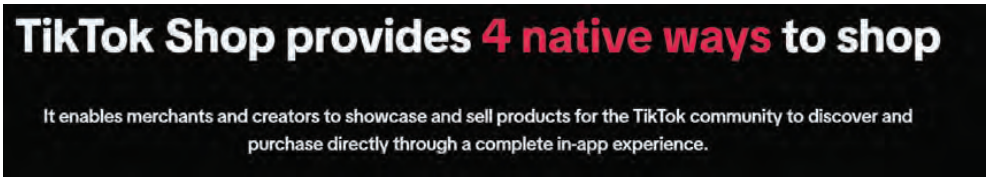
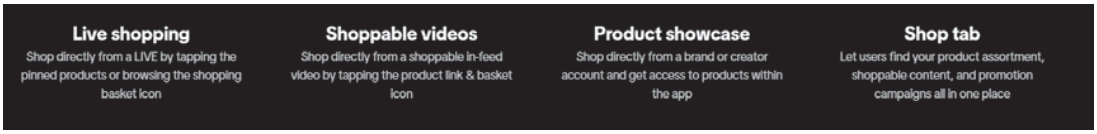
To find your liked videos:

1. Tap **Profile** in the bottom right.
2. Tap **Heart**, located on the right side of the panel.

Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking

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| | If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/<br><br>**Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |

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| | For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance<br>  <br>Source: https://shop.tiktok.com/business/en |

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| |  <br>Source: https://shop.tiktok.com/business/en<br>  <br>Source: https://shop.tiktok.com/business/en |

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| | **Seller**<br><br>TikTok Shop enables brands to showcase and sell products for the TikTok community to discover and purchase.<br><br>**Purchase & Conversion**<br>With an all-in-app experience, there is no redirection to partnered shopping apps or websites, meaning higher conversion and sales.<br><br>**Campaigns & Promotion**<br>Get access to TikTok Shop's platform campaigns and extensive selection of promotion tools.<br><br>**Direct Creator Collaboration**<br>Discover, communicate and collaborate with thousands of creators through our affiliate programme directly accessible on TikTok Shop.<br><br>**Performance Analysis**<br>Track performance, traffic, customer reviews and transaction data through TikTok Shop's data dashboards<br><br>Source: https://shop.tiktok.com/business/en |





LifeScan, Inc. Ex. 1036
Page 202 of 2225
IPR2025-00102

## How does TikTok Commerce work?

TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.

Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en

### About TikTok Shop

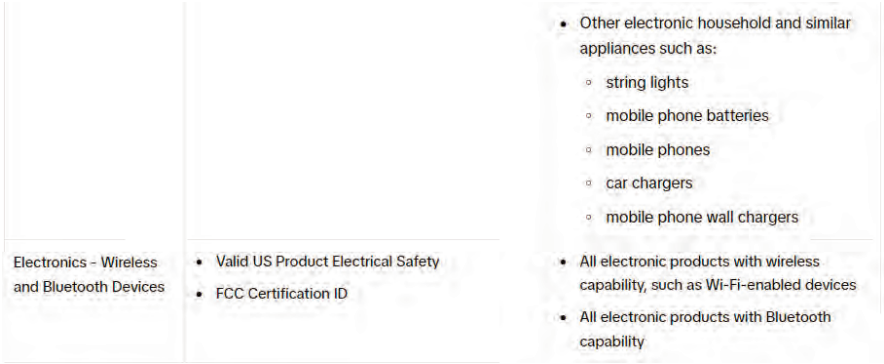
TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.

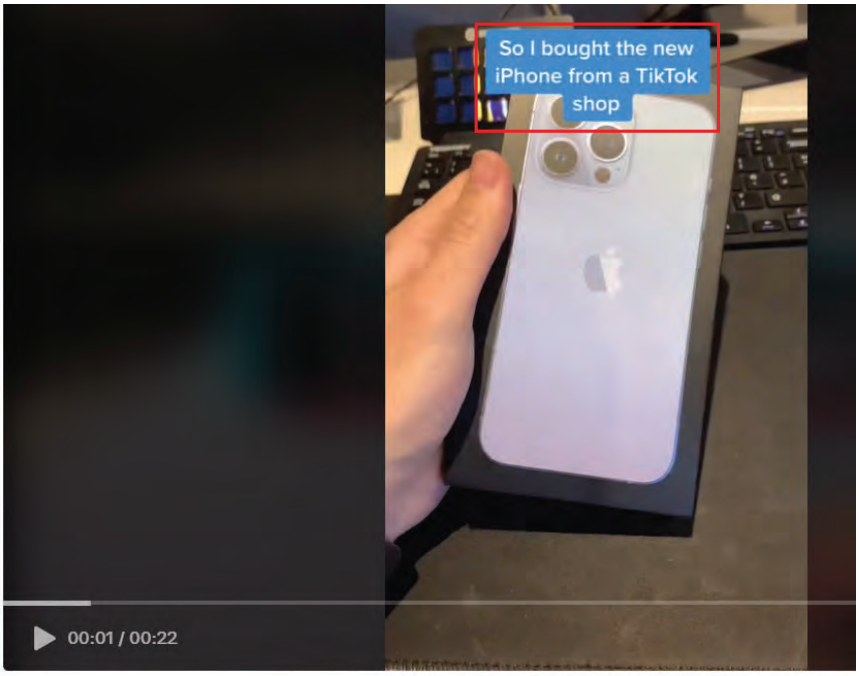
Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.

- See TikTok Shop and Showcase
- See How to Add Product Links to TikTok Videos

With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.

Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en

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| | **Electrical Products and Electronics**<br>Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.<br>Electrical and electronic products include but are not limited to:<br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy<br>  <br>Electronics - Wireless and Bluetooth Devices<br>• Valid US Product Electrical Safety<br>• FCC Certification ID<br>• Other electronic household and similar appliances such as:<br>◦ string lights<br>◦ mobile phone batteries<br>◦ mobile phones<br>◦ car chargers<br>◦ mobile phone wall chargers<br>• All electronic products with wireless capability, such as Wi-Fi-enabled devices<br>• All electronic products with Bluetooth capability<br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

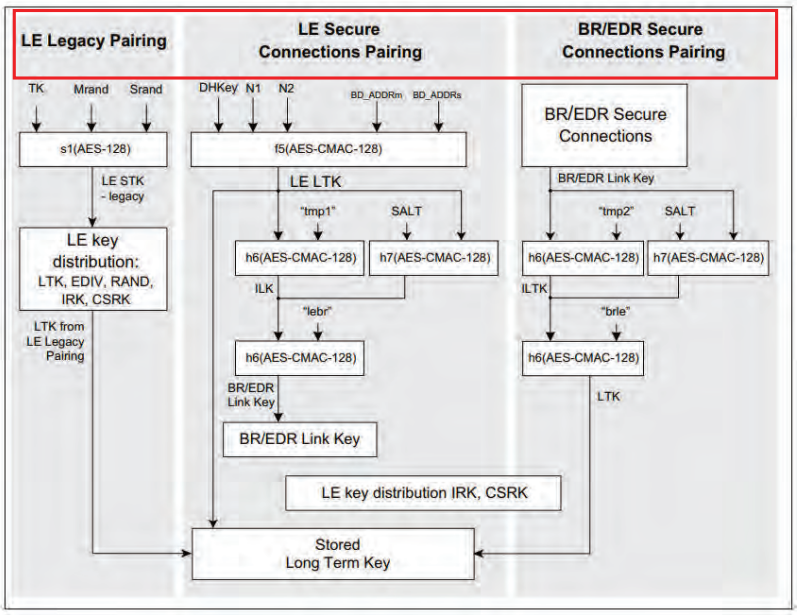
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| |  <br>So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime<br>Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502, at 0:01<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |





LifeScan, Inc. Ex. 1036
Page 205 of 2225
IPR2025-00102

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| [6.1] performing at a Bluetooth enabled data capture device: establishing a paired secure Bluetooth connection between the Bluetooth enabled data capture device and the Bluetooth enabled mobile device, wherein the paired secure Bluetooth connection uses cryptographic encryption key; | Defendant performs and/or induces others to perform the step of performing at a Bluetooth enabled data capture device: establishing a paired secure Bluetooth connection between the Bluetooth enabled data capture device and the Bluetooth enabled mobile device, wherein the paired secure Bluetooth connection uses cryptographic encryption key.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device ("Bluetooth enabled mobile device") which comprises Bluetooth. Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("Bluetooth enabled data capture device"). The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the mobile device and the Bluetooth device are connected through an encrypted connection created by exchanging secret keys ("cryptographic encryption key"). The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries |

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| | Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240<br>  <br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242 |

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

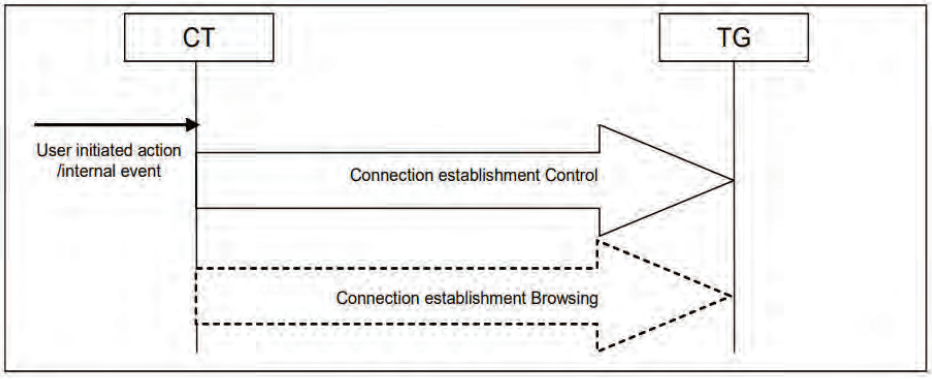



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

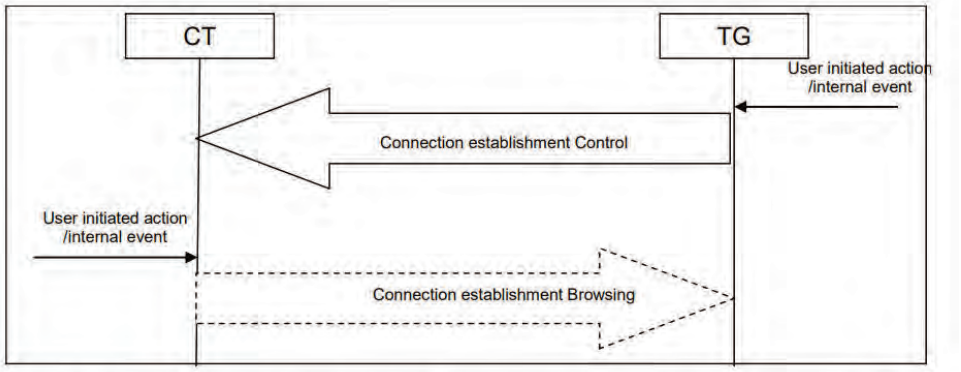



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

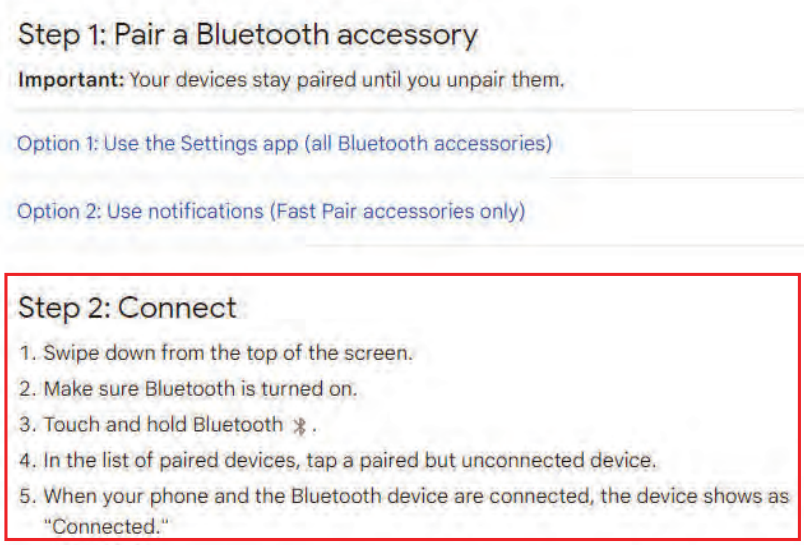
| | |
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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

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| | Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br><br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web<br>**Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US |




Source: https://support.google.com/android/answer/9075925?hl=en



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

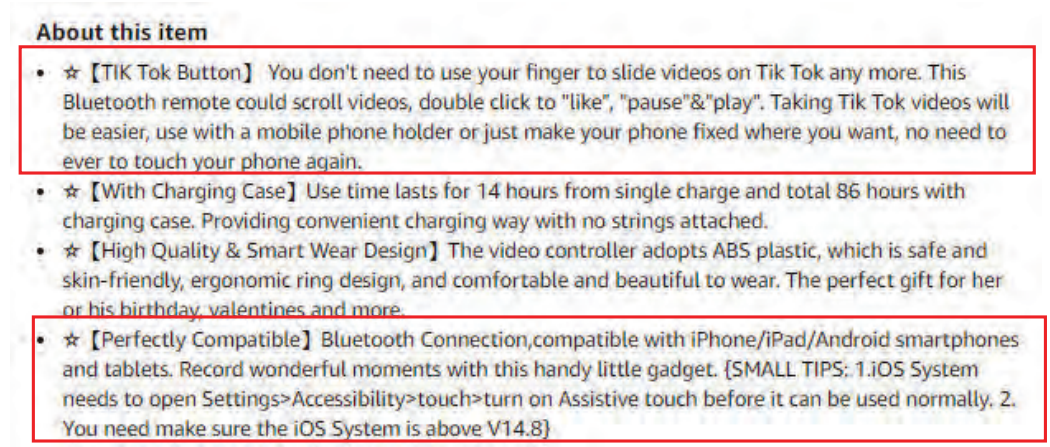
**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

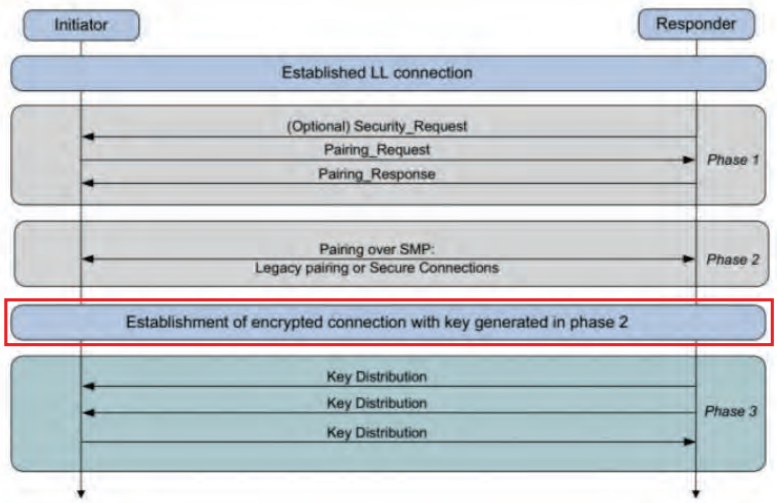
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

| | |
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| | Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>**2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.<br>5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.9 Authentication**<br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

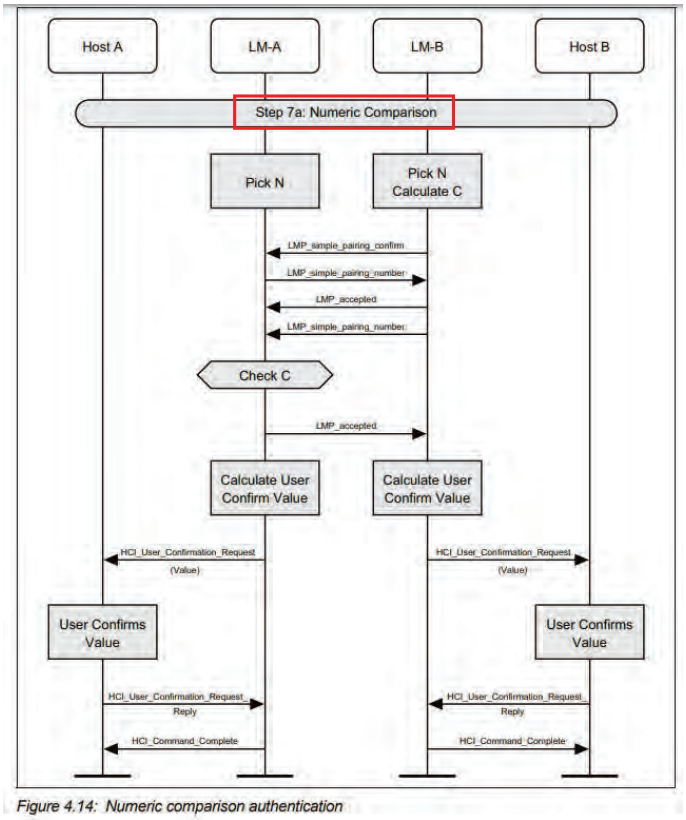



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

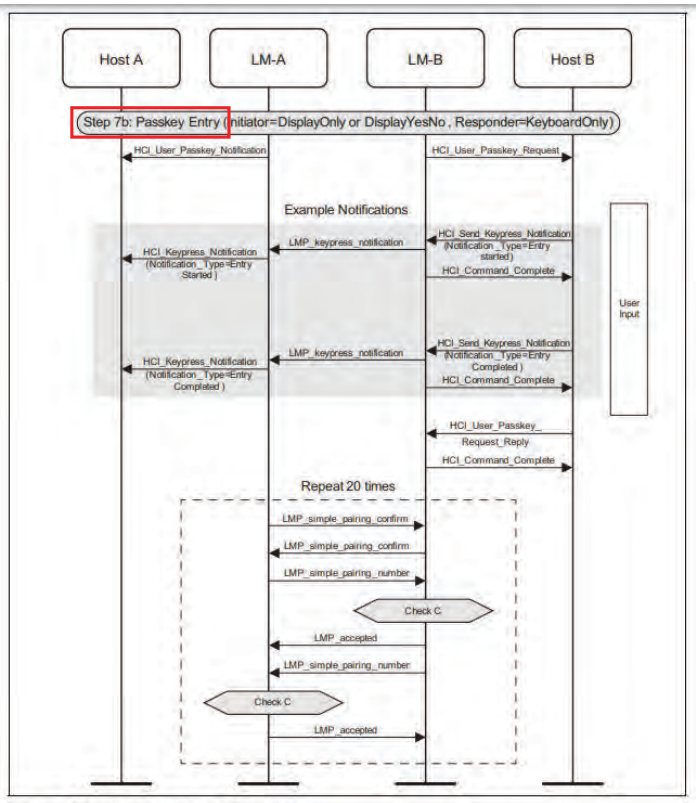
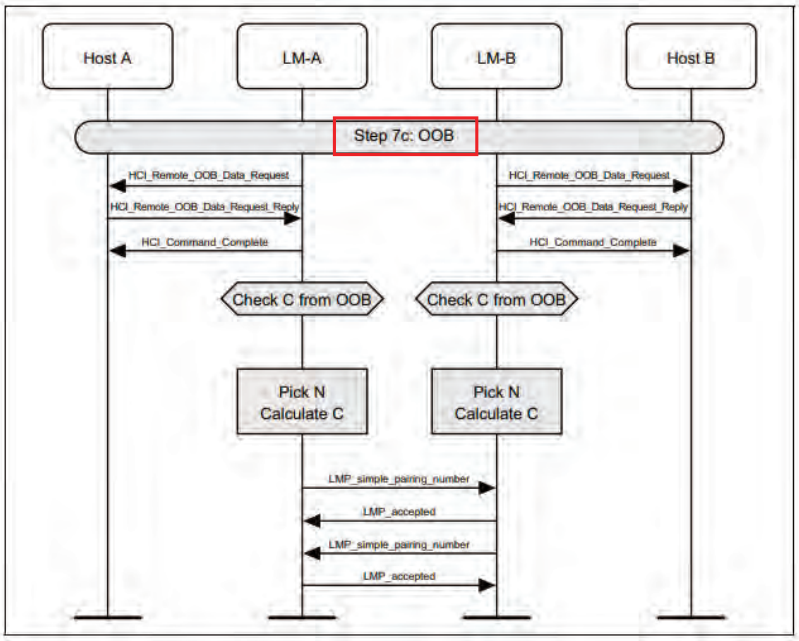



*Figure 4.17: Passkey entry authentication*

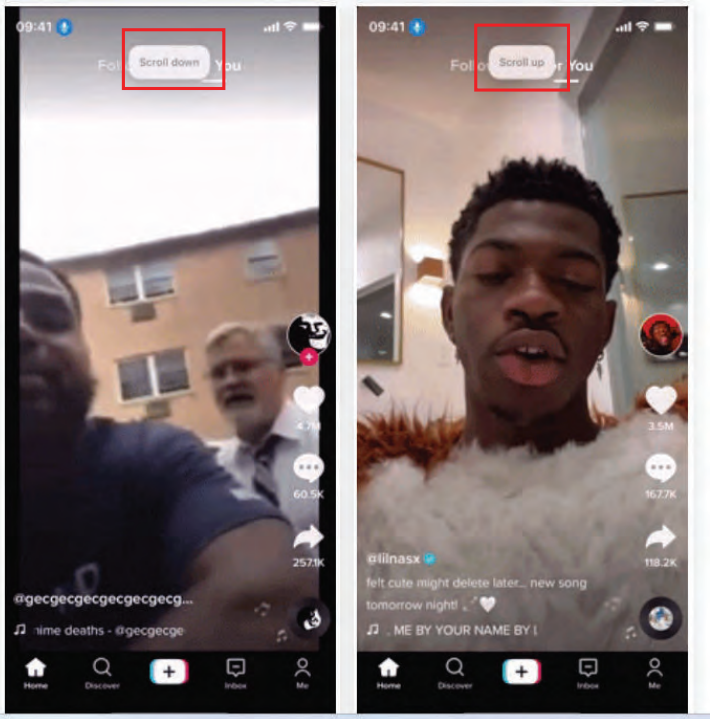
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

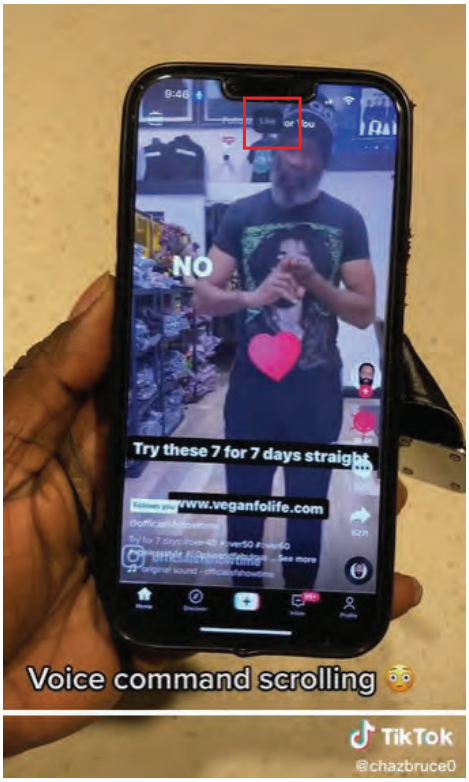
| | |
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| |  <br>*Figure 4.20: OOB authentication (P-192)*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6.2] acquiring new data in the Bluetooth enabled data capture device, wherein new data is data | Defendant performs and/or induces others to perform the step of acquiring new data in the Bluetooth enabled data capture device, wherein new data is data acquired after the paired secure Bluetooth connection is established. |

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| acquired after the paired secure Bluetooth connection is established; | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device ("Bluetooth enabled data capture device"), the Bluetooth device captures the user's command ("new-data") using its data capture circuitry, processes it and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is processed and transferred to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down", the Bluetooth devices such as AirPods or earphones capture the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button, the Bluetooth remote captures the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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| | Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br><br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br><br>  <br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

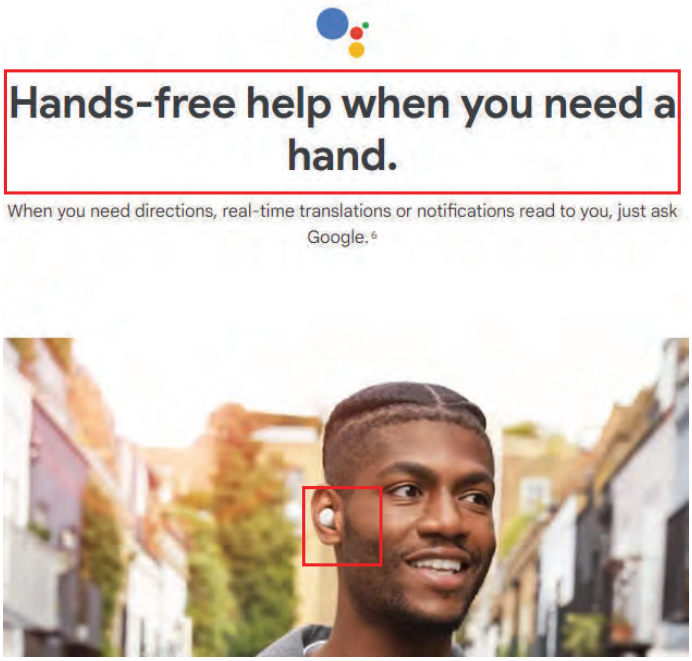
| | |
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| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |





LifeScan, Inc. Ex. 1036
Page 227 of 2225
IPR2025-00102




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

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| | BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

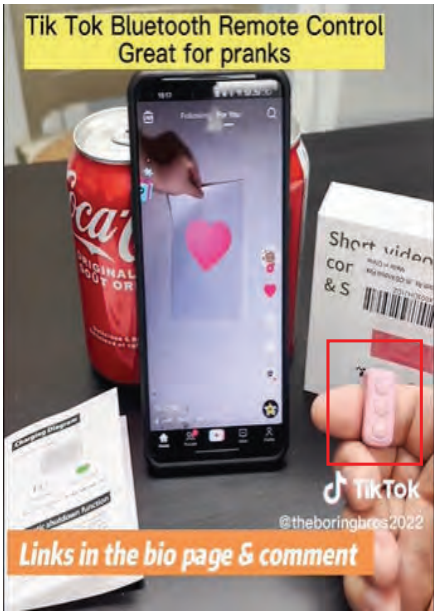
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

230




Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

| | |
|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6.3] detecting and signaling the new data for transfer, to the Bluetooth enabled mobile device, | Defendant performs and/or induces others to perform the step of detecting and signaling the new data for transfer, to the Bluetooth enabled mobile device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

| | |
|---|---|
| | For example, the TikTok app installed on the mobile device receives the command provided through Bluetooth devices such as AirPods, earphones or Bluetooth remote. As is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled data capture device acquires new data (audio command or the button pressed on the Bluetooth remote) and then notifies the Bluetooth module (of the mobile device) about the availability of the transfer of the new data by sending an event notification ("signaling the new data for transfer").<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("new-data") on AirPods or earphones, the TikTok app detects the user's command. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app detects the user's command.<br><br>A new Data Channel PDU is a Data Channel PDU sent for the first time by the Link Layer. A last Data Channel PDU is a Data Channel PDU that is resent by the Link Layer. When resending a Data Channel PDU, the LLID field, the SN field and the payload of the sent Data Channel PDU shall be equal to those of the last Data Channel PDU sent by the Link Layer.<br><br>For each new Data Channel PDU that is sent, the SN bit of the Header shall be set to *transmitSeqNum*. If a Data Channel PDU is resent, then the SN bit shall not be changed.<br><br>Upon reception of a Data Channel PDU, the SN bit shall be compared to *nextExpectedSeqNum*. If the bits are different, then this is a resent Data Channel PDU, and *nextExpectedSeqNum* shall not be changed. If the bits are the same, then this is a new Data Channel PDU, and *nextExpectedSeqNum* may be incremented by one (see Section 4.5.9.1).<br><br>When a Data Channel PDU is sent, the NESN bit of the Header shall be set to *nextExpectedSeqNum*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649 |

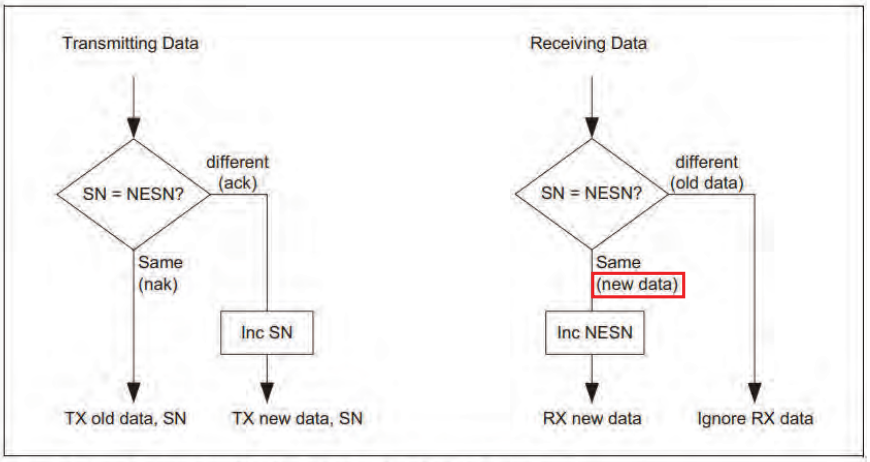



*Figure 4.39: Transmit and Receive SN and NESN flow diagram*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649

Connectionless Slave Broadcast packets are transmitted at each scheduled Connectionless Slave Broadcast Instant. If no new data is available, the Connectionless Slave Broadcast Transmitter shall transmit a packet with the last available data in the payload.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 441

| Value | Parameter Description |
|---|---|
| Variable | Data to send in future Connectionless Slave Broadcast packets. This data will be repeated in future Connectionless Slave Broadcast instants until new data is provided |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1030

If Operation indicates the start of new data (values 0x01 or 0x03), then any existing partial or complete advertising data shall be discarded. If the Advertising_Data_Length parameter is zero and Operation is 0x03, any existing partial or complete data shall be deleted (with no new data provided).

If Operation is 0x04, the behavior is the same as if the current advertising data had been sent again; this can be used to cause the Advertising DID value to be updated (see [Vol 6] Part B, Section 4.4.2.11).

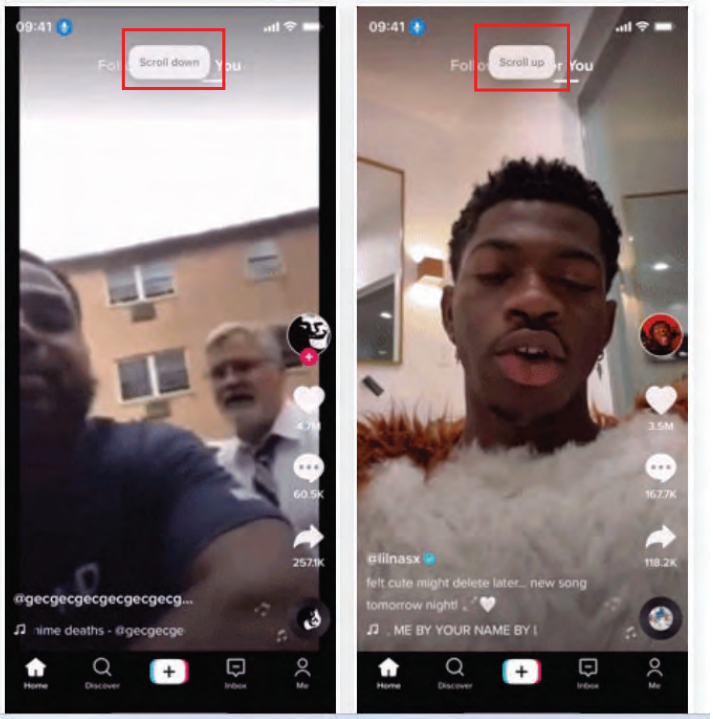
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1345

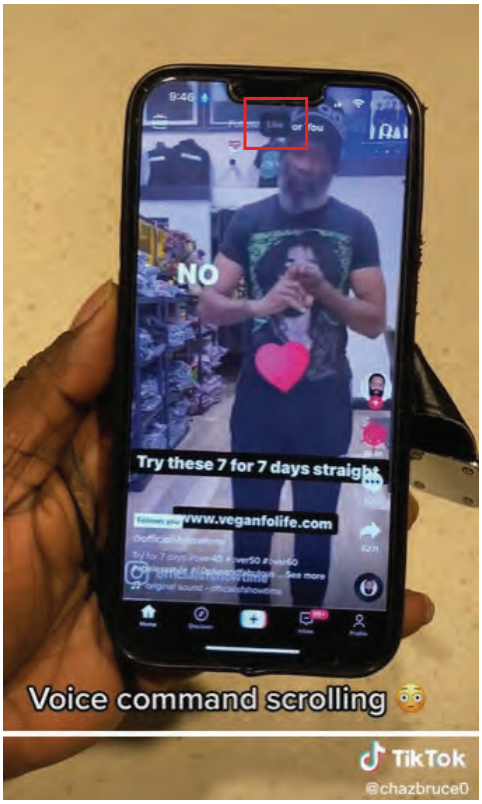
| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |





LifeScan, Inc. Ex. 1036
Page 237 of 2225
IPR2025-00102

| | |
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

| | |
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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |





LifeScan, Inc. Ex. 1036
Page 240 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

241



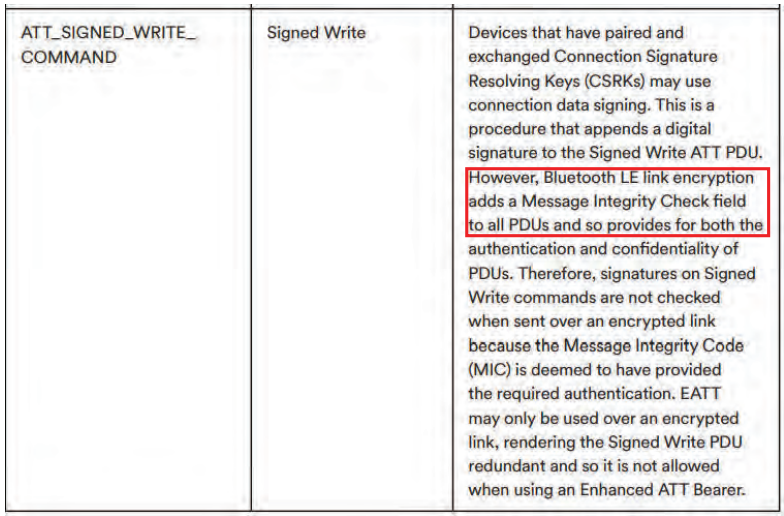
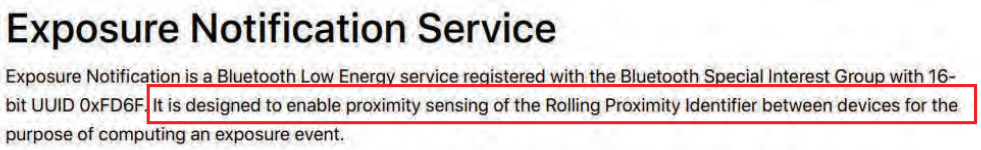
LifeScan, Inc. Ex. 1036
Page 241 of 2225
IPR2025-00102

| | |
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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6.4] wherein detecting and signaling the new data for transfer comprises: receiving a message from the Bluetooth enabled mobile | Defendant performs and/or induces others to perform the step wherein detecting and signaling the new data for transfer comprises: receiving a message from the Bluetooth enabled mobile device, over the established paired secure Bluetooth connection, to register for data signal notifications, wherein the data signal notifications correspond to existence of new data for transfer on the Bluetooth enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| device, over the established paired secure Bluetooth connection, to register for data signal notifications, wherein the data signal notifications correspond to existence of new data for transfer on the Bluetooth enabled data capture device; | For example, after establishing Bluetooth connection, BLE allows the mobile device ("Bluetooth enabled mobile device") to send a message ("request") to the Bluetooth device ("Bluetooth enabled data captured device"), intending to enable event notifications on the Bluetooth device, notifying the mobile device when the new data is acquired.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized to transfer the data from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control specification), including, but not limited to, AirPods, Earphones and Bluetooth remotes, to the Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed. The mobile devices requests the Bluetooth devices, to register and send them notifications when the new data is acquired.<br><br>3. CT devices have the capability to provide a NOTIFY AV/C command to the TG, to register for specific events on the TG.<br>4. The TG shall for every supported NOTIFY AV/C command send an INTERIM response to the CT with the current status of the registered event within $T_{MTP}$ from the time of registration.<br><br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 38<br><br>**6.7 Notification PDUs**<br>The Notification PDUs are used to obtain synchronous as well as asynchronous updates from the TG based on change of status at the target's side.<br><br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/ |

243

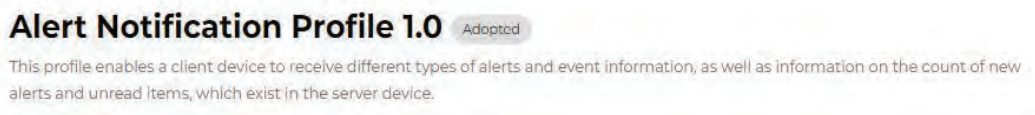
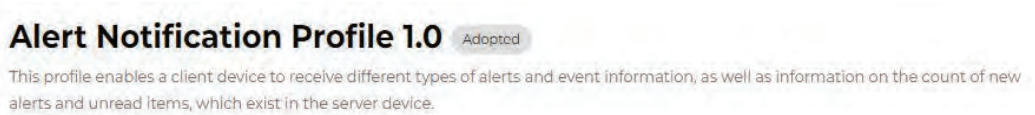
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|---|---|
| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

| | |
|---|---|
| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

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|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

## Exposure Notification Service

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

| | |
|---|---|
| |  <br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6.5] determining existence of the new data for transfer; and | Defendant performs and/or induces others to perform the step of determining existence of the new data for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, once the Bluetooth pairing is done securely between the Bluetooth enabled cellular phone and the Bluetooth enabled data capture device, and the event notification is enabled, the mobile device receives notification when the Bluetooth device captures the new data for the TikTok app installed in the mobile device. Based on the received event notification, the TikTok app determines the existence of the new data and performs the functionality corresponding to the received command.<br><br>  <br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>  |

Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4

The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.

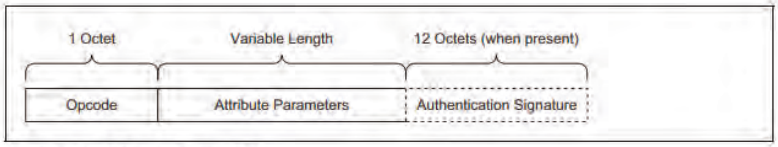



*Figure 2.3: Attribute Protocol PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

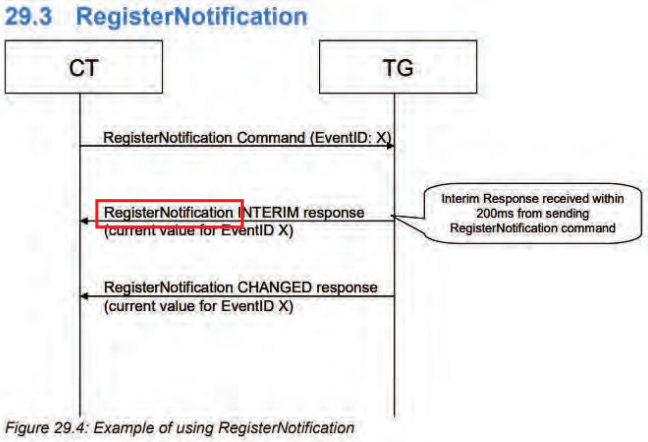



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

249

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|---|---|
| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

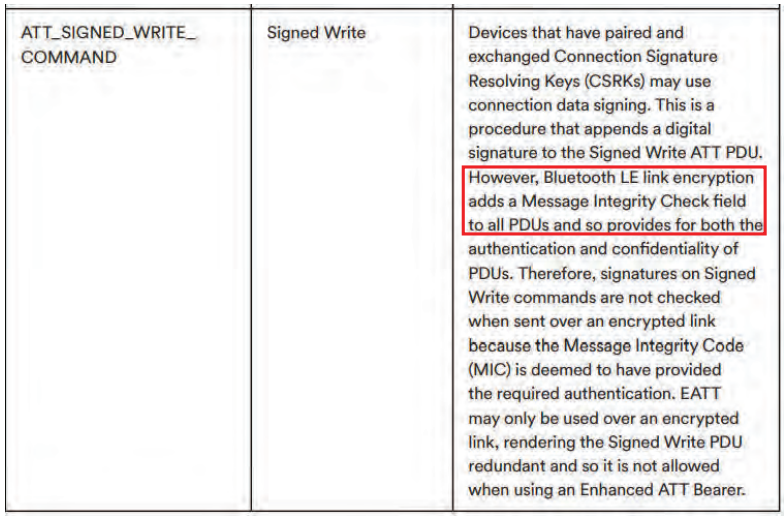
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

| | |
|---|---|
| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17 |

| | | |
|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

252

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|---|---|
| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

253

| | |
|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

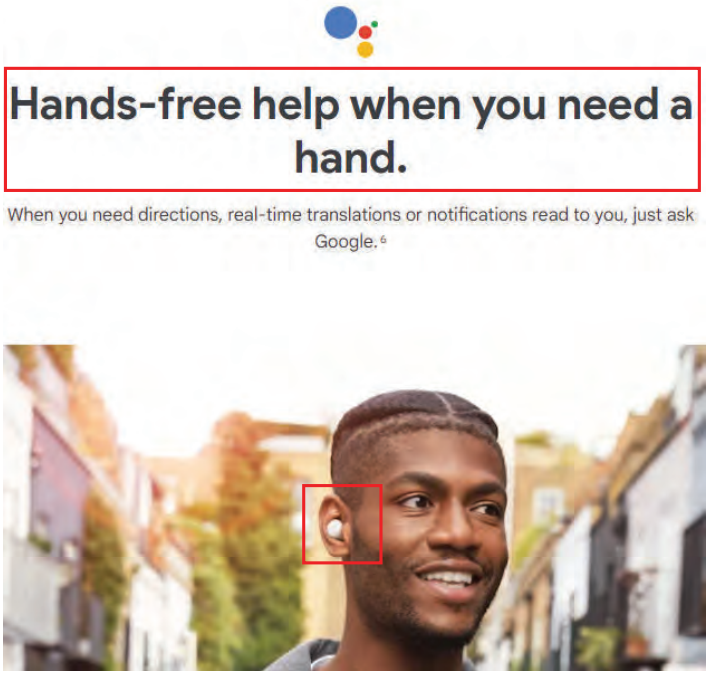
*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

| | |
|---|---|
| | **5.13 Browsing**<br>Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help





LifeScan, Inc. Ex. 1036
Page 258 of 2225
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

259



LifeScan, Inc. Ex. 1036
Page 259 of 2225
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





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Page 260 of 2225
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**About this item**

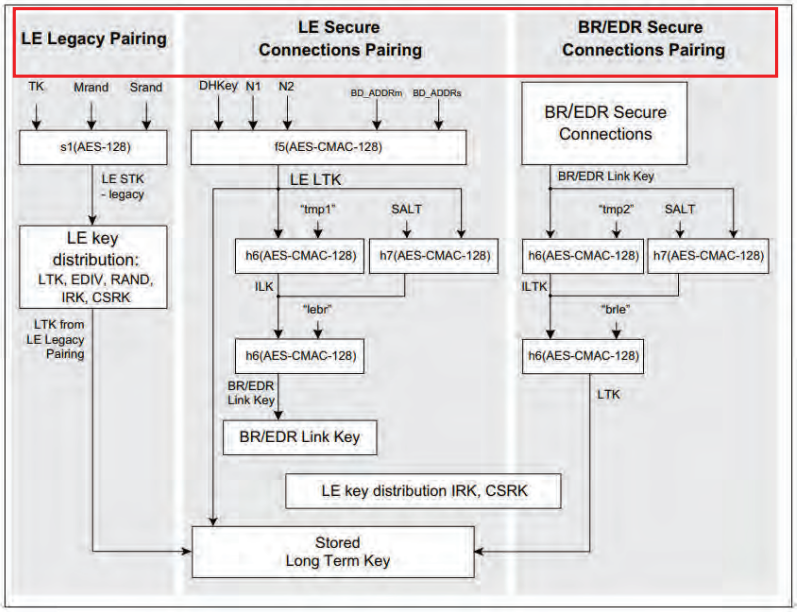
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.

- Pairing: the process for creating one or more shared secret keys
- Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair
- Device authentication: verification that the two devices have the same keys
- Encryption: message confidentiality
- Message integrity: protects against message forgeries

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

| | | |
|---|---|---|
| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

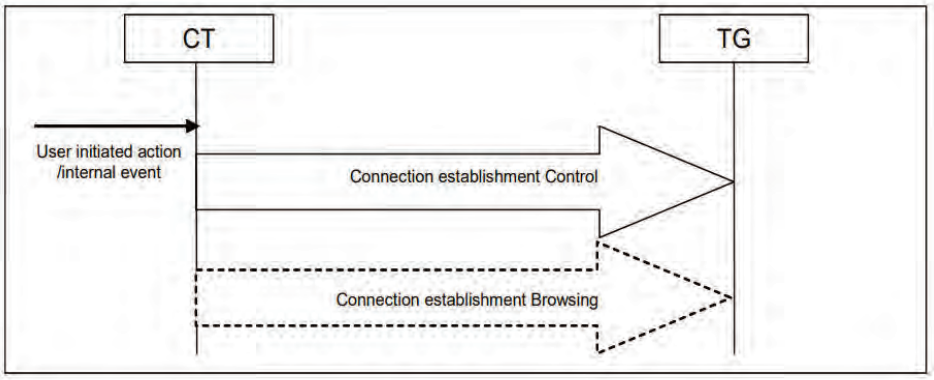



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

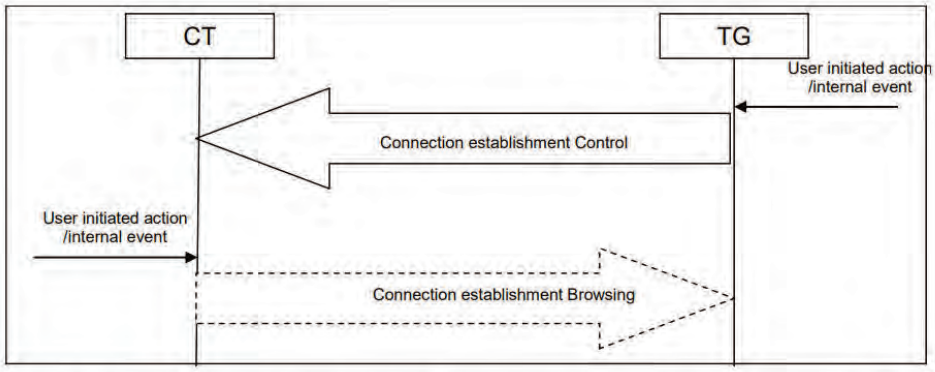



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

| | |
|---|---|
| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6.6] creating a new data object on the Bluetooth enabled data capture device, wherein the new data object comprises new data, data associated with new data and a data signal notification, wherein data signal notification is a time-stamp attribute inside the data object, wherein the data signal notification corresponds to existence of new data for transfer, and wherein the time-stamp corresponds to a time when new data was acquired; | Defendant performs and/or induces others to perform the step of creating a new data object on the Bluetooth enabled data capture device, wherein the new data object comprises new data, data associated with new data and a data signal notification, wherein data signal notification is a time-stamp attribute inside the data object, wherein the data signal notification corresponds to existence of new data for transfer, and wherein the time-stamp corresponds to a time when new data was acquired.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device ("Bluetooth enabled data capture"), the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command in the form of signal notification ("signal to notify") that comprises the information related to the command. Further, the signal notification includes a time change log of the data that maintains a timestamp of the new data stored ("acquired") in the Bluetooth device. Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification. |

| | |
|---|---|
| | For example, when the user provides the audio command such as “Double Tap” or “Scroll Down” on AirPods or earphones, the TikTok app receives the user’s command as a signal notification in order to ‘like’ or ‘scroll down’ the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user’s command as a signal notification in order to like or scroll the subsequent video.<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as “Double Tap” or “Scroll Down” on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT defines a framework for organizing and exchanging data between the BLE devices. When a GATT server (e.g., a Bluetooth device), has new data or an event to notify the GATT client (e.g., a mobile device), it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/ |

The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.

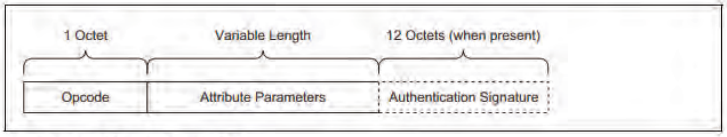



*Figure 2.3: Attribute Protocol PDU*

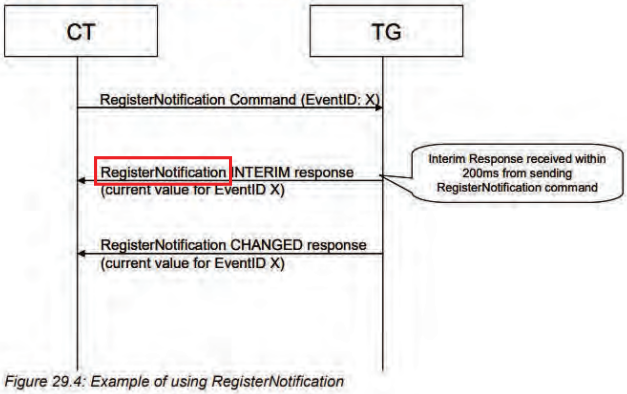
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

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|---|---|
| | **29.3 RegisterNotification**<br>  <br><br>*Figure 29.4: Example of using RegisterNotification*<br>Source:https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139 |

269

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|---|---|
| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

271

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

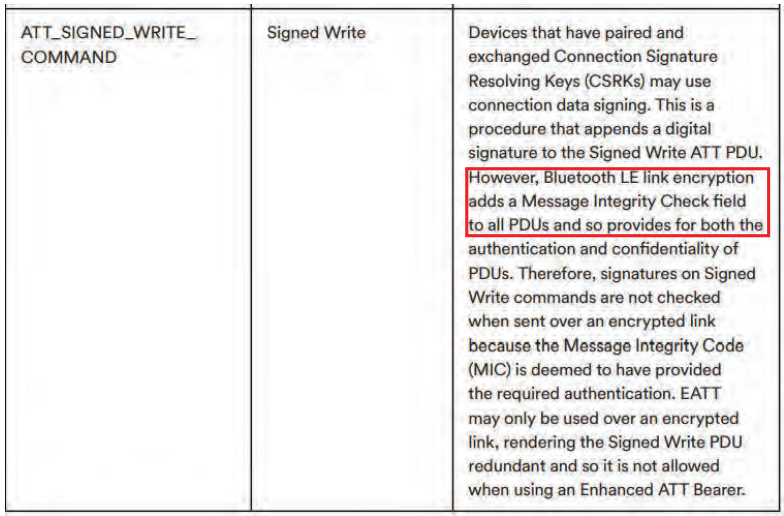
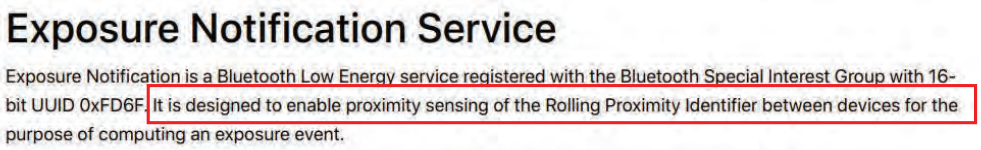
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

| | |
|---|---|
| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |





273

| | |
|---|---|
| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

274

| | |
|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

#### 4.3.1. Device Time Service characteristic discovery

The Client shall perform either the GATT Discover All Characteristics of a Service sub-procedure or the GATT Discover Characteristics by UUID sub-procedure to discover the characteristics of the service.

The Client should read and evaluate the DT Feature characteristic to learn what fields are to be expected within each DTS characteristic before reading the other characteristics of the DTS or enabling indications and notifications for characteristics.

The Client shall perform the GATT Discover All Characteristic Descriptors sub-procedure to discover the characteristic descriptors as revealed in the remainder of this section.

Source: https://www.bluetooth.com/specifications/dtp-1-0/

### 4.8. Time Change Log Data characteristic behavior

The Time Change Log Data characteristic reveals the historical time changes logged by the Server due to changes in time value, time quality, and DT Parameters.

Clients can use the Segmentation_Header field within the notifications of the Time Change Log Data characteristic to properly reconstruct individual records of time change events by piecing together the Time_Change_Log_Data_Record field of multi-segmented records.

Clients can then use the Time_Change_Log_Data_Record field within the notifications of Time Change Log Data characteristic to verify timestamps of stored measurements, to audit time change events on the Server, and to evaluate the operational stability of the Server's clock over extended periods of time.

The Client shall read the DT Feature characteristic to obtain information about whether the Server supports time change logging and the supported time change logging methods implemented by the Server as further specified in the DT Parameters to understand the supported logging fields and thresholds.

Source: https://www.bluetooth.com/specifications/dtp-1-0/

### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

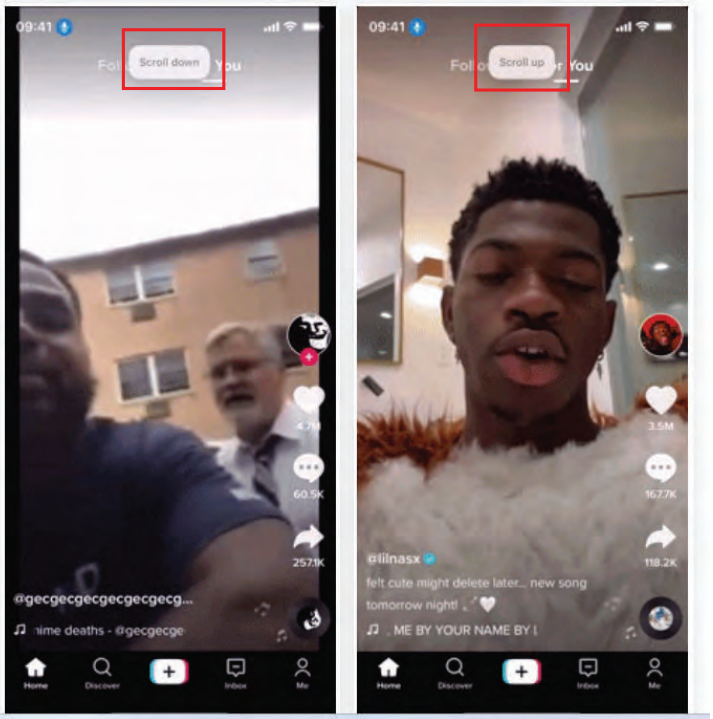
| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

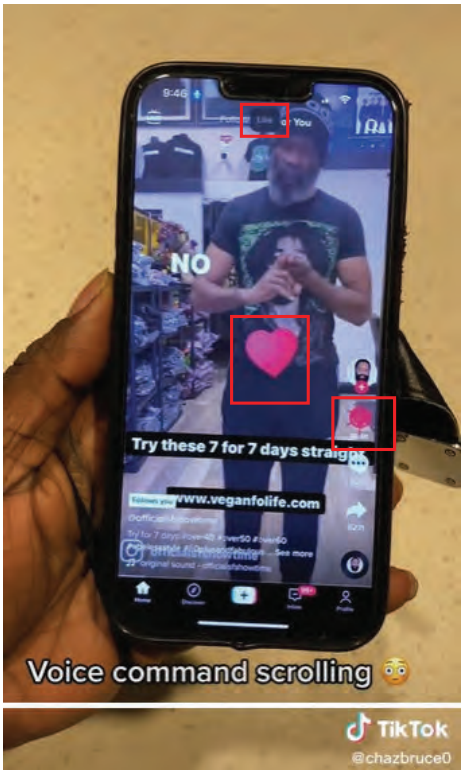
| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |





LifeScan, Inc. Ex. 1036
Page 278 of 2225
IPR2025-00102

| | |
|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

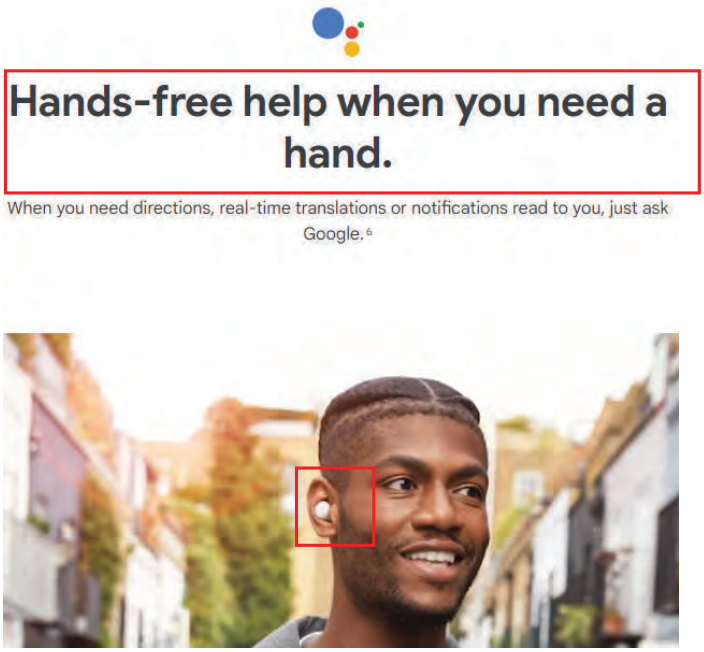
| | |
|---|---|
| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

| | |
|---|---|
| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |





LifeScan, Inc. Ex. 1036
Page 282 of 2225
IPR2025-00102




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

| | |
|---|---|
| | BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 285 of 2225
IPR2025-00102

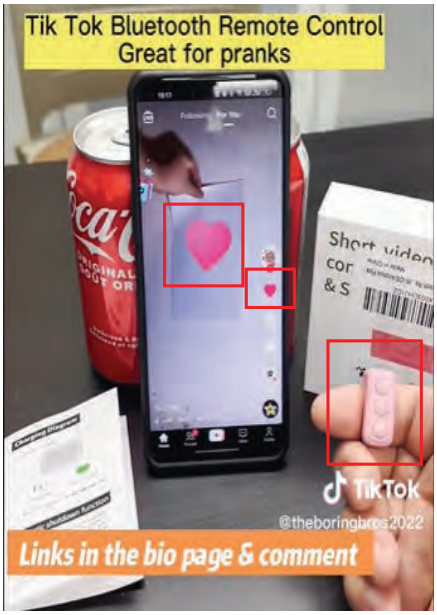
| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



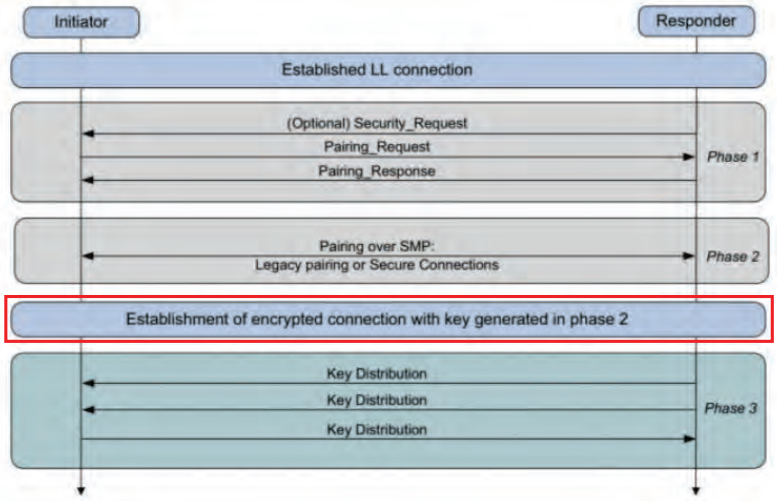


LifeScan, Inc. Ex. 1036
Page 286 of 2225
IPR2025-00102

| | |
|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6.7] encrypting, using cryptographic encryption key, the new data object in the Bluetooth enabled data capture device; and | Defendant performs and/or induces others to perform the step of encrypting, using cryptographic encryption key, the new data object in the Bluetooth enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

| | |
|---|---|
| | For example, after a Bluetooth connection is established between the devices, the Bluetooth devices capture the user's command and send the command to the mobile device through the Bluetooth connection in an encrypted form. The TikTok application in the mobile device receives the user command in the encrypted form and performs the functionality corresponding to the received command. The BLE defines two types of encryption mechanisms: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM is used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 is used when encryption is enabled.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command securely, in the encrypted form, in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote ("Bluetooth enabled data capture device"), the TikTok app receives the user's command in order to like the subsequent video.<br><br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

| | |
|---|---|
| | In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>  <br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

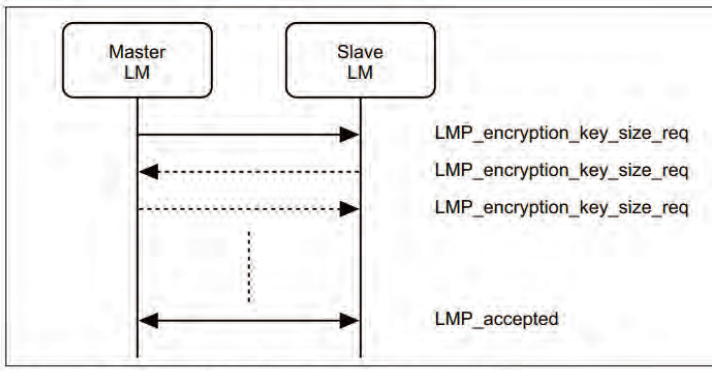
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|---|---|
| | **2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.5 Encryption**<br>If at least one authentication has been performed encryption may be used. Two encryption mechanisms are defined: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM shall be used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 shall be used when encryption is enabled.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 567 |

| M/O | PDU | Contents |
|---|---|---|
| O | LMP_encryption_mode_req | encryption mode |
| O | LMP_encryption_key_size_req | key size |
| O | LMP_start_encryption_req | random number |
| O | LMP_stop_encryption_req | - |
| O (42) | LMP_pause_encryption_req | |
| O (42) | LMP_resume_encryption_req | |
| O (136) | LMP_pause_encryption_aes_req | random number |

*Table 4.21: Encryption handling PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 568

| | |
|---|---|
| | ***4.2.5.2 Encryption Key Size***<br><br>Note: This section uses the same terms as in [Vol 2] Part H, Section 4.1. The master sends an LMP_encryption_key_size_req PDU including the suggested key size $L_{sug, m}$, that is initially equal to $L_{max, m}$. If $L_{min, s} \leq L_{sug, m}$ and the slave supports $L_{sug, m}$ it shall respond with an LMP_accepted PDU and $L_{sug, m}$ shall be used as the key size. If both conditions are not fulfilled the slave sends back an LMP_encryption_key_size_req PDU including the slave's suggested key size $L_{sug, s}$. This value shall be the slave's largest supported key size that is less than $L_{sug, m}$. Then the master performs the corresponding test on the slave's suggestion. This procedure is repeated until a key size agreement is reached or it becomes clear that no such agreement can be reached. If an agreement is reached a device sends an LMP_accepted PDU and the key size in the last LMP_encryption_key_size_req PDU shall be used. After this, encryption is started; see Section 4.2.5.3. If an agreement is not reached a device sends an LMP_not_accepted PDU with the error code *Unsupported*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 569 |



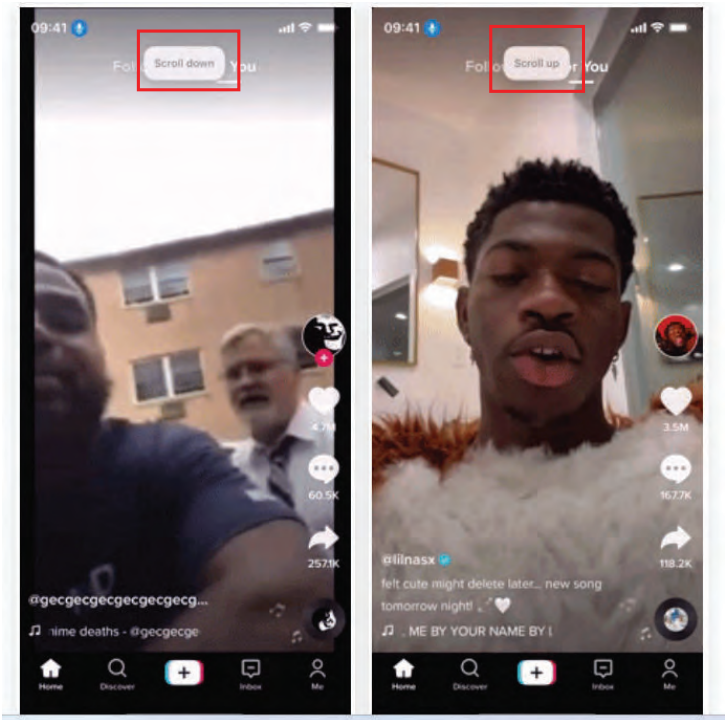

*Sequence 45: Encryption key size negotiation successful*

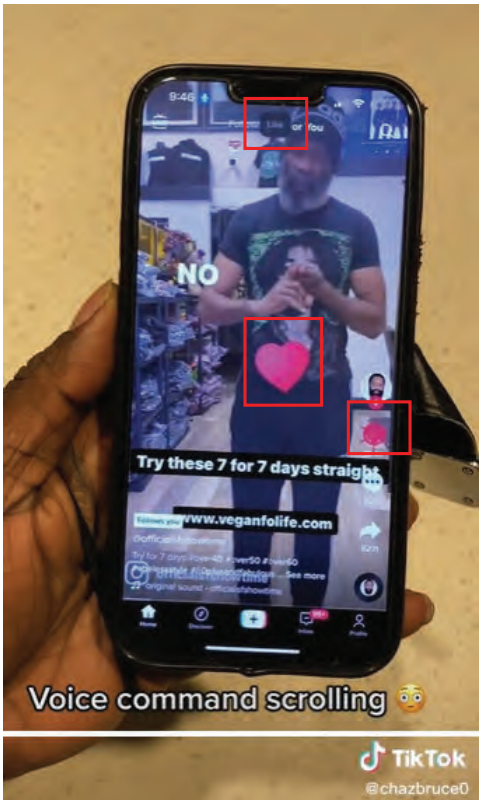
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 570

## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

| | |
|---|---|
| | Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br>  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |





LifeScan, Inc. Ex. 1036
Page 297 of 2225
IPR2025-00102

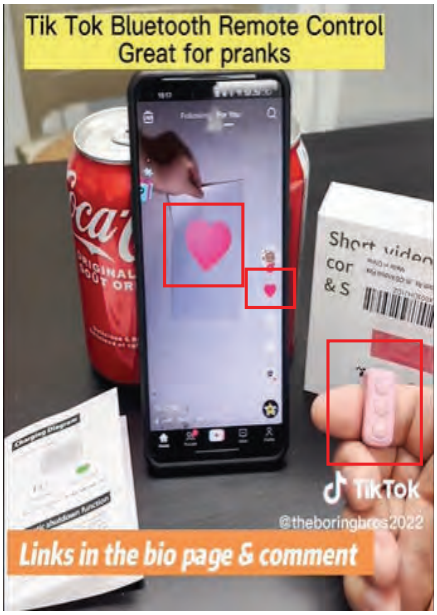
| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



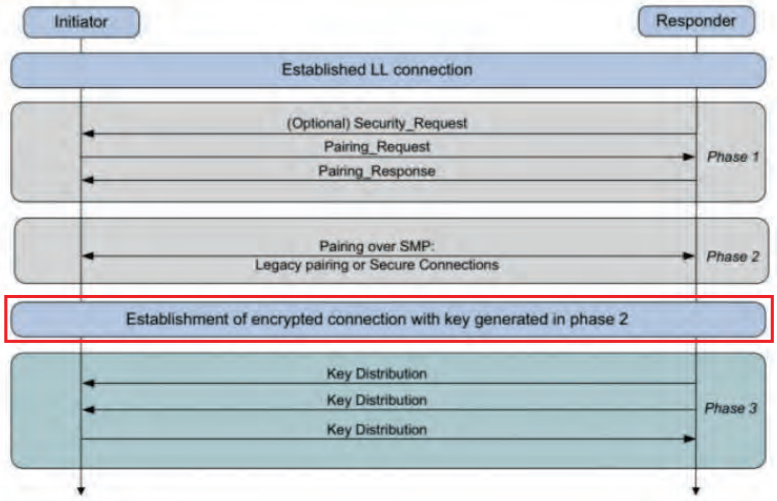


LifeScan, Inc. Ex. 1036
Page 298 of 2225
IPR2025-00102

| | |
|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6.8] transferring the encrypted data object from the Bluetooth enabled data capture device to the Bluetooth enabled mobile device, | Defendant performs and/or induces others to perform the step of transferring the encrypted data object from the Bluetooth enabled data capture device to the Bluetooth enabled mobile device, over the established paired secure Bluetooth connection, wherein the Bluetooth enabled mobile device has access to the internet, wherein the Bluetooth enabled mobile device is configured to receive the encrypted data object and obtain the new data and the data signal notification from the encrypted data object using cryptographic encryption key. |

| | |
|---|---|
| over the established paired secure Bluetooth connection, wherein the Bluetooth enabled mobile device has access to the internet, wherein the Bluetooth enabled mobile device is configured to receive the encrypted data object and obtain the new data and the data signal notification from the encrypted data object using cryptographic encryption key, | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the devices, the Bluetooth devices capture the user's command and send the command to the mobile device through the Bluetooth connection in an encrypted form. The TikTok application in the mobile device receives the user command in the encrypted form and decrypts the received data using an encryption key in order to access the user commands in order to perform the functionality corresponding to the received command. Further, the mobile device comprises built-in wireless connectivity features, such as Wi-Fi and cellular capabilities that enable access to the internet and allows the user to use TikTok app, that requires an internet connection to function.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command securely, in the encrypted form, in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote ("Bluetooth enabled data capture device"), the TikTok app receives the user's command in order to like the subsequent video.<br><br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

| | |
|---|---|
| | In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>  <br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

302

| | |
|---|---|
| | **2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.5 Encryption**<br>If at least one authentication has been performed encryption may be used. Two encryption mechanisms are defined: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM shall be used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 shall be used when encryption is enabled.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 567 |

| M/O | PDU | Contents |
|---|---|---|
| O | LMP_encryption_mode_req | encryption mode |
| O | LMP_encryption_key_size_req | key size |
| O | LMP_start_encryption_req | random number |
| O | LMP_stop_encryption_req | - |
| O (42) | LMP_pause_encryption_req | |
| O (42) | LMP_resume_encryption_req | |
| O (136) | LMP_pause_encryption_aes_req | random number |

*Table 4.21: Encryption handling PDU*

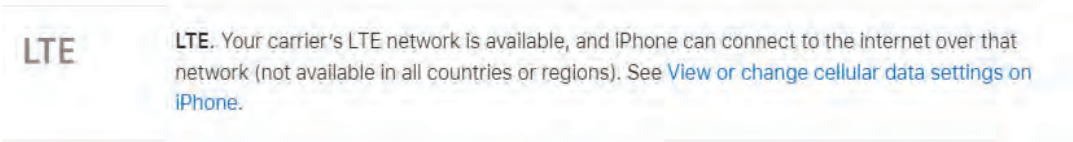
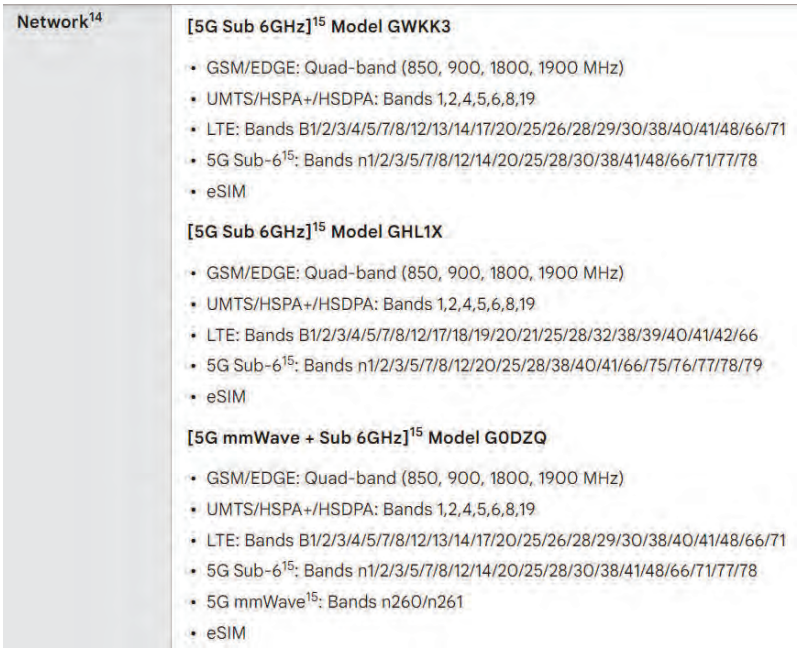
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 568

Check Internet connection

Weak data or Wi-Fi signal can also impact your experience on TikTok. Try switching from Wi-Fi to mobile data to troubleshoot whether or not the issue is related to connectivity.

Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps

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| | If iPhone is connected to the internet using the cellular data network, an icon identifying the cellular network appears in the status bar.<br><br>5G, LTE, 4G, and 3G service on GSM cellular networks support simultaneous voice and data communications. For all other cellular connections, you can't use internet services while you're talking o the phone unless iPhone also has a Wi-Fi connection to the internet. Depending on your network connection, you may not be able to receive calls while iPhone transfers data over the cellular network—when downloading a webpage, for example.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Choose cellular data options for data usage, performance, battery life, and more**<br><br>To turn Cellular Data on or off, go to Settings > Cellular.<br><br>To set options when Cellular Data is on, go to Settings > Cellular > Cellular Data Options, then do any of the following:<br><br>• *Reduce cellular usage:* Turn on Low Data Mode, or tap Data Mode, then choose Low Data Mode. This mode pauses automatic updates and background tasks when iPhone isn't connected to Wi-Fi.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Cell signal.** The number of bars indicates the signal strength of your cellular service. If there's no signal, "No Service" appears.<br><br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0 |

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|---|---|
| |  <br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0<br>  <br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en |

306



LifeScan, Inc. Ex. 1036
Page 306 of 2225
IPR2025-00102

## Connect to mobile networks on a Pixel phone

You can adjust how your phone uses data by changing your mobile network settings.

Depending on your carrier and service plan, your phone may connect automatically to your carrier's fastest available data network. Or you may need to add a SIM or pick settings for a specific carrier.

Pixel 4a (5G) and later phones work with 5G service. Learn about 5G on Pixel phones.

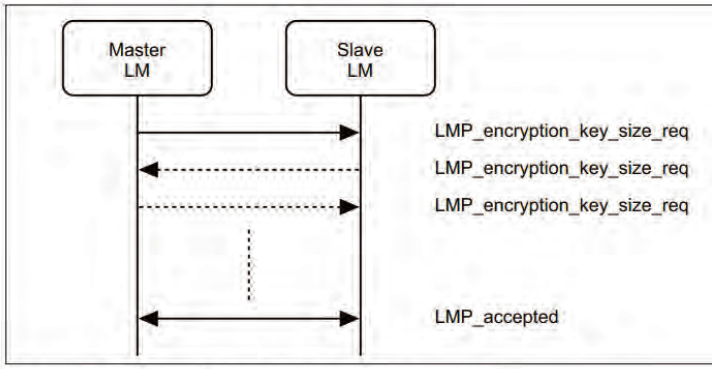
Source: https://support.google.com/pixelphone/answer/2926415?hl=en

### 4.2.5.2 Encryption Key Size

Note: This section uses the same terms as in [Vol 2] Part H, Section 4.1. The master sends an LMP_encryption_key_size_req PDU including the suggested key size $L_{sug, m}$, that is initially equal to $L_{max, m}$. If $L_{min, s} \leq L_{sug, m}$ and the slave supports $L_{sug, m}$ it shall respond with an LMP_accepted PDU and $L_{sug, m}$ shall be used as the key size. If both conditions are not fulfilled the slave sends back an LMP_encryption_key_size_req PDU including the slave's suggested key size $L_{sug, s}$. This value shall be the slave's largest supported key size that is less than $L_{sug, m}$. Then the master performs the corresponding test on the slave's suggestion. This procedure is repeated until a key size agreement is reached or it becomes clear that no such agreement can be reached. If an agreement is reached a device sends an LMP_accepted PDU and the key size in the last LMP_encryption_key_size_req PDU shall be used. After this, encryption is started; see Section 4.2.5.3. If an agreement is not reached a device sends an LMP_not_accepted PDU with the error code *Unsupported*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 569

307




*Sequence 45: Encryption key size negotiation successful*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 570

Note that there is a significant difference from a cryptographic point of view between Numeric Comparison and the PIN entry model used by Bluetooth Core Specification and earlier versions. In the Numeric Comparison association model, the six digit number is an artifact of the security algorithm and not an input to it, as is the case in the Bluetooth security model. Knowing the displayed number is of no benefit in decrypting the encoded data exchanged between the two devices.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 245

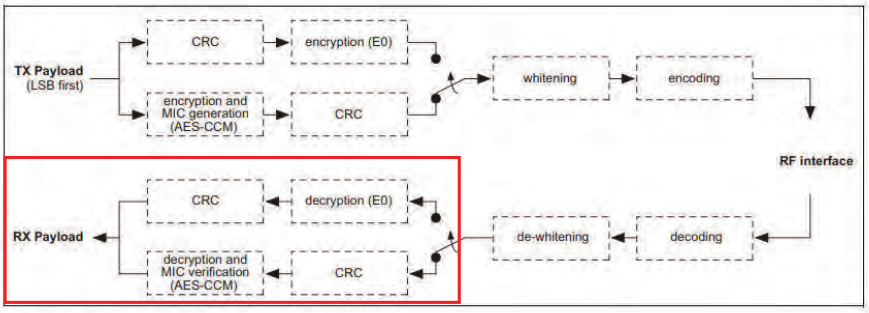



*Figure 7.2: Payload bit processes*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 428

### 4.3.1. Device Time Service characteristic discovery

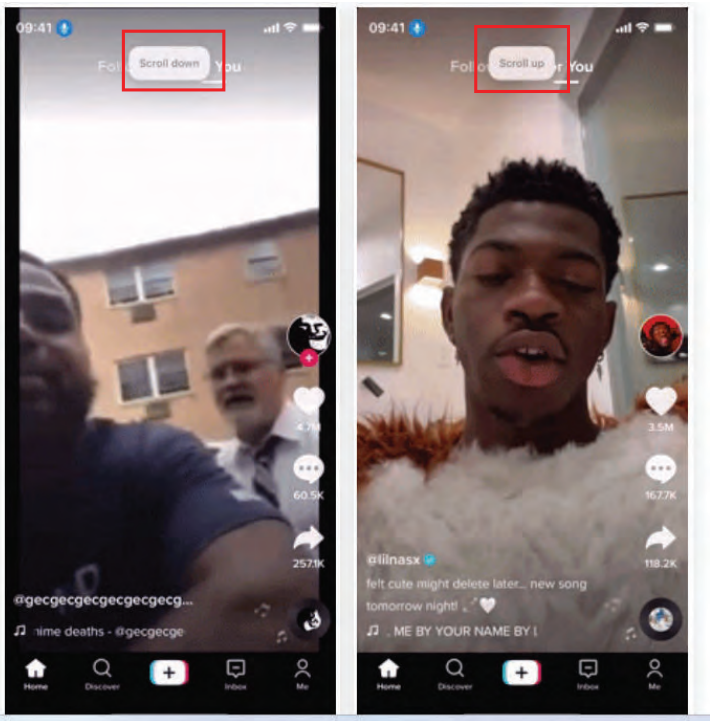
The Client shall perform either the GATT Discover All Characteristics of a Service sub-procedure or the GATT Discover Characteristics by UUID sub-procedure to discover the characteristics of the service.

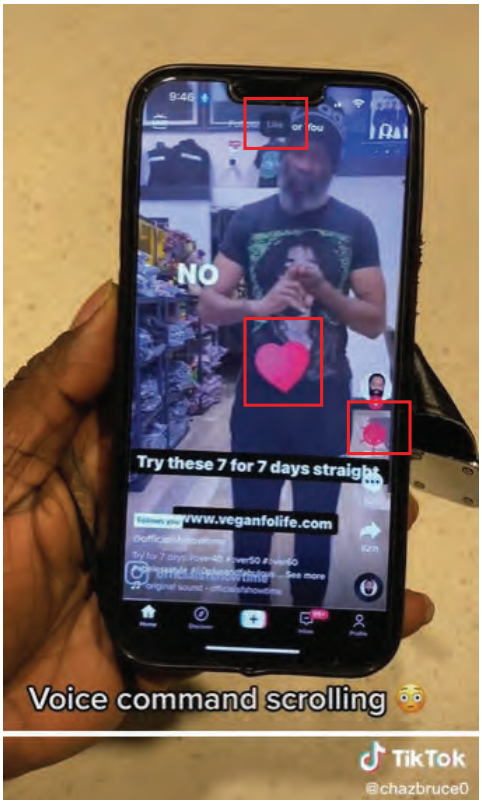
The Client should read and evaluate the DT Feature characteristic to learn what fields are to be expected within each DTS characteristic before reading the other characteristics of the DTS or enabling indications and notifications for characteristics.

The Client shall perform the GATT Discover All Characteristic Descriptors sub-procedure to discover the characteristic descriptors as revealed in the remainder of this section.

Source: https://www.bluetooth.com/specifications/dtp-1-0/

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| | **4.8. Time Change Log Data characteristic behavior**<br><br>The Time Change Log Data characteristic reveals the historical time changes logged by the Server due to changes in time value, time quality, and DT Parameters.<br><br>Clients can use the Segmentation_Header field within the notifications of the Time Change Log Data characteristic to properly reconstruct individual records of time change events by piecing together the Time_Change_Log_Data_Record field of multi-segmented records.<br><br>Clients can then use the Time_Change_Log_Data_Record field within the notifications of Time Change Log Data characteristic to verify timestamps of stored measurements, to audit time change events on the Server, and to evaluate the operational stability of the Server's clock over extended periods of time.<br><br>The Client shall read the DT Feature characteristic to obtain information about whether the Server supports time change logging and the supported time change logging methods implemented by the Server as further specified in the DT Parameters to understand the supported logging fields and thresholds.<br>Source: https://www.bluetooth.com/specifications/dtp-1-0/<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

312

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





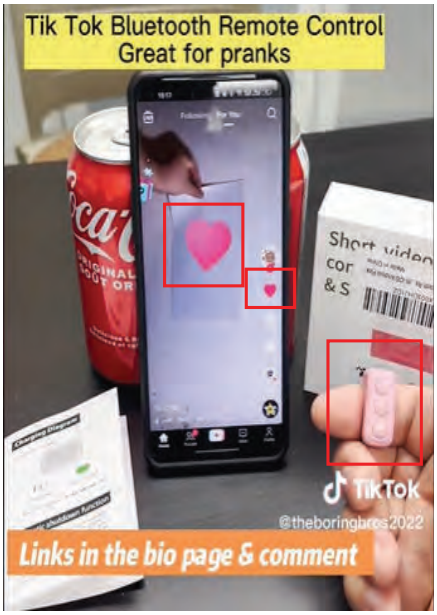
LifeScan, Inc. Ex. 1036
Page 314 of 2225
IPR2025-00102

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



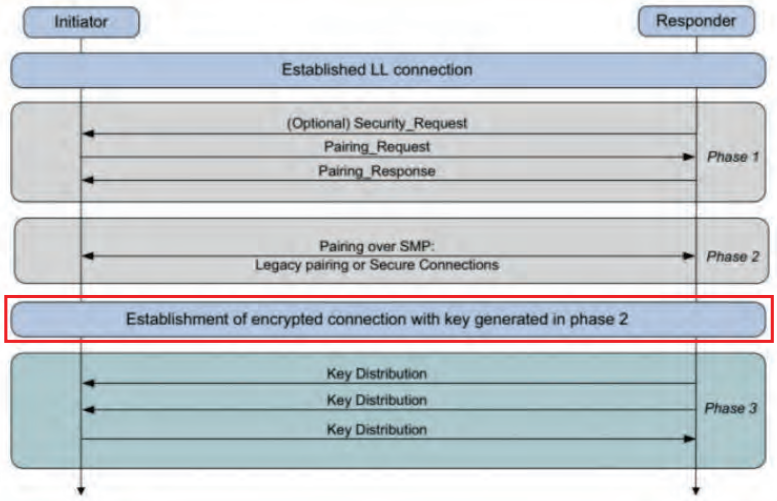


LifeScan, Inc. Ex. 1036
Page 315 of 2225
IPR2025-00102

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6.9] wherein the Bluetooth enabled mobile device is configured to apply action setting and destination web address of a remote internet server | Defendant performs and/or induces others to perform the step wherein the Bluetooth enabled mobile device is configured to apply action setting and destination web address of a remote internet server to the obtained new data, wherein action setting comprises one of a remote procedure call (RPC) method and hypertext transfer protocol (HTTP) method, wherein the Bluetooth enabled mobile device is configured to send the obtained new data along with a user identifier to a remote internet server, wherein the user identifier uniquely identifies a particular user of internet service provided by a remote internet server. |

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| to the obtained new data, wherein action setting comprises one of a remote procedure call (RPC) method and hypertext transfer protocol (HTTP) method, wherein the Bluetooth enabled mobile device is configured to send the obtained new data along with a user identifier to a remote internet server, wherein the user identifier uniquely identifies a particular user of internet service provided by a remote internet server. | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to transfer (or backup) the encrypted data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok App for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app.<br><br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

317

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| | In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>  <br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

318

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| | **2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.5 Encryption**<br>If at least one authentication has been performed encryption may be used. Two encryption mechanisms are defined: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM shall be used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 shall be used when encryption is enabled.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 567 |

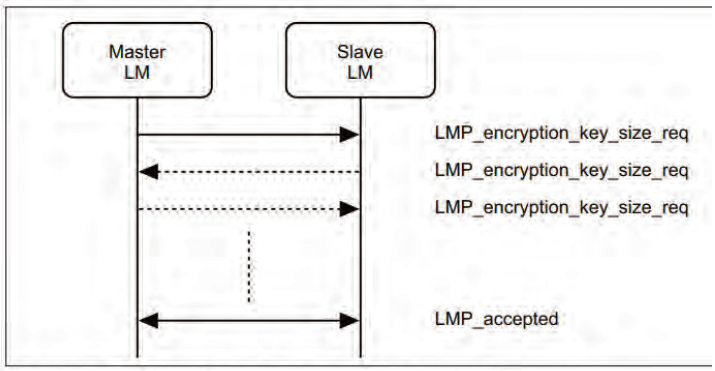
| M/O | PDU | Contents |
|---|---|---|
| O | LMP_encryption_mode_req | encryption mode |
| O | LMP_encryption_key_size_req | key size |
| O | LMP_start_encryption_req | random number |
| O | LMP_stop_encryption_req | - |
| O (42) | LMP_pause_encryption_req | |
| O (42) | LMP_resume_encryption_req | |
| O (136) | LMP_pause_encryption_aes_req | random number |

*Table 4.21: Encryption handling PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 568

| | |
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| | ***4.2.5.2 Encryption Key Size***<br><br>Note: This section uses the same terms as in [Vol 2] Part H, Section 4.1. The master sends an LMP_encryption_key_size_req PDU including the suggested key size $L_{sug, m}$, that is initially equal to $L_{max, m}$. If $L_{min, s} \leq L_{sug, m}$ and the slave supports $L_{sug, m}$ it shall respond with an LMP_accepted PDU and $L_{sug, m}$ shall be used as the key size. If both conditions are not fulfilled the slave sends back an LMP_encryption_key_size_req PDU including the slave's suggested key size $L_{sug, s}$. This value shall be the slave's largest supported key size that is less than $L_{sug, m}$. Then the master performs the corresponding test on the slave's suggestion. This procedure is repeated until a key size agreement is reached or it becomes clear that no such agreement can be reached. If an agreement is reached a device sends an LMP_accepted PDU and the key size in the last LMP_encryption_key_size_req PDU shall be used. After this, encryption is started; see Section 4.2.5.3. If an agreement is not reached a device sends an LMP_not_accepted PDU with the error code *Unsupported*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 569 |

321




*Sequence 45: Encryption key size negotiation successful*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 570

## Send Video to TikTok Servers

Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.

Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.

| | |
|---|---|
| HTTP URL | Returned in `upload_url` |
| HTTP Method | PUT |

Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

## Initialize video upload

To upload a video to a TikTok user's account, the first step is to initialize the upload.

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|---|---|
| HTTP URL | /v2/post/publish/inbox/video/init/ |
| HTTP Method | POST |
| Scope | video.upload |

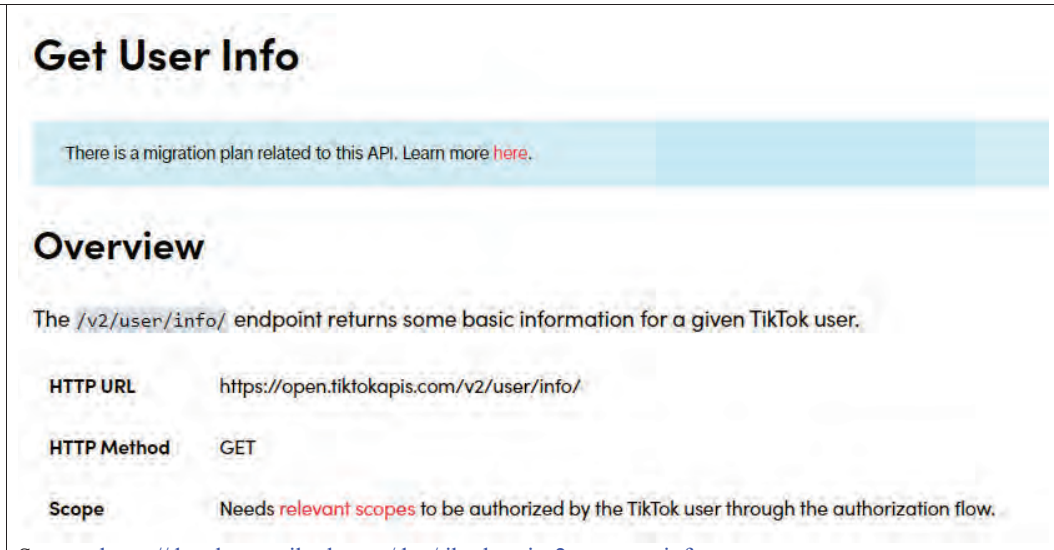
Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

## File upload

Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.

To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference.

Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide



# Get User Info

There is a migration plan related to this API. Learn more here.

## Overview

The `/v2/user/info/` endpoint returns some basic information for a given TikTok user.

| | |
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| **HTTP URL** | https://open.tiktokapis.com/v2/user/info/ |
| **HTTP Method** | GET |
| **Scope** | Needs relevant scopes to be authorized by the TikTok user through the authorization flow. |

Source: https://developers.tiktok.com/doc/tiktok-api-v2-get-user-info

## Information You Provide

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

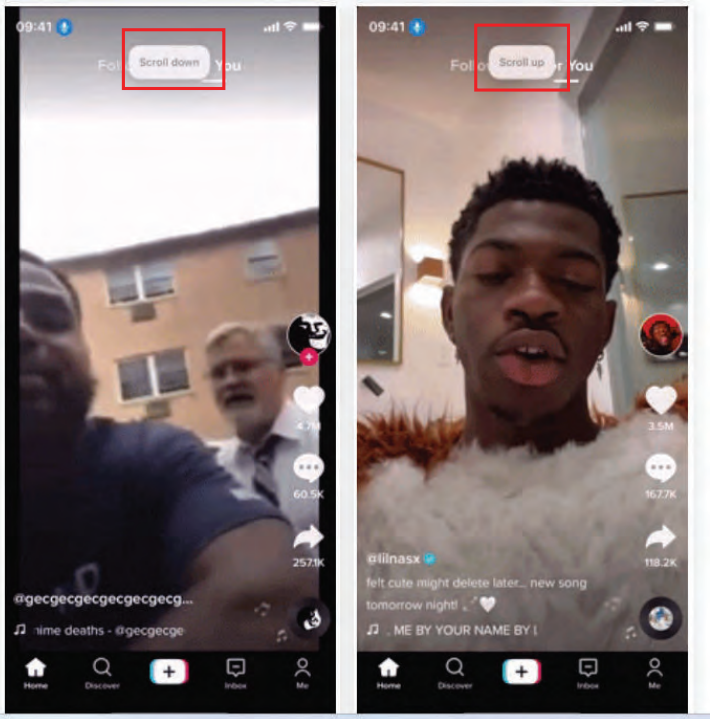
Source: https://www.tiktok.com/legal/Page/row/privacy-policy/en

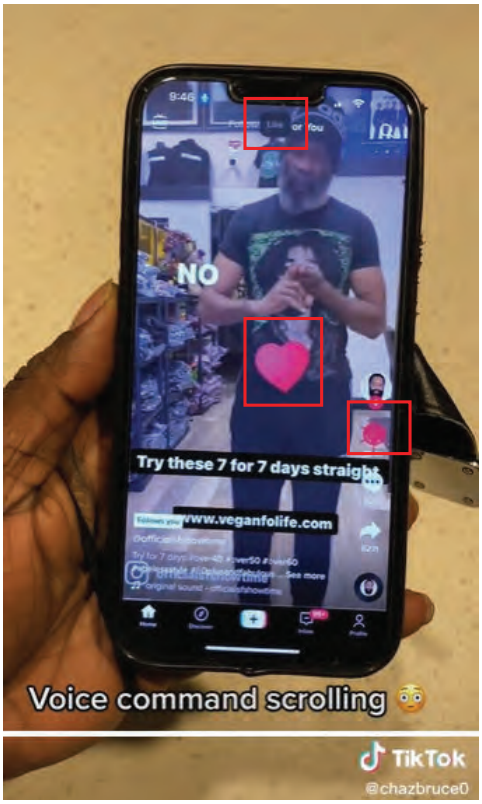
| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |





LifeScan, Inc. Ex. 1036
Page 325 of 2225
IPR2025-00102

| | |
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |





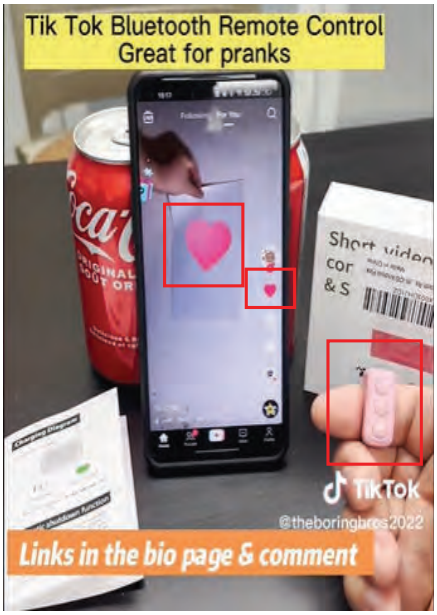
LifeScan, Inc. Ex. 1036
Page 328 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 329 of 2225
IPR2025-00102

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7] The method of claim 6, wherein Bluetooth capability is provided internally in the | Defendant performs and/or induces others to perform the method of claim 6, wherein Bluetooth capability is provided internally in the Bluetooth enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| Bluetooth enabled data capture device. | For example, the Bluetooth devices ("Bluetooth enabled data capture device") including, but not limited to, AirPods, Bluetooth enabled earphones, and Bluetooth remotes contains Bluetooth functionality which includes a software module that allows the Bluetooth devices to connect and communicate with the mobile device on which the TikTok app is installed. The user is allowed to remotely control the TikTok app installed on the mobile device via Bluetooth devices.<br>  <br>Source: https://developer.apple.com/bluetooth/ |

331

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| | **Bluetooth**<br><br>Android provides a default Bluetooth stack that supports both Classic Bluetooth and Bluetooth Low Energy. Using Bluetooth, Android devices can create personal area networks to send and receive data with nearby Bluetooth devices.<br><br>  <br><br><br>In Android 4.3 and later, the Android Bluetooth stack provides the ability to implement Bluetooth Low Energy (BLE). To fully leverage the BLE APIs, follow the Android Bluetooth HCI Requirements. Android devices with a qualified chipset can implement either Classic Bluetooth or both Classic Bluetooth and BLE. BLE is not backwards compatible with older Bluetooth chipsets.<br><br>In Android 8.0, the native Bluetooth stack is fully qualified for Bluetooth 5. To use available Bluetooth 5 features, the device needs to have a Bluetooth 5 qualified chipset.<br><br>Source: https://source.android.com/docs/core/connect/bluetooth |





LifeScan, Inc. Ex. 1036
Page 332 of 2225
IPR2025-00102

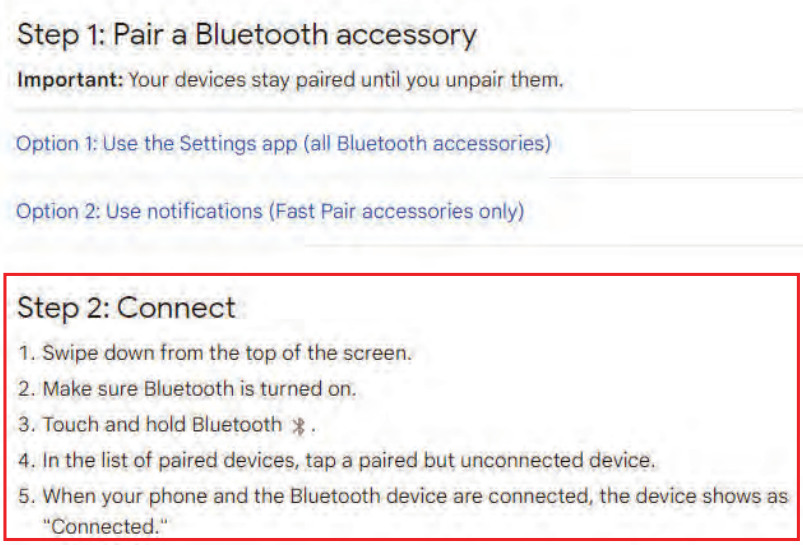
| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | **If an app would like to use Bluetooth on your device**<br>Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.<br><br>**About Bluetooth privacy settings**<br>Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.<br>Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.<br>Source: https://support.apple.com/en-us/HT210578 |





LifeScan, Inc. Ex. 1036
Page 334 of 2225
IPR2025-00102




Source: https://support.google.com/android/answer/9075925?hl=en

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

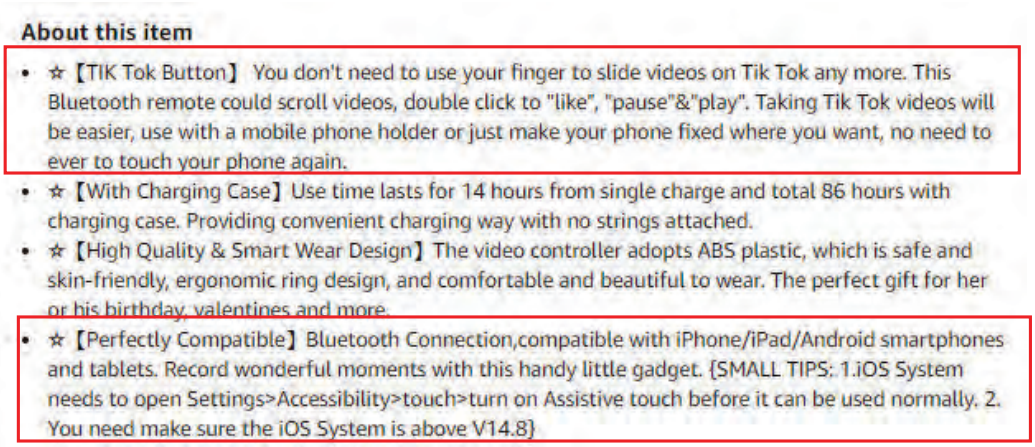
### Bluetooth permissions

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

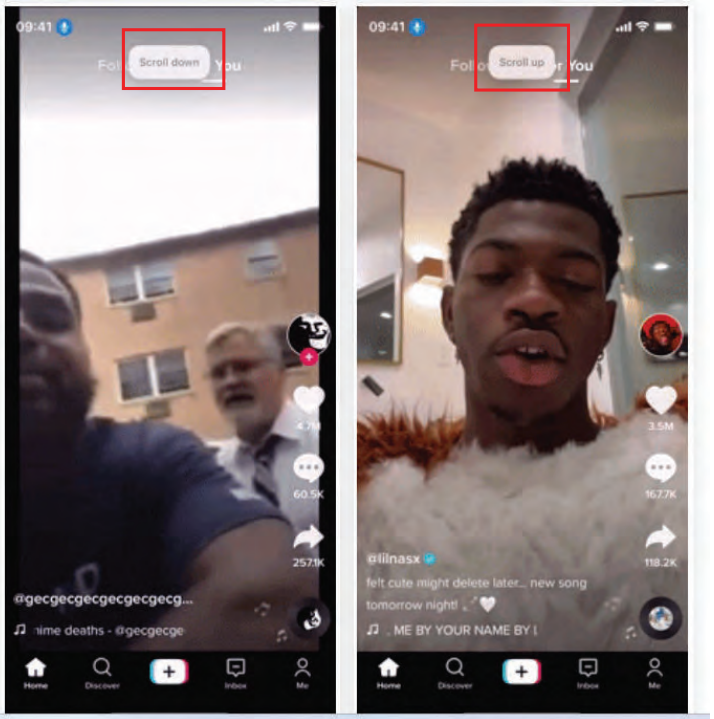
Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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|---|---|
| | Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

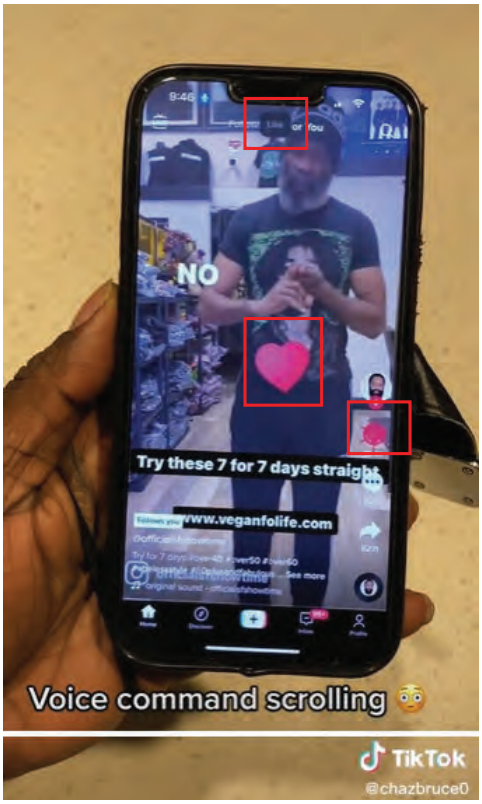
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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9] The method of claim 6, wherein the new data for transfer comprises one or more of audio data, video data, image data, text data, or digital data. | Defendant performs and/or induces others to perform the method of claim 6, wherein the new data for transfer comprises one or more of audio data, video data, image data, text data, or digital data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command ("audio data") provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and |

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| | information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as “Double Tap” or “Scroll Down” (“new-data”) on AirPods or earphones, the TikTok app receives the user’s command in order to ‘like’ or ‘scroll down’ the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user’s command as a signal notification in order to like or scroll the subsequent video.<br><br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

| | |
|---|---|
| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

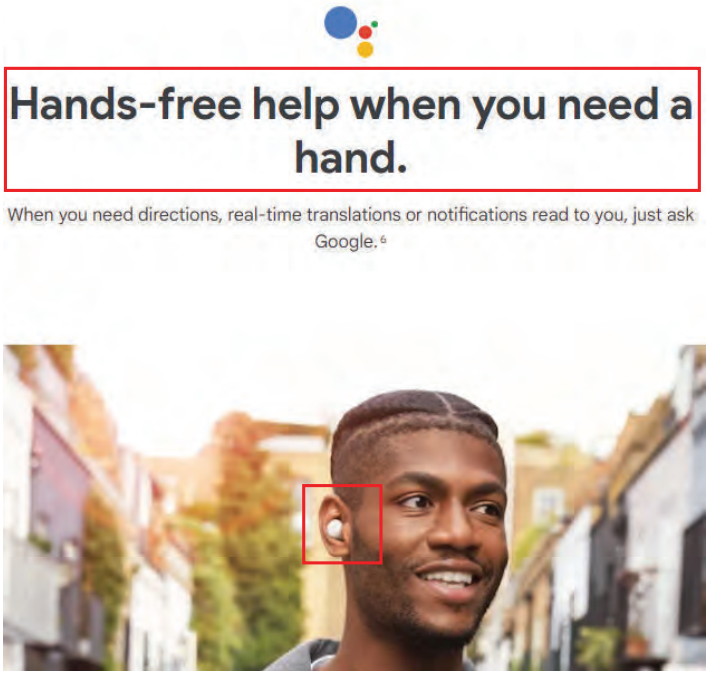
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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |





LifeScan, Inc. Ex. 1036
Page 344 of 2225
IPR2025-00102




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 346 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





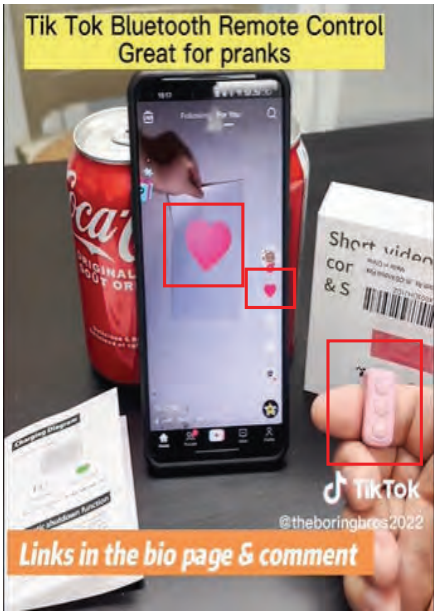
LifeScan, Inc. Ex. 1036
Page 347 of 2225
IPR2025-00102

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 348 of 2225
IPR2025-00102

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [10] The method of claim 6, wherein said data signal notification corresponds to creation of new data for transfer or | Defendant performs and/or induces others to perform the method of claim 6, wherein said data signal notification corresponds to creation of new data for transfer or change in status of new data for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

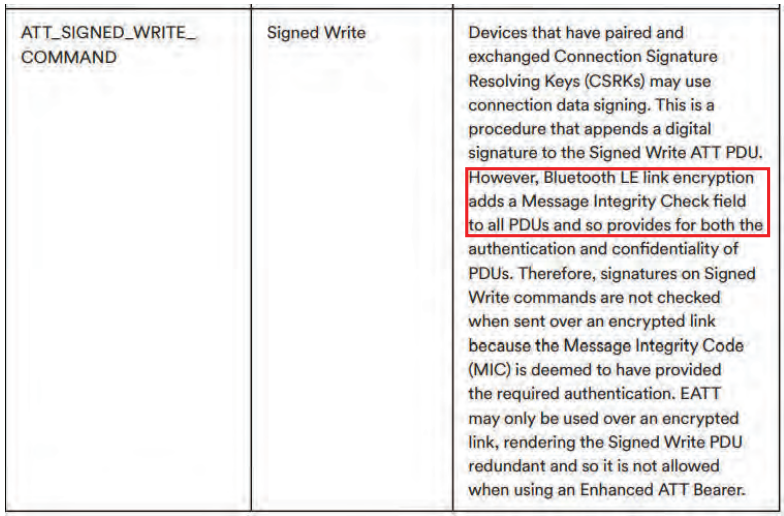
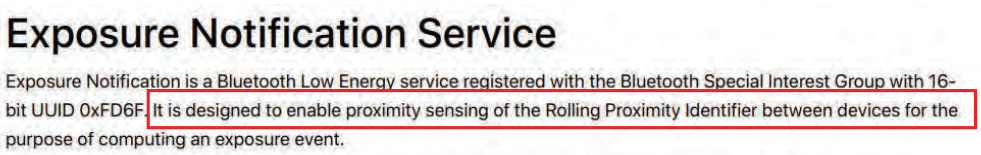
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| change in status of new data for transfer. | For example, after establishing Bluetooth connection, BLE allows the mobile device to send a message to the Bluetooth device, intending to enable event notifications on the Bluetooth device, notifying the mobile device when the new data is acquired. Therefore, the event notification corresponds to creation of new data for transfer.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized to transfer the data from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control specification), including, but not limited to, AirPods, Earphones and Bluetooth remotes, to the Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed. The mobile devices notify ("sending a message") the Bluetooth devices, to register and send them notifications when the new data is acquired.<br><br>3. CT devices have the capability to provide a NOTIFY AV/C command to the TG, to register for specific events on the TG.<br>4. The TG shall for every supported NOTIFY AV/C command send an INTERIM response to the CT with the current status of the registered event within $T_{MTP}$ from the time of registration.<br><br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 38<br><br>**6.7 Notification PDUs**<br>The Notification PDUs are used to obtain synchronous as well as asynchronous updates from the TG based on change of status at the target's side.<br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/ |

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |





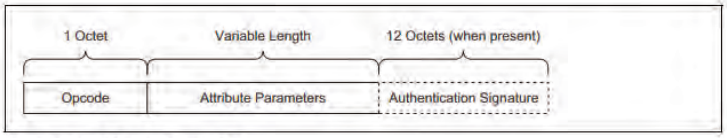
LifeScan, Inc. Ex. 1036
Page 351 of 2225
IPR2025-00102

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| |  <br>ATT_SIGNED_WRITE_COMMAND \| Signed Write \| Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer.<br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Exposure Notification Service<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

352

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| | **Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [11] The method of claim 6, wherein the time-stamp is either absolute time or relative time. | Defendant performs and/or induces others to perform the method of claim 6, wherein the time-stamp is either absolute time or relative time.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the event notification includes a time change log of the data that maintains a timestamp of the new data stored ("acquired") in the Bluetooth device. The timestamp is the relative time with respect to the time of the server device.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/ |

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| | 4.3.1. Device Time Service characteristic discovery<br><br>The Client shall perform either the GATT Discover All Characteristics of a Service sub-procedure or the GATT Discover Characteristics by UUID sub-procedure to discover the characteristics of the service.<br><br>The Client should read and evaluate the DT Feature characteristic to learn what fields are to be expected within each DTS characteristic before reading the other characteristics of the DTS or enabling indications and notifications for characteristics.<br><br>The Client shall perform the GATT Discover All Characteristic Descriptors sub-procedure to discover the characteristic descriptors as revealed in the remainder of this section.<br>Source: https://www.bluetooth.com/specifications/dtp-1-0/<br><br>4.8. Time Change Log Data characteristic behavior<br><br>The Time Change Log Data characteristic reveals the historical time changes logged by the Server due to changes in time value, time quality, and DT Parameters.<br><br>Clients can use the Segmentation_Header field within the notifications of the Time Change Log Data characteristic to properly reconstruct individual records of time change events by piecing together the Time_Change_Log_Data_Record field of multi-segmented records.<br><br>Clients can then use the Time_Change_Log_Data_Record field within the notifications of Time Change Log Data characteristic to verify timestamps of stored measurements, to audit time change events on the Server, and to evaluate the operational stability of the Server's clock over extended periods of time.<br><br>The Client shall read the DT Feature characteristic to obtain information about whether the Server supports time change logging and the supported time change logging methods implemented by the Server as further specified in the DT Parameters to understand the supported logging fields and thresholds.<br>Source: https://www.bluetooth.com/specifications/dtp-1-0/ |

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| | # 1. Introduction<br><br>The Device Time Profile (DTP) allows a Device Time Client (Client) to interact with a Device Time Server (Server) on a device that supports the Device Time Service (DTS) for the purpose of providing the Server device's time and time quality information.<br><br>This profile allows a Client to use two separate Control Points (CP) to perform time management procedures with a Server. One CP allows a Client to provide for time synchronization with the Server device and to modify some of the Server device's time management parameters. The other CP allows the Client to audit time change events that the Server experienced to help the Client reconcile timestamped data received from the Server device.<br><br>Source: https://www.bluetooth.com/specifications/dtp-1-0/<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br><br>  <br><br>*Figure 2.3: Attribute Protocol PDU*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |

355

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

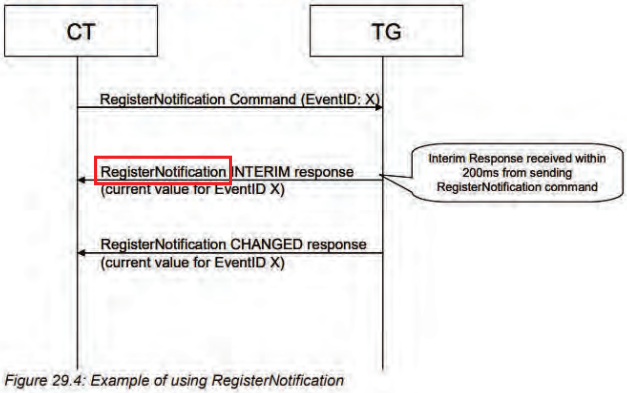


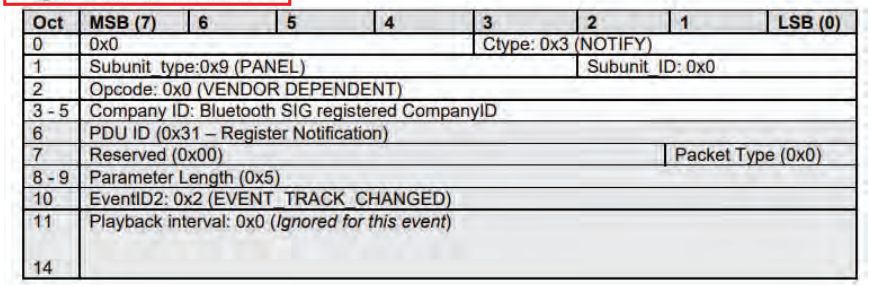
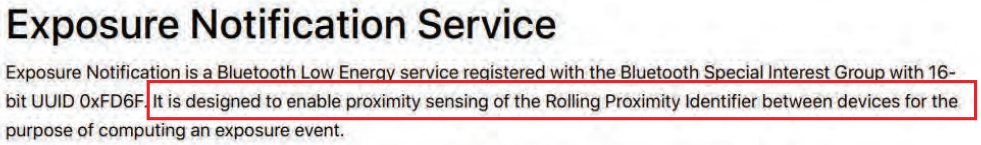

*Figure 29.4: Example of using RegisterNotification*

Source:https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139

356

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

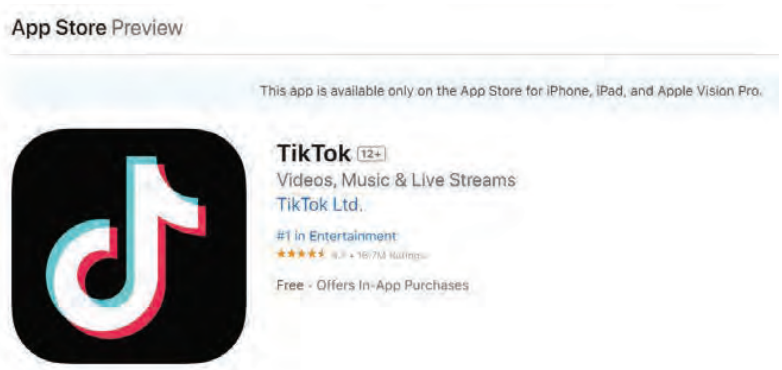
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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

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| | Register Notification command<br>  <br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.P] A method for transferring data to a remote internet server by a Bluetooth enabled mobile device comprising: | ByteDance ("Defendant") performs and/or induces others to perform a method for transferring data to a remote internet server by a Bluetooth enabled mobile device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

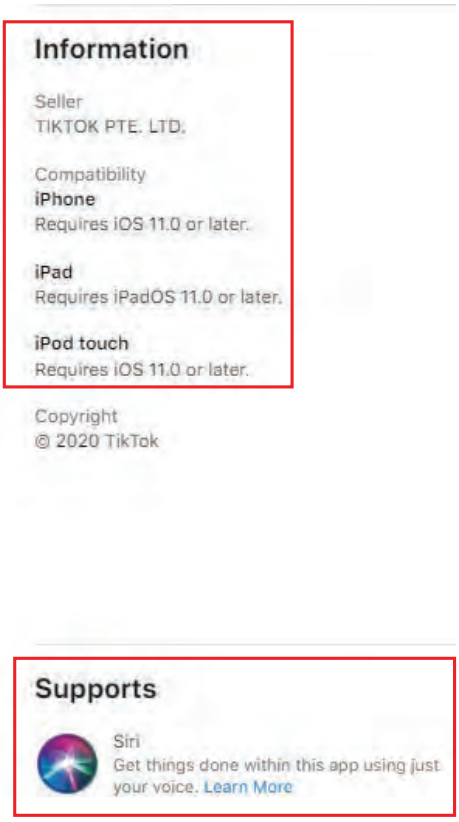
## Exposure Notification Service

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

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| | For example, Defendant provides TikTok[5]app which is installed in a mobile device such as iPhone and an Android phone ("Bluetooth enabled mobile device"). The TikTok app installed in the mobile device can be remotely controlled through Bluetooth devices such as AirPods and Bluetooth remotes[6]. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided to the Bluetooth devices.<br><br>Further, the TikTok app uploads ("transferring") data provided by the user on the Defendant's servers ("remote internet server"). The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'.<br><br>For example, mobile devices such as iPhones and Android phones on which the TikTok app is installed are sold on the TikTok app using the TikTok Shop functionality.<br><br>  |

[5]While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

[6] TikTok app is compatible with a wide variety of Bluetooth remotes, for example, Smart Ring Controller and other Bluetooth remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

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| | Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320<br>  <br><br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

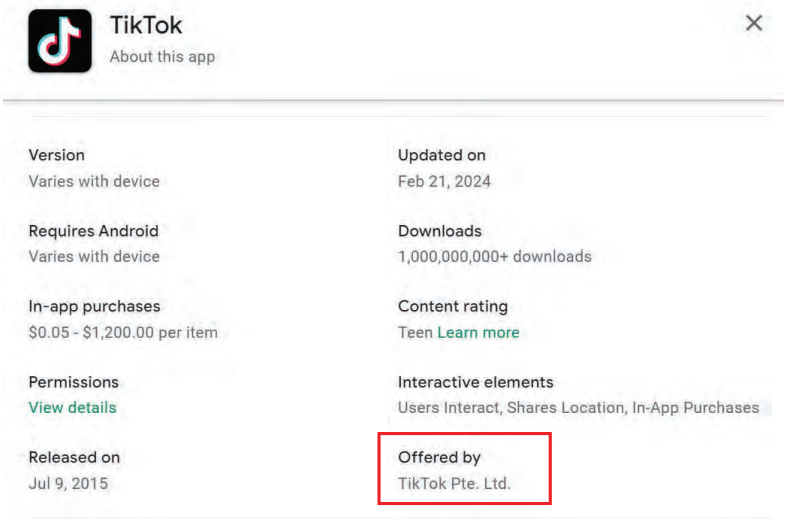


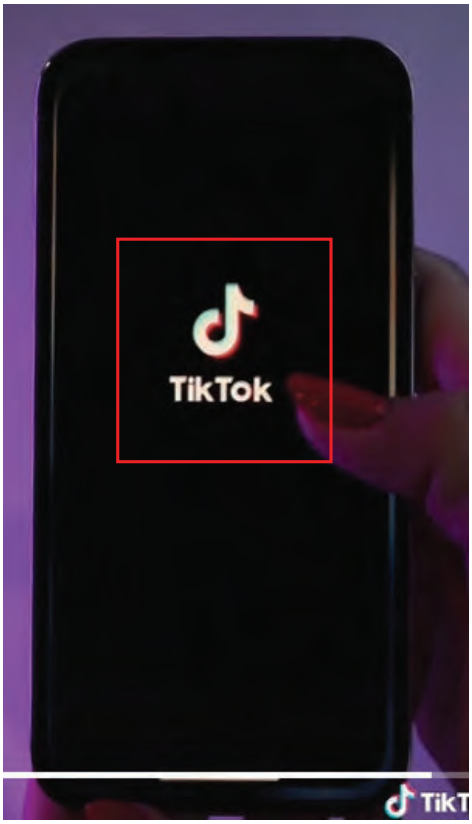


LifeScan, Inc. Ex. 1036
Page 361 of 2225
IPR2025-00102

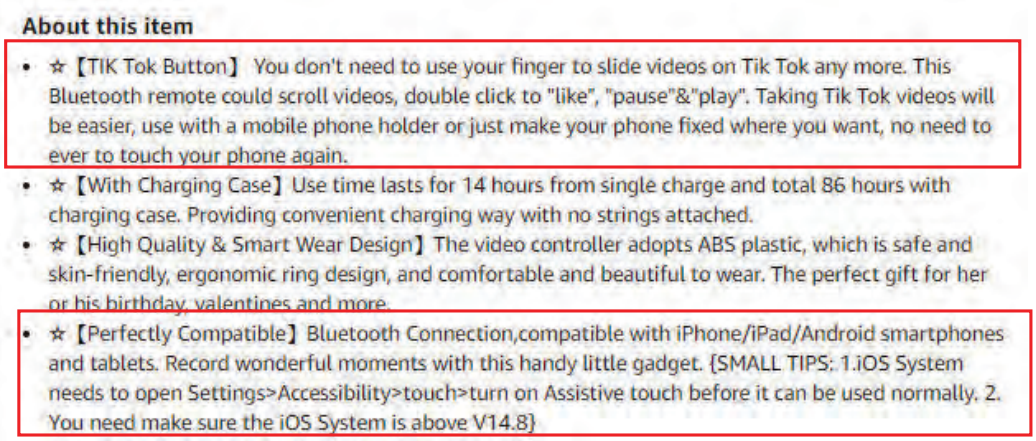



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US



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| | Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US<br>  <br><br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

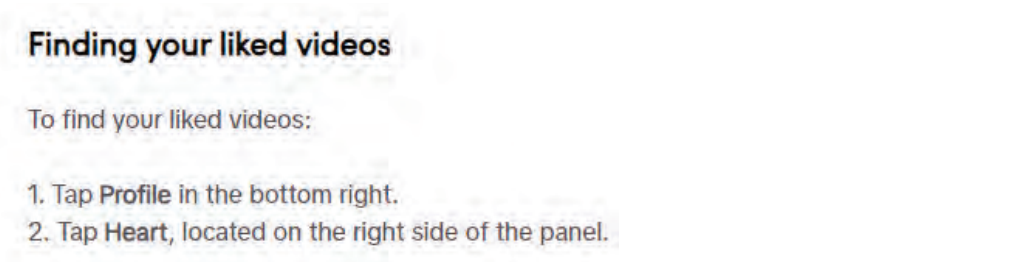
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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa



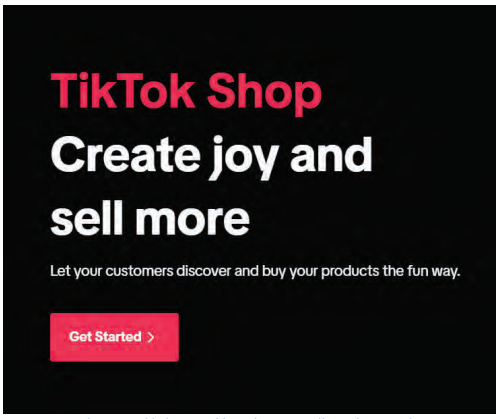
**Finding your liked videos**

To find your liked videos:

1. Tap **Profile** in the bottom right.
2. Tap **Heart**, located on the right side of the panel.

Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking

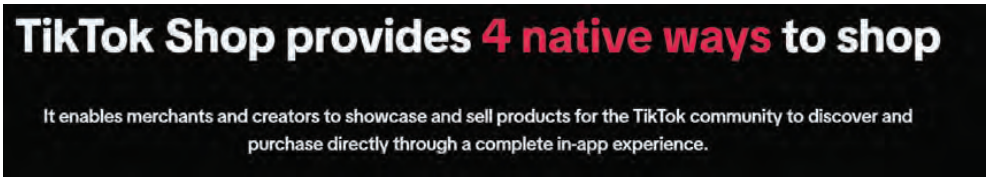
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| | If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/<br><br>**Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |

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| | For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance<br>  <br>Source: https://shop.tiktok.com/business/en |

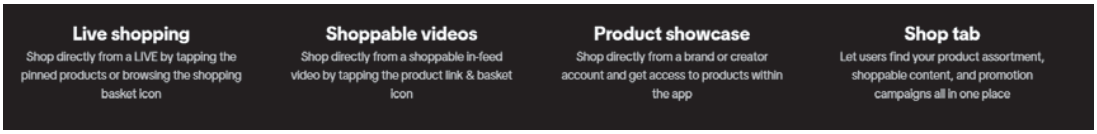




LifeScan, Inc. Ex. 1036
Page 367 of 2225
IPR2025-00102




Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en

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| | **Seller**<br><br>TikTok Shop enables brands to showcase and sell products for the TikTok community to discover and purchase.<br><br>**Purchase & Conversion**<br>With an all-in-app experience, there is no redirection to partnered shopping apps or websites, meaning higher conversion and sales.<br><br>**Campaigns & Promotion**<br>Get access to TikTok Shop's platform campaigns and extensive selection of promotion tools.<br><br>**Direct Creator Collaboration**<br>Discover, communicate and collaborate with thousands of creators through our affiliate programme directly accessible on TikTok Shop.<br><br>**Performance Analysis**<br>Track performance, traffic, customer reviews and transaction data through TikTok Shop's data dashboards<br><br>Source: https://shop.tiktok.com/business/en |

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| | **How does TikTok Commerce work?**<br><br>TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en<br><br>**About TikTok Shop**<br><br>TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.<br><br>Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.<br><br>• See TikTok Shop and Showcase<br>• See How to Add Product Links to TikTok Videos<br><br>With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en |

## Electrical Products and Electronics

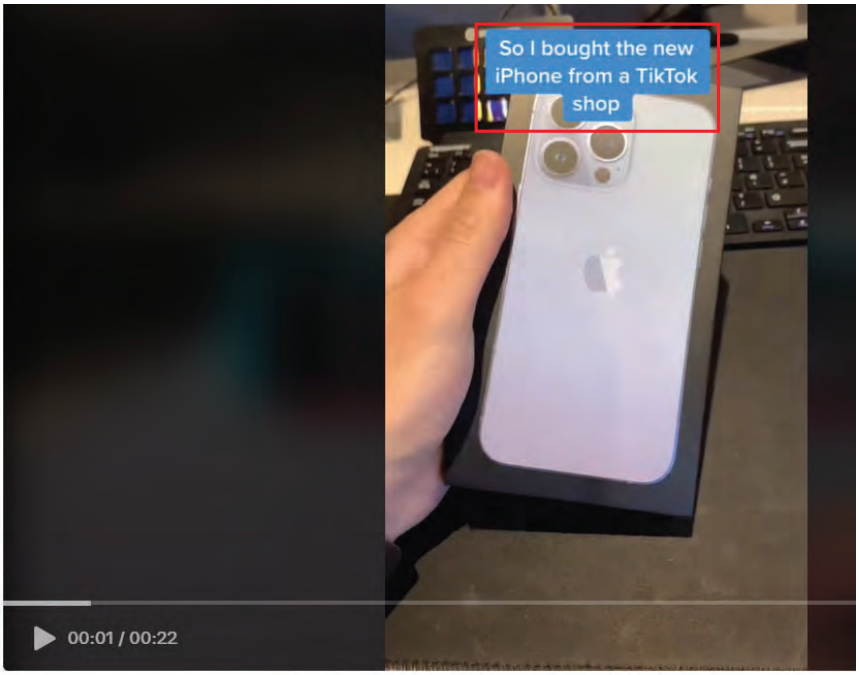
Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.

Electrical and electronic products include but are not limited to:

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy

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| | | • Other electronic household and similar appliances such as:<br>◦ string lights<br>◦ mobile phone batteries<br>◦ mobile phones<br>◦ car chargers<br>◦ mobile phone wall chargers |
| Electronics - Wireless and Bluetooth Devices | • Valid US Product Electrical Safety<br>• FCC Certification ID | • All electronic products with wireless capability, such as Wi-Fi-enabled devices<br>• All electronic products with Bluetooth capability |

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy

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| |  <br>So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime<br>Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502, at 0:01<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |





LifeScan, Inc. Ex. 1036
Page 372 of 2225
IPR2025-00102

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| [12.1] providing a software module on the Bluetooth enabled mobile device, wherein the software module on the Bluetooth enabled mobile device is configured to perform steps comprising: | Defendant performs and/or induces others to perform the step of providing a software module on the Bluetooth enabled mobile device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the mobile device ("Bluetooth enabled mobile device") on which the TikTok app is installed, contains Bluetooth functionality which includes a software module that allows the mobile device to connect and communicate with other Bluetooth devices including, but not limited to, AirPods, Bluetooth enabled earphones, and Bluetooth remotes. The user is allowed to remotely control the TikTok app installed on the mobile device via Bluetooth devices.<br><br>  <br>Source: https://developer.apple.com/bluetooth/ |

373

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| | **Bluetooth**<br><br>Android provides a default Bluetooth stack that supports both Classic Bluetooth and Bluetooth Low Energy. Using Bluetooth, Android devices can create personal area networks to send and receive data with nearby Bluetooth devices.<br><br>  <br><br><br>In Android 4.3 and later, the Android Bluetooth stack provides the ability to implement Bluetooth Low Energy (BLE). To fully leverage the BLE APIs, follow the Android Bluetooth HCI Requirements. Android devices with a qualified chipset can implement either Classic Bluetooth or both Classic Bluetooth and BLE. BLE is not backwards compatible with older Bluetooth chipsets.<br><br>In Android 8.0, the native Bluetooth stack is fully qualified for Bluetooth 5. To use available Bluetooth 5 features, the device needs to have a Bluetooth 5 qualified chipset.<br><br>Source: https://source.android.com/docs/core/connect/bluetooth |

374



LifeScan, Inc. Ex. 1036
Page 374 of 2225
IPR2025-00102

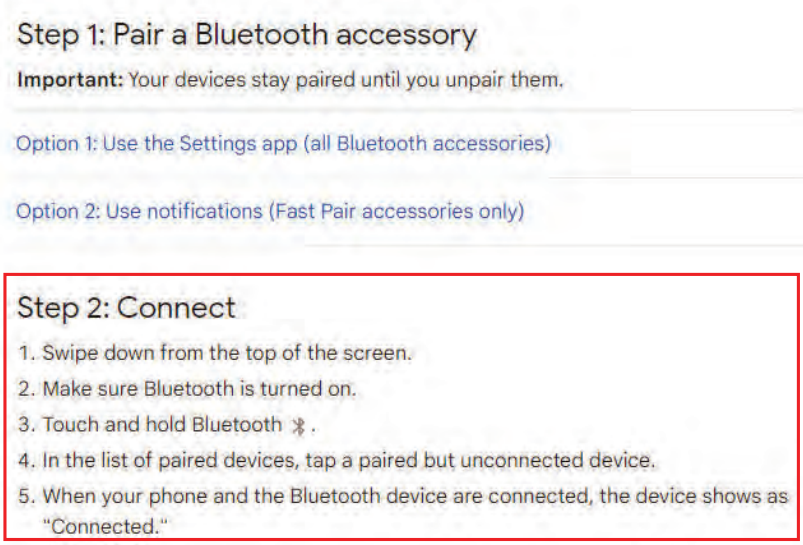
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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | **If an app would like to use Bluetooth on your device**<br>Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.<br><br>**About Bluetooth privacy settings**<br>Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.<br>Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.<br>Source: https://support.apple.com/en-us/HT210578 |





LifeScan, Inc. Ex. 1036
Page 376 of 2225
IPR2025-00102




Source: https://support.google.com/android/answer/9075925?hl=en

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

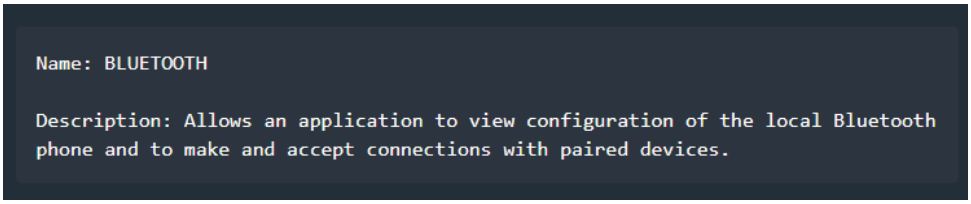
In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

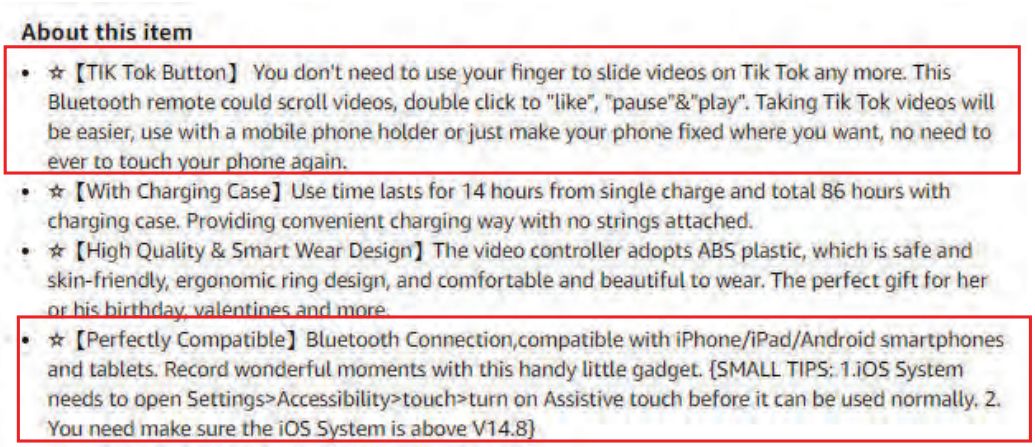
### Bluetooth permissions

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

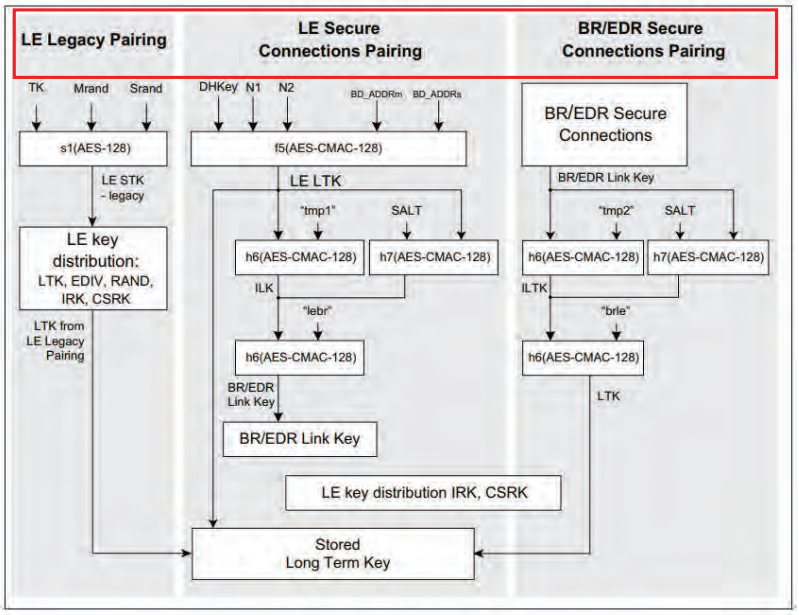
The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.2] establishing a paired secure connection between the Bluetooth enabled mobile device and a Bluetooth enabled data capture device, wherein paired secure Bluetooth connection uses cryptographic encryption key; | Defendant performs and/or induces others to perform the step of establishing a paired secure connection between the Bluetooth enabled mobile device and a Bluetooth enabled data capture device, wherein paired secure Bluetooth connection uses cryptographic encryption key.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device (“Bluetooth enabled mobile device”) which comprises Bluetooth. Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes (“Bluetooth enabled data capture device”). The paired Bluetooth devices are used to remotely control the TikTok app installed in |

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| | the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the mobile device and the Bluetooth device are connected through an encrypted connection created by exchanging secret keys ("cryptographic encryption key"). The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

383

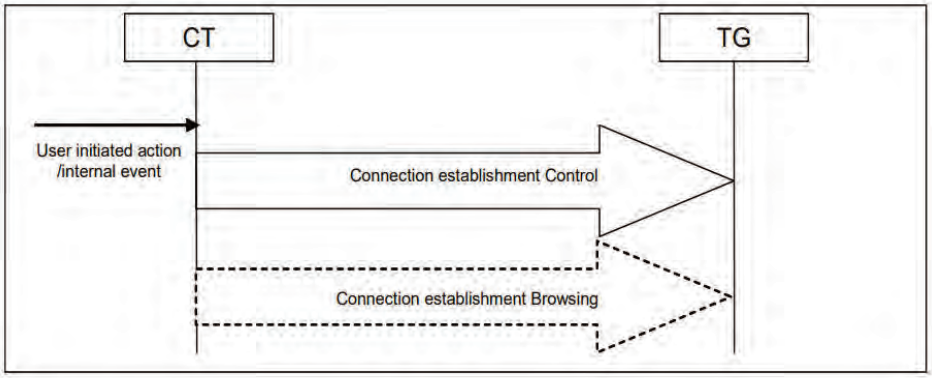



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

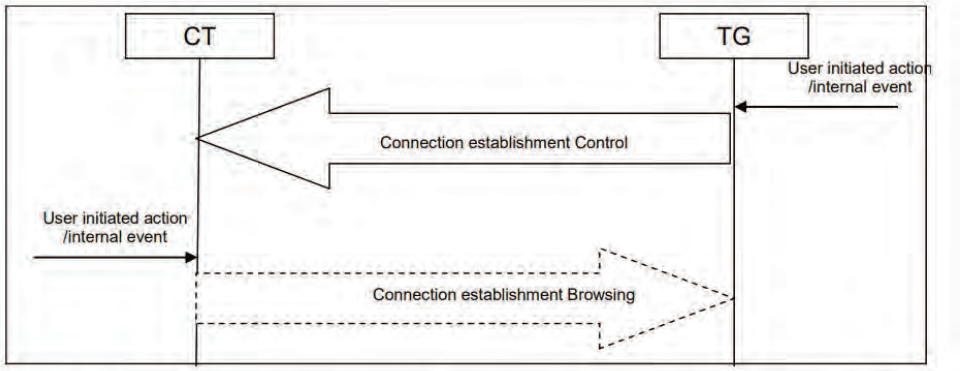



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

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| | Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity Bluetooth 5.0 wireless technology<br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

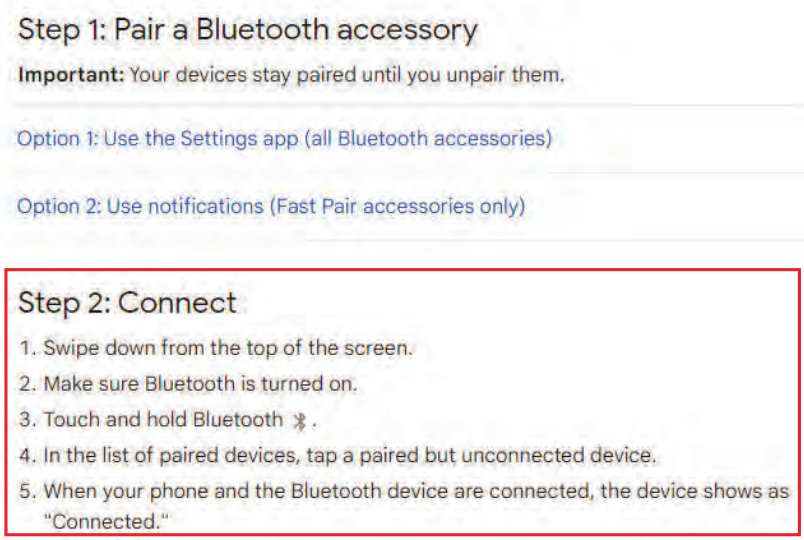




LifeScan, Inc. Ex. 1036
Page 386 of 2225
IPR2025-00102

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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web<br>**Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US |

387




Source: https://support.google.com/android/answer/9075925?hl=en



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

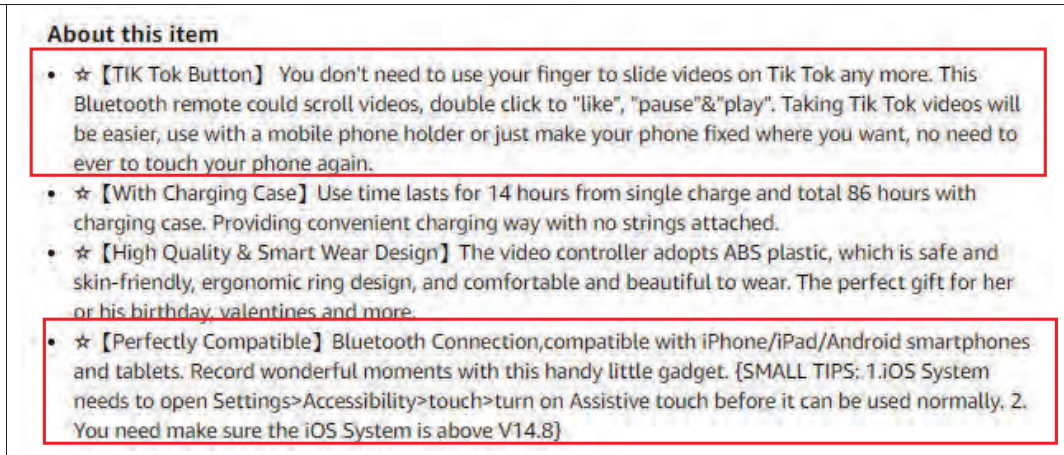
**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

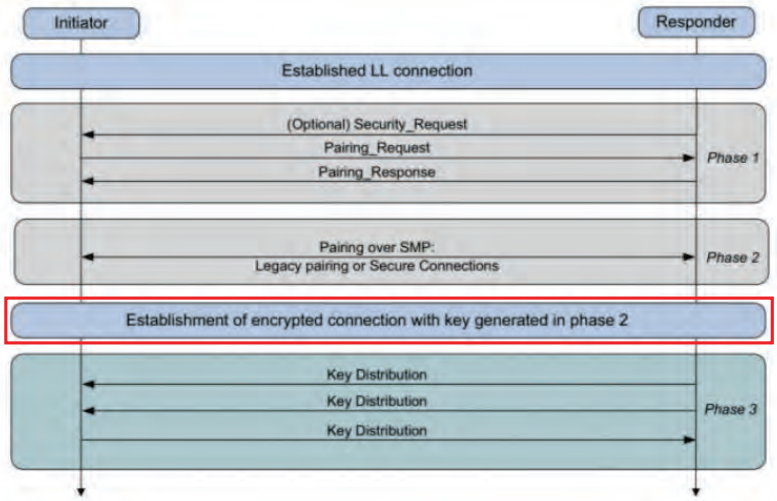
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/

392

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| | **2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.<br>5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.9 Authentication**<br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

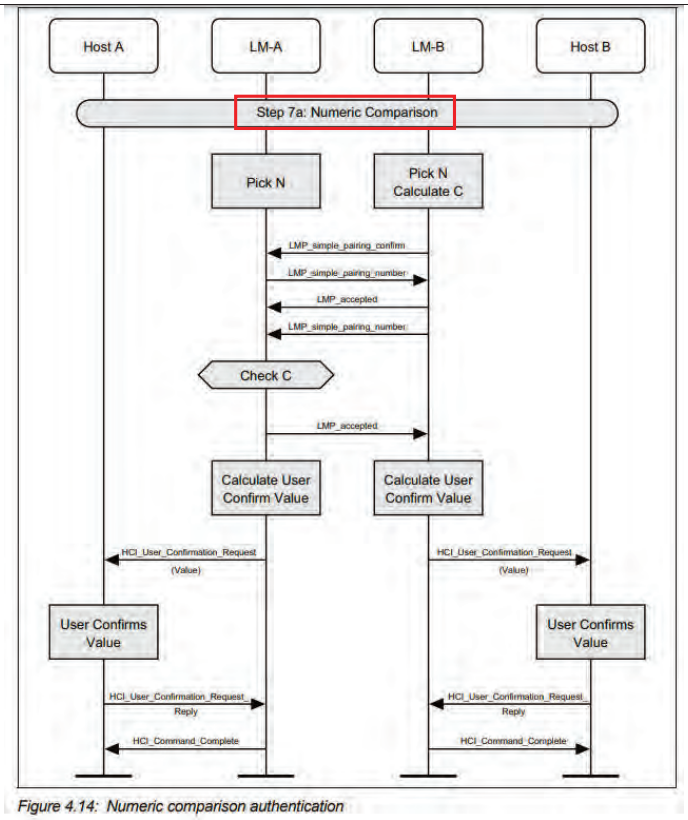



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

394

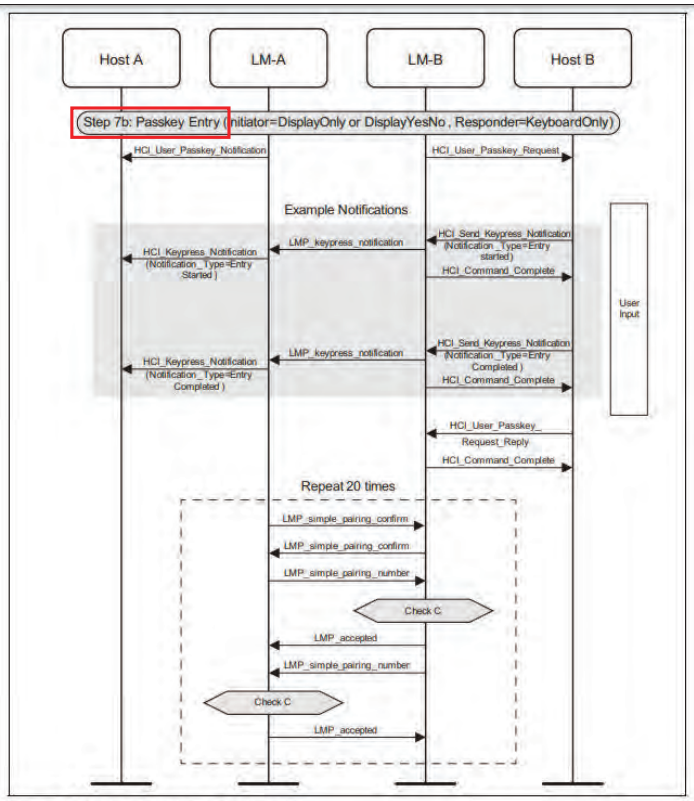
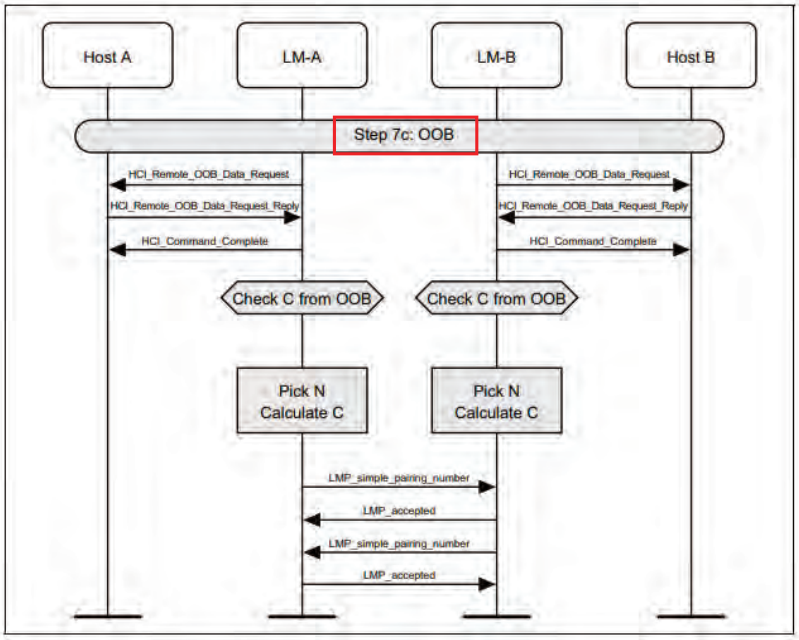



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

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| |  <br>*Figure 4.20: OOB authentication (P-192)*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.3] receiving a message from the Bluetooth enabled data capture device, corresponding to | Defendant performs and/or induces others to perform the step of receiving a message from the Bluetooth enabled data capture device, corresponding to supported data capability of the Bluetooth enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| supported data capability of the Bluetooth enabled data capture device; | For example, as is inherent to how the Bluetooth Low Energy (BLE) works, after a Bluetooth connection is established between the mobile device and Bluetooth device such as AirPods, Earphones, and Bluetooth remote ("Bluetooth enabled data capture device"), the mobile device receives information such as data formats, protocols, or functionalities ("supported data capability") supported by the Bluetooth device. Further, through the HCI (Host Controller Interface), the host (Bluetooth enabled mobile device) retrieves information about the controller (Bluetooth enabled data capture device), including its capabilities and supported features.<br><br>In addition to L2CAP, LE provides two additional protocol layers that reside on top of L2CAP. The Security Manager protocol (SMP) uses a fixed L2CAP channel to implement the security functions between devices. The other is the Attribute protocol (ATT) that provides a method to communicate small amounts of data over a fixed L2CAP channel. The Attribute protocol is also used by devices to determine the services and capabilities of other devices. The Attribute protocol may also be used over BR/EDR.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 172<br><br>**5.2.4 Association Models**<br><br>Secure Simple Pairing uses four association models referred to as Numeric Comparison, Just Works, Out Of Band, and Passkey Entry. Each of these association models are described in more detail in the following sections.<br><br>The association model used is deterministic based on the I/O capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 244 |

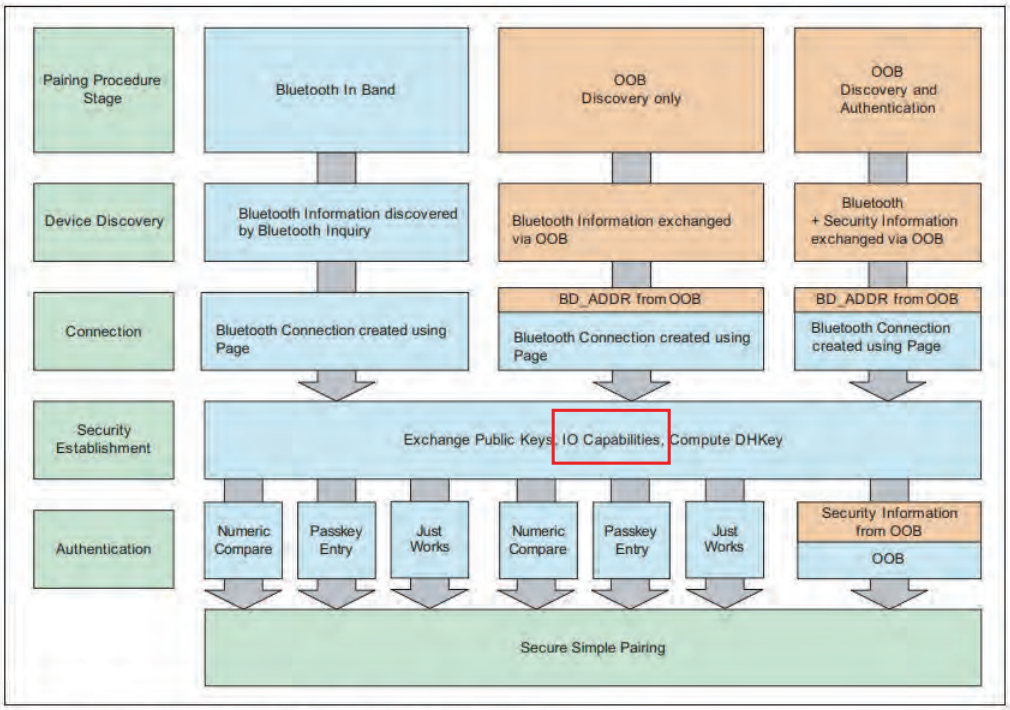



*Figure 5.3: Secure Simple Pairing Association Models*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 247

398

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| | This Part of the Bluetooth Core Specification describes the functional specifications for the Host Controller Interface (HCI). The HCI provides a uniform interface method of accessing a Bluetooth Controller's capabilities. The next three sections provide a brief overview of the lower layers of the Bluetooth software stack and of the Bluetooth hardware. Section 2 provides an overview of the Lower HCI Device Driver Interface on the Host device. Section 4 describes the flow control used between the Host and the Controller. Section 7 describes each of the HCI Commands in detail, identifies parameters for each of the commands, and lists events associated with each command.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 670<br><br>Bluetooth devices may contain a collection of special data entities, known as *services*, *characteristics*, and *descriptors*, each of which is a type of *attribute*. Attributes of all types are organized within something called an *attribute table*.<br>Characteristics are instances of state data and reflect some aspect or capability of the device.<br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 8<br><br>In the world of Bluetooth low energy, a device has something called a profile which defines the way other devices are able to communicate over Bluetooth with it. In a way, the Bluetooth® profile defines the way a device appears to other devices in terms of its features and the things it can do.<br>To put it another way, a Bluetooth profile is really an interface specification. It defines the data which a device has, what another device can do with that data over a Bluetooth connection and how the device with the profile should respond when a connected device acts upon its data in some way. Let's look at that description in a little more technical detail.<br>Source: https://www.bluetooth.com/blog/a-developers-guide-to-bluetooth/ |

399

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

BLUETOOTH
pair with Bluetooth devices

BLUETOOTH_CONNECT
connect to paired Bluetooth devices



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| | Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.4] detecting new data acquired by the Bluetooth enabled data capture device for transfer, wherein detecting the new data for transfer comprises: | Defendant performs and/or induces others to perform the step of detecting new data acquired by the Bluetooth enabled data capture device for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app installed on the mobile device receives the command provided through Bluetooth devices such as AirPods, earphones or Bluetooth remote ("Bluetooth enabled data capture device"). As is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled data capture device acquires new data (audio command or the button pressed on the Bluetooth remote) and then notifies the software module about the availability of the new data by sending an event notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("new-data") on AirPods or earphones, the TikTok app detects the user's command. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app detects the user's command. |

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| | A new Data Channel PDU is a Data Channel PDU sent for the first time by the Link Layer. A last Data Channel PDU is a Data Channel PDU that is resent by the Link Layer. When resending a Data Channel PDU, the LLID field, the SN field and the payload of the sent Data Channel PDU shall be equal to those of the last Data Channel PDU sent by the Link Layer.<br><br>For each new Data Channel PDU that is sent, the SN bit of the Header shall be set to *transmitSeqNum*. If a Data Channel PDU is resent, then the SN bit shall not be changed.<br><br>Upon reception of a Data Channel PDU, the SN bit shall be compared to *nextExpectedSeqNum*. If the bits are different, then this is a resent Data Channel PDU, and *nextExpectedSeqNum* shall not be changed. If the bits are the same, then this is a new Data Channel PDU, and *nextExpectedSeqNum* may be incremented by one (see Section 4.5.9.1).<br><br>When a Data Channel PDU is sent, the NESN bit of the Header shall be set to *nextExpectedSeqNum*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649 |

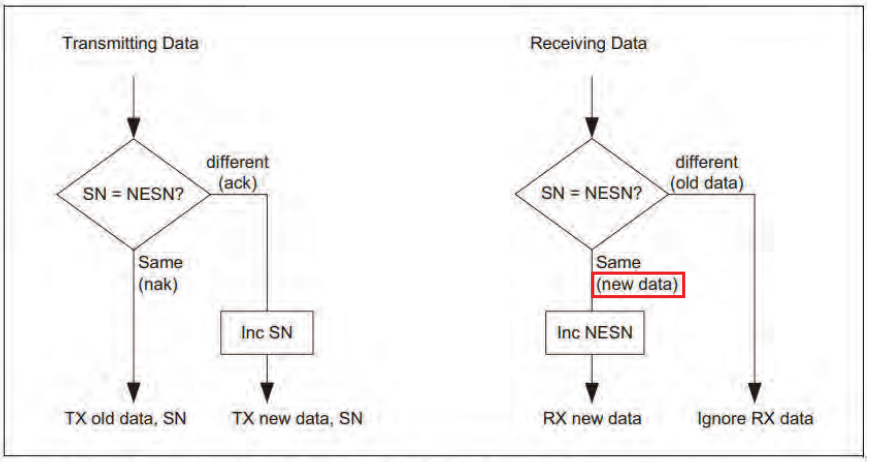



*Figure 4.39: Transmit and Receive SN and NESN flow diagram*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649

Connectionless Slave Broadcast packets are transmitted at each scheduled Connectionless Slave Broadcast Instant. If no new data is available, the Connectionless Slave Broadcast Transmitter shall transmit a packet with the last available data in the payload.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 441

| Value | Parameter Description |
|---|---|
| Variable | Data to send in future Connectionless Slave Broadcast packets. This data will be repeated in future Connectionless Slave Broadcast instants until new data is provided |

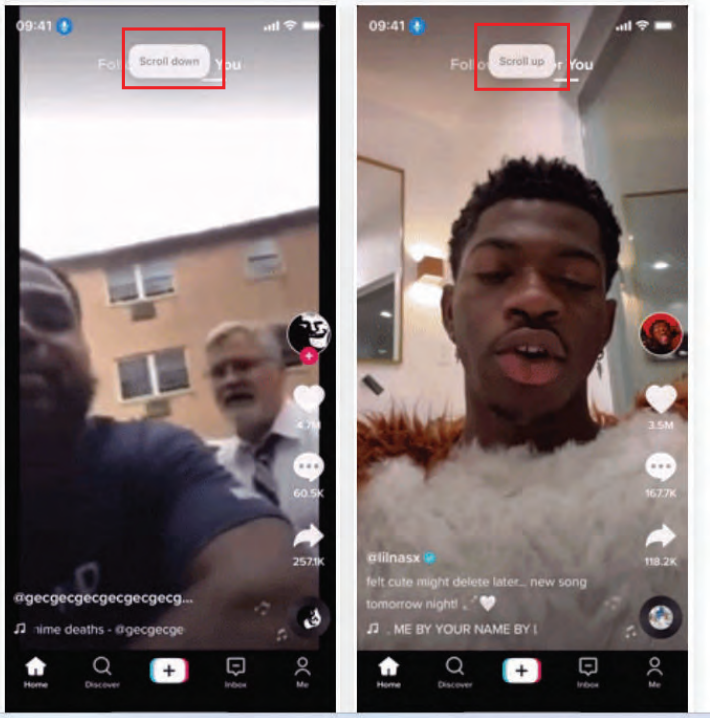
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1030

If Operation indicates the start of new data (values 0x01 or 0x03), then any existing partial or complete advertising data shall be discarded. If the Advertising_Data_Length parameter is zero and Operation is 0x03, any existing partial or complete data shall be deleted (with no new data provided).

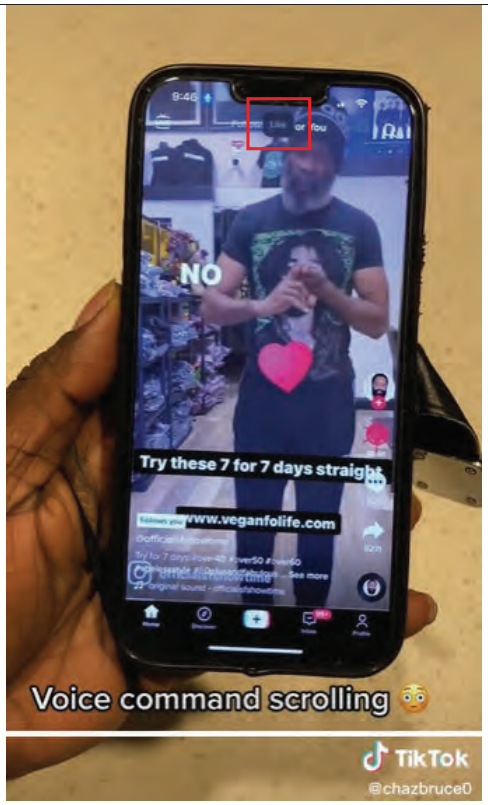
If Operation is 0x04, the behavior is the same as if the current advertising data had been sent again; this can be used to cause the Advertising DID value to be updated (see [Vol 6] Part B, Section 4.4.2.11).

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1345

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

406

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |





LifeScan, Inc. Ex. 1036
Page 408 of 2225
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

409

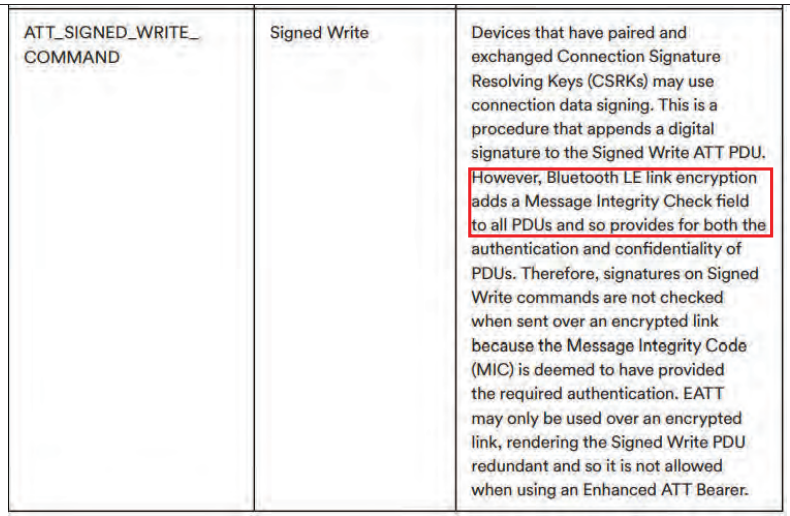
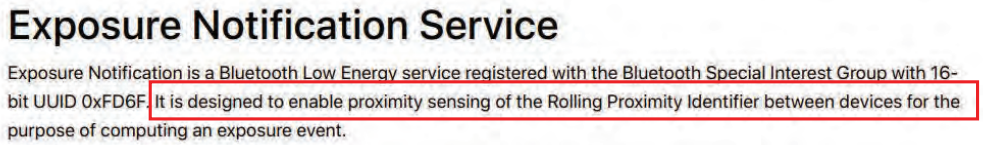
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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.5] sending a message to the Bluetooth enabled data capture device, over the established paired secure Bluetooth connection, to enable event notifications on the | Defendant performs and/or induces others to perform the step of sending a message to the Bluetooth enabled data capture device, over the established paired secure Bluetooth connection, to enable event notifications on the Bluetooth enabled data capture device corresponding to new data, wherein the new data is data acquired by Bluetooth enabled data capture device after establishing the secure Bluetooth pairing connection between the Bluetooth enabled data capture device and the Bluetooth enabled mobile device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| Bluetooth enabled data capture device corresponding to new data, wherein the new data is data acquired by Bluetooth enabled data capture device after establishing the secure Bluetooth pairing connection between the Bluetooth enabled data capture device and the Bluetooth enabled mobile device; | For example, after establishing Bluetooth connection, BLE allows the mobile device ("Bluetooth enabled mobile device") to send a message to the Bluetooth device ("Bluetooth enabled data captured device"), intending to enable event notifications on the Bluetooth device, notifying the mobile device when the new data is acquired.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized to transfer the data from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control specification), including, but not limited to, AirPods, Earphones and Bluetooth remotes, to the Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed. The mobile devices notify ("sending a message") the Bluetooth devices, to register and send them notifications when the new data is acquired.<br><br>3. CT devices have the capability to provide a NOTIFY AV/C command to the TG, to register for specific events on the TG.<br>4. The TG shall for every supported NOTIFY AV/C command send an INTERIM response to the CT with the current status of the registered event within $T_{MTP}$ from the time of registration.<br><br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 38<br><br>**6.7 Notification PDUs**<br>The Notification PDUs are used to obtain synchronous as well as asynchronous updates from the TG based on change of status at the target's side.<br><br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/ |

411

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

412

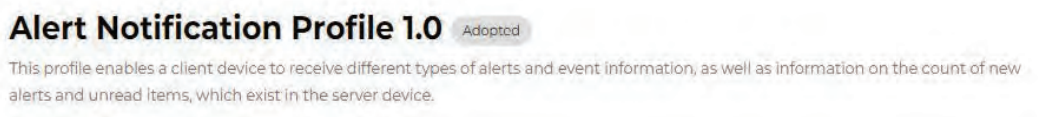
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| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

| ATT_SIGNED_WRITE_COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |
|---|---|---|

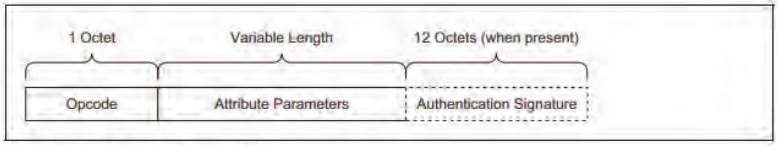
## Exposure Notification Service

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

413

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| |  <br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.6] enabling event notification listening on Bluetooth enabled mobile device, to listen for event notifications sent from the Bluetooth enabled data capture device, over the established paired secure Bluetooth connection; | Defendant performs and/or induces others to perform the step of enabling event notification listening on Bluetooth enabled mobile device, to listen for event notifications sent from the Bluetooth enabled data capture device, over the established paired secure Bluetooth connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after establishing a Bluetooth connection with the Bluetooth device ("Bluetooth enabled data capture device"), the mobile device ("Bluetooth enabled mobile device") is allowed to enable event notification for a command captured through the Bluetooth device for the TikTok app installed in the mobile device. Based on the received event notification, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data's (audio command and information corresponding to button press) notification is received in the mobile device on which the TikTok app is installed.<br><br>Further, after establishing Bluetooth connection, when an audio command is sent through the Bluetooth devices, such as AirPods or earphones, or when a button is pressed on the Bluetooth remote control, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client (e.g., |

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| | a mobile device) establishes a connection with a GATT server (e.g., a Bluetooth device), it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>Further, when an audio command is sent from the Bluetooth devices or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>**Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br><br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

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| | The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br>  <br>*Figure 2.3: Attribute Protocol PDU*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |

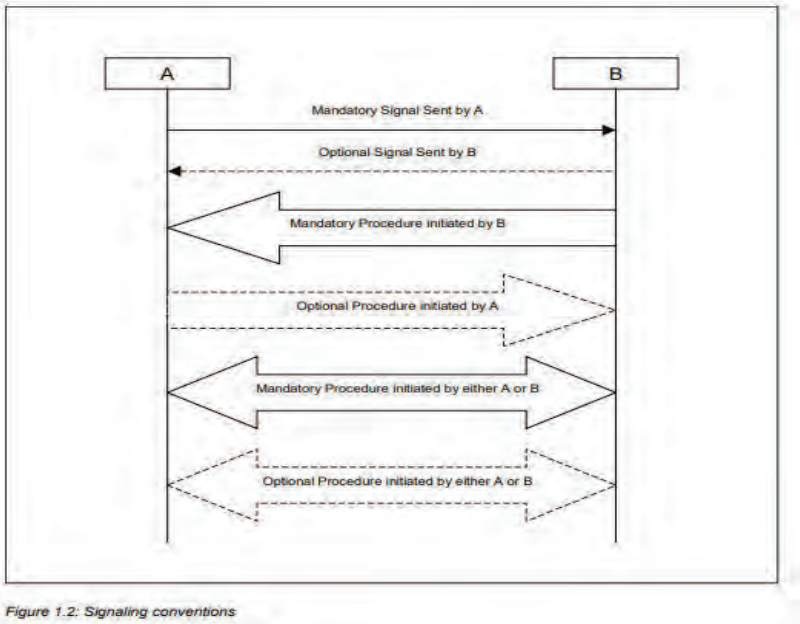



*Figure 1.2: Signaling conventions*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

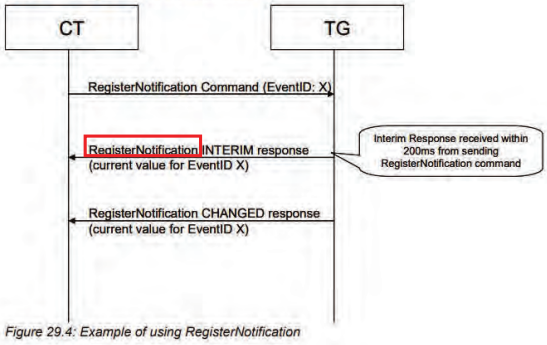



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139

418

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

### Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

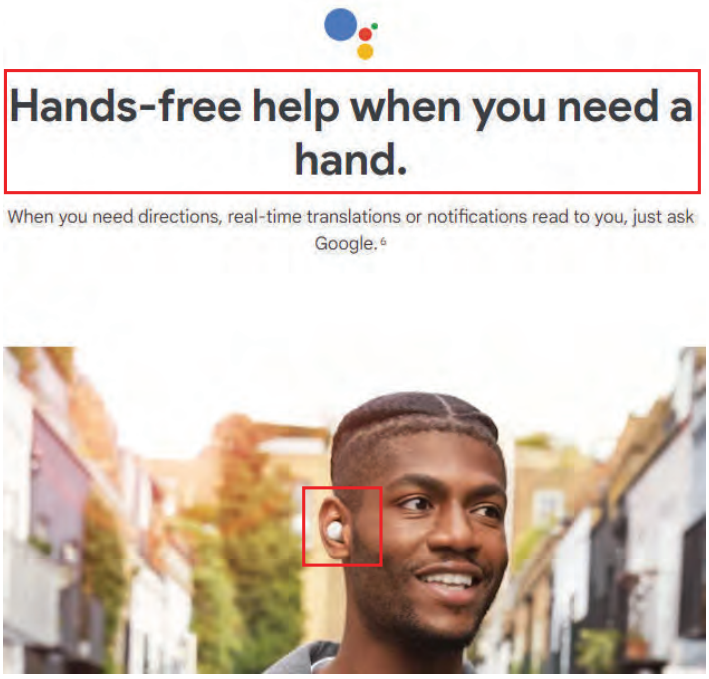
You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

| | |
|---|---|
| | Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa | Jan 30 2017 - 10:34 am PT | 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |



422

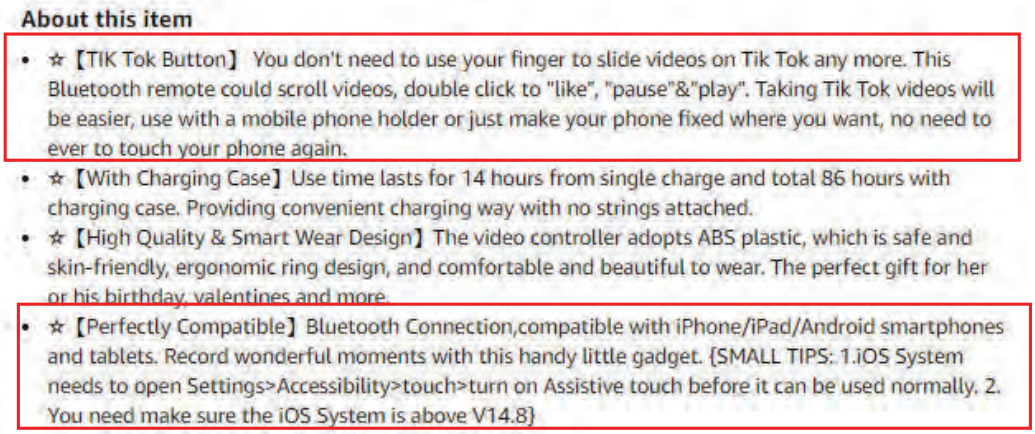



Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

424

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.7] receiving, from the Bluetooth enabled data capture device, an event notification corresponding to existence of new data for transfer, over the established paired secure Bluetooth connection; and | Defendant performs and/or induces others to perform the step of receiving, from the Bluetooth enabled data capture device, an event notification corresponding to existence of new data for transfer, over the established paired secure Bluetooth connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, once the Bluetooth pairing is done securely between the Bluetooth enabled cellular phone and the Bluetooth enabled data capture device, and the event notification is enabled, the mobile device ("Bluetooth enabled mobile device") receives notification when the Bluetooth device ("Bluetooth enabled data capture device") captures the new data for the TikTok app installed in the mobile device. Based on the received event notification, the TikTok app performs the functionality corresponding to the received command. |

| | |
|---|---|
| | For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data's (audio command and information corresponding to button press) notification is received in the mobile device on which the TikTok app is installed.<br><br>Further, after establishing Bluetooth connection, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT as part of their BLE functionality that defines a framework for organizing and exchanging data between the BLE devices. When a GATT server, has new data or an event to notify the GATT client, it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data to Bluetooth enabled mobile device on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>**Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.

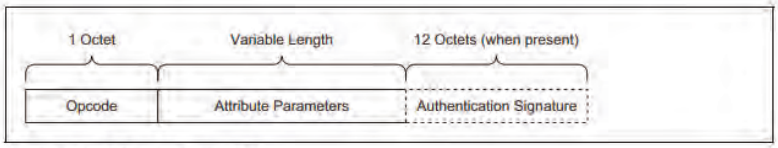



*Figure 2.3: Attribute Protocol PDU*

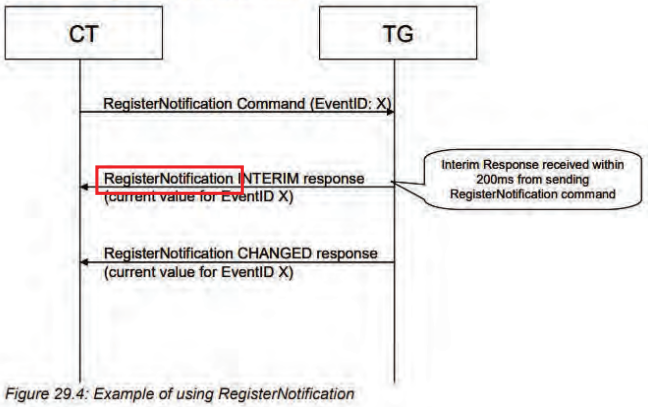
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

| | |
|---|---|
| | **29.3 RegisterNotification**<br>  <br><br>*Figure 29.4: Example of using RegisterNotification*<br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139 |

429

| | |
|---|---|
| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.

ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).

ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

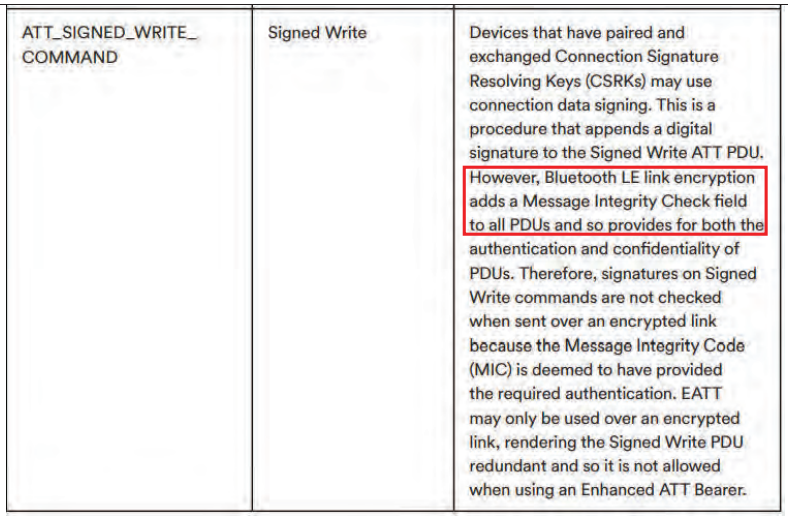
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

| | |
|---|---|
| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17 |

| | | |
|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

| | |
|---|---|
| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

| | |
|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

## 5.13 Browsing

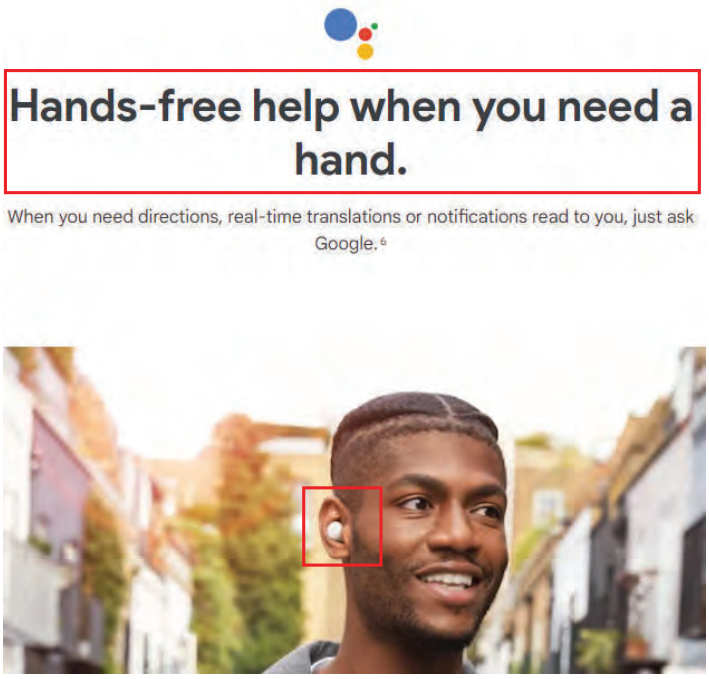
Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help



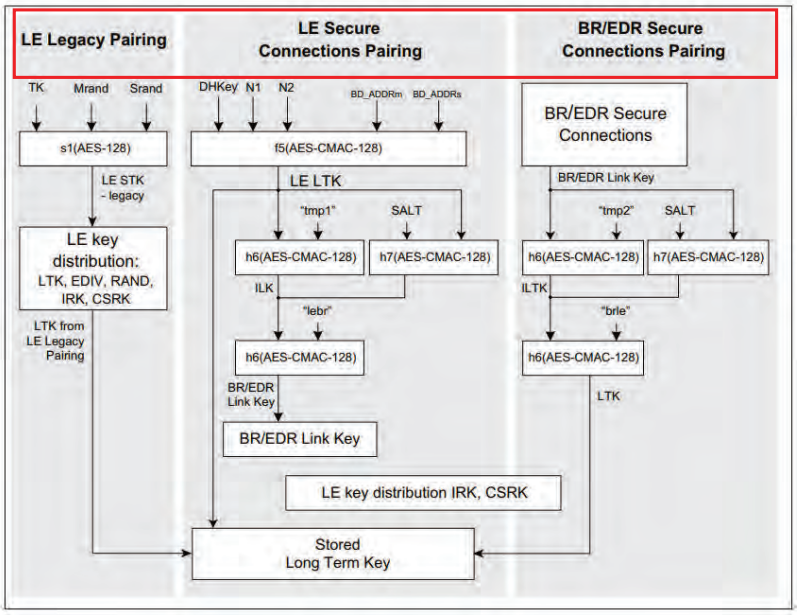


LifeScan, Inc. Ex. 1036
Page 439 of 2225
IPR2025-00102

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

| | | |
|---|---|---|
| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

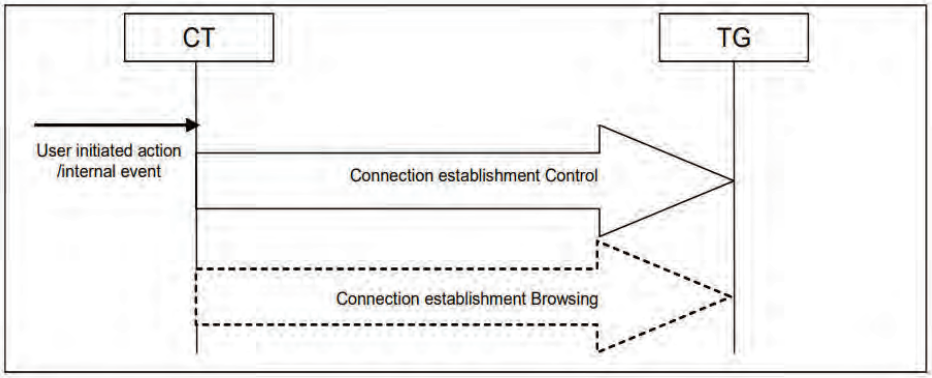



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

444

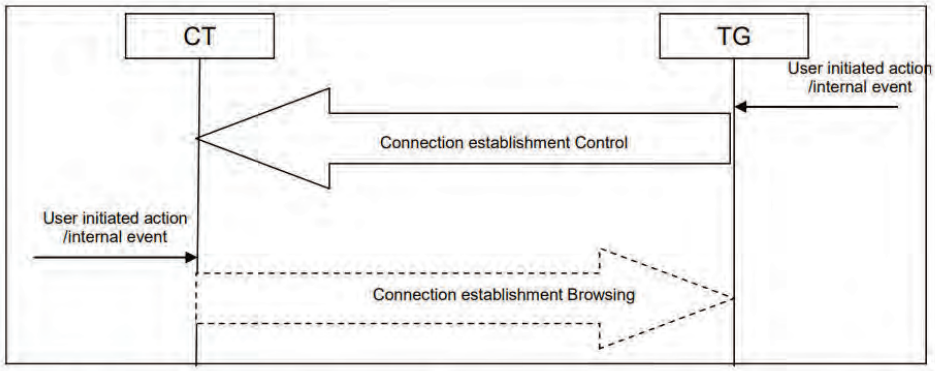



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

### 4.2.9 Authentication

A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.

| | |
|---|---|
| | Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.8] sending a request to the Bluetooth enabled data capture device, to get new data for transfer; | Defendant performs and/or induces others to perform the step of sending a request to the Bluetooth enabled data capture device, to get new data for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after receiving notification about capturing of the new data for the TikTok app installed in the mobile device, the Bluetooth enabled mobile device receives the new data captured by the Bluetooth device ("Bluetooth enabled data capture device"). It would be apparent to a person having ordinary skill in the art that the mobile device sends a request to the Bluetooth device to retrieve new data for transfer.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data's (audio command and information corresponding to button press) notification is received in the mobile device on which the TikTok app is installed and the mobile device requests to receive the command in order to perform the corresponding functionality in the TikTok app.<br><br>**Transfer Bluetooth data**<br><br>After you have successfully connected to a Bluetooth device, each one has a connected `BluetoothSocket`. You can now share information between devices. Using the `BluetoothSocket`, the general procedure to transfer data is as follows:<br><br>1. Get the `InputStream` and `OutputStream` that handle transmissions through the socket using `getInputStream()` and `getOutputStream()`, respectively.<br>2. Read and write data to the streams using `read(byte[])` and `write(byte[])`.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth/transfer-data |

| | |
|---|---|
| | A new Data Channel PDU is a Data Channel PDU sent for the first time by the Link Layer. A last Data Channel PDU is a Data Channel PDU that is resent by the Link Layer. When resending a Data Channel PDU, the LLID field, the SN field and the payload of the sent Data Channel PDU shall be equal to those of the last Data Channel PDU sent by the Link Layer.<br><br>For each new Data Channel PDU that is sent, the SN bit of the Header shall be set to *transmitSeqNum*. If a Data Channel PDU is resent, then the SN bit shall not be changed.<br><br>Upon reception of a Data Channel PDU, the SN bit shall be compared to *nextExpectedSeqNum*. If the bits are different, then this is a resent Data Channel PDU, and *nextExpectedSeqNum* shall not be changed. If the bits are the same, then this is a new Data Channel PDU, and *nextExpectedSeqNum* may be incremented by one (see Section 4.5.9.1).<br><br>When a Data Channel PDU is sent, the NESN bit of the Header shall be set to *nextExpectedSeqNum*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649 |

448

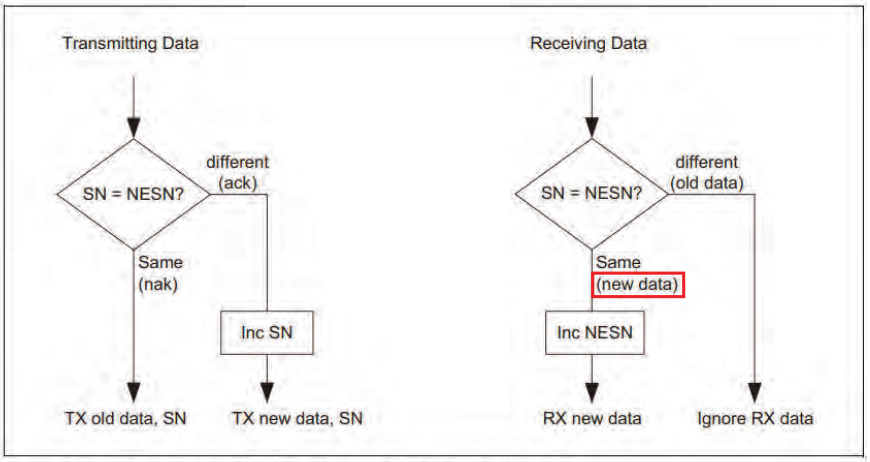



*Figure 4.39: Transmit and Receive SN and NESN flow diagram*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649

Connectionless Slave Broadcast packets are transmitted at each scheduled Connectionless Slave Broadcast Instant. If no new data is available, the Connectionless Slave Broadcast Transmitter shall transmit a packet with the last available data in the payload.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 441

449

| Value | Parameter Description |
|---|---|
| Variable | Data to send in future Connectionless Slave Broadcast packets. This data will be repeated in future Connectionless Slave Broadcast instants until new data is provided |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1030

If Operation indicates the start of new data (values 0x01 or 0x03), then any existing partial or complete advertising data shall be discarded. If the Advertising_Data_Length parameter is zero and Operation is 0x03, any existing partial or complete data shall be deleted (with no new data provided).

If Operation is 0x04, the behavior is the same as if the current advertising data had been sent again; this can be used to cause the Advertising DID value to be updated (see [Vol 6] Part B, Section 4.4.2.11).

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1345

Use More Voice Commands on TikTok

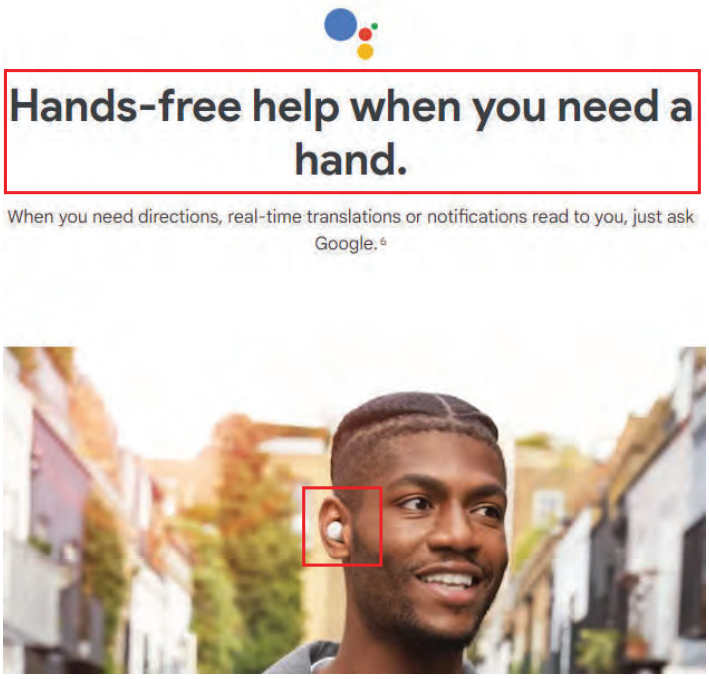
You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help



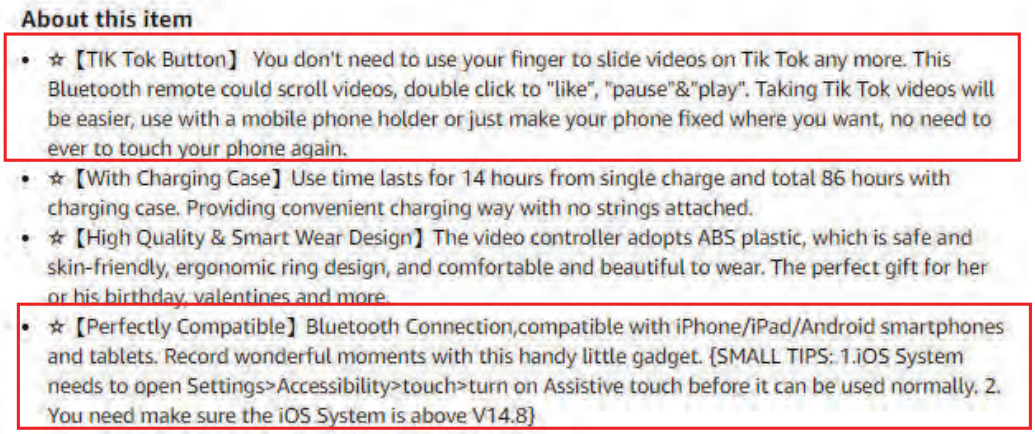


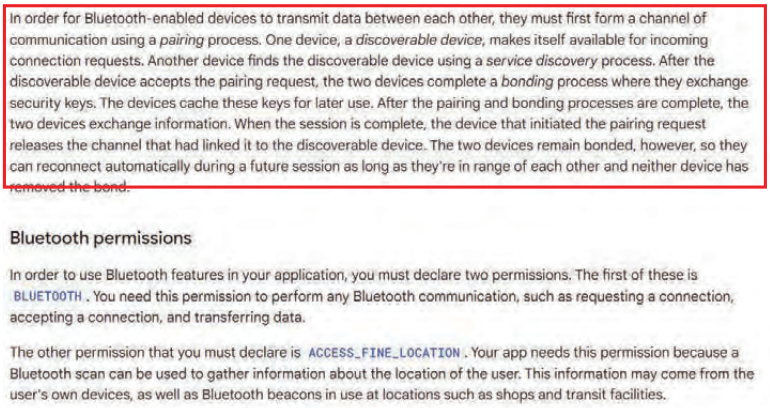
LifeScan, Inc. Ex. 1036
Page 453 of 2225
IPR2025-00102

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

455

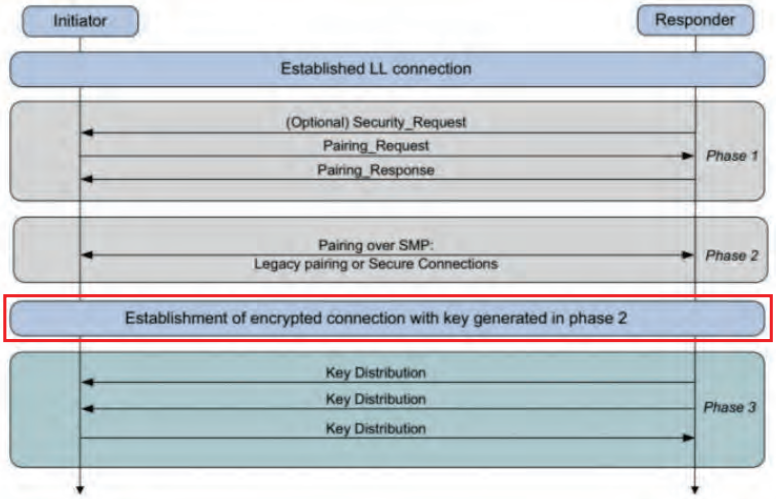
| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.9] receiving, by the Bluetooth enabled mobile device, encrypted data corresponding to the new data over the established Bluetooth paired secure wireless connection and obtaining new data from the received encrypted data using cryptographic encryption key; and | Defendant performs and/or induces others to perform the step of receiving, by the Bluetooth enabled mobile device, encrypted data corresponding to the new data over the established Bluetooth paired secure wireless connection and obtaining new data from the received encrypted data using cryptographic encryption key.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the devices, the Bluetooth devices capture the user's command and send the command to the mobile device through the Bluetooth connection in an encrypted form. The TikTok application in the mobile device receives the user command in the encrypted form and performs the functionality corresponding to the received command. The BLE defines two types of encryption mechanisms: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM is used when encryption |

| | |
|---|---|
| | is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 is used when encryption is enabled.<br><br>For example, when the user provides the audio command such as “Double Tap” or “Scroll Down” on AirPods or earphones, the TikTok app receives the user’s command securely, in the encrypted form, in order to ‘like’ or ‘scroll down’ the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote (“Bluetooth enabled data capture device”), the TikTok app receives the user’s command in order to like the subsequent video.<br><br>  <br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

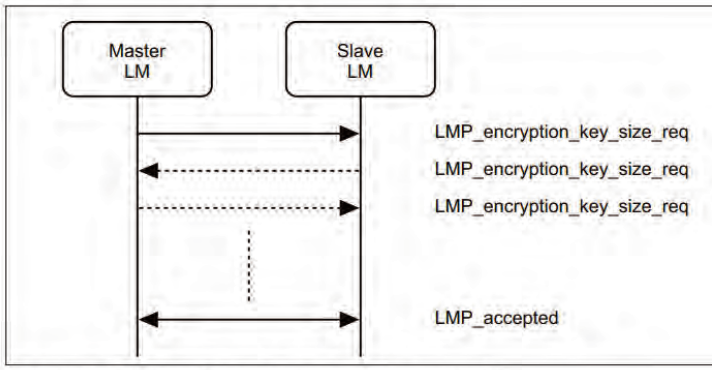
| | |
|---|---|
| | **2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.5 Encryption**<br>If at least one authentication has been performed encryption may be used. Two encryption mechanisms are defined: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM shall be used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 shall be used when encryption is enabled.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 567 |

| M/O | PDU | Contents |
|---|---|---|
| O | LMP_encryption_mode_req | encryption mode |
| O | LMP_encryption_key_size_req | key size |
| O | LMP_start_encryption_req | random number |
| O | LMP_stop_encryption_req | - |
| O (42) | LMP_pause_encryption_req | |
| O (42) | LMP_resume_encryption_req | |
| O (136) | LMP_pause_encryption_aes_req | random number |

*Table 4.21: Encryption handling PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 568

| | |
|---|---|
| | ***4.2.5.2 Encryption Key Size***<br><br>Note: This section uses the same terms as in [Vol 2] Part H, Section 4.1. The master sends an LMP_encryption_key_size_req PDU including the suggested key size $L_{sug, m}$, that is initially equal to $L_{max, m}$. If $L_{min, s} \leq L_{sug, m}$ and the slave supports $L_{sug, m}$ it shall respond with an LMP_accepted PDU and $L_{sug, m}$ shall be used as the key size. If both conditions are not fulfilled the slave sends back an LMP_encryption_key_size_req PDU including the slave's suggested key size $L_{sug, s}$. This value shall be the slave's largest supported key size that is less than $L_{sug, m}$. Then the master performs the corresponding test on the slave's suggestion. This procedure is repeated until a key size agreement is reached or it becomes clear that no such agreement can be reached. If an agreement is reached a device sends an LMP_accepted PDU and the key size in the last LMP_encryption_key_size_req PDU shall be used. After this, encryption is started; see Section 4.2.5.3. If an agreement is not reached a device sends an LMP_not_accepted PDU with the error code *Unsupported*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 569 |




*Sequence 45: Encryption key size negotiation successful*

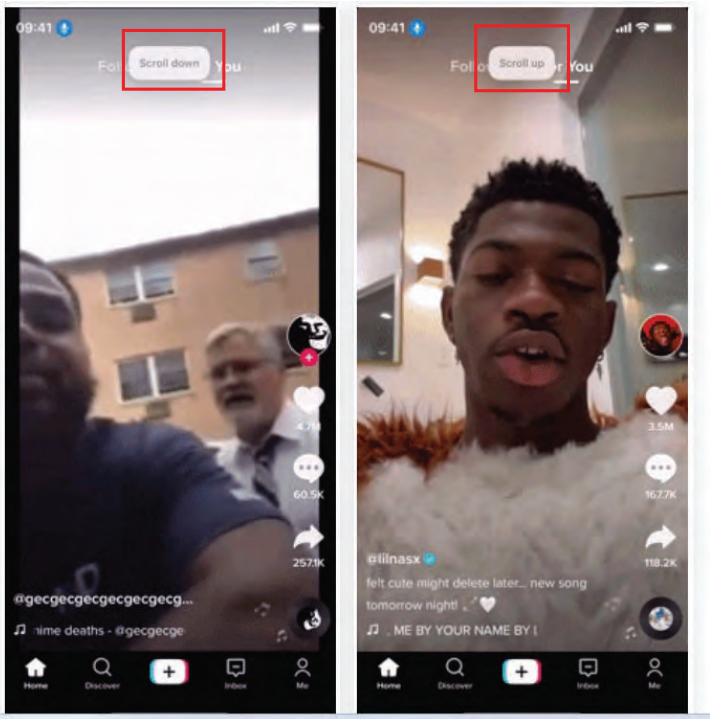
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 570

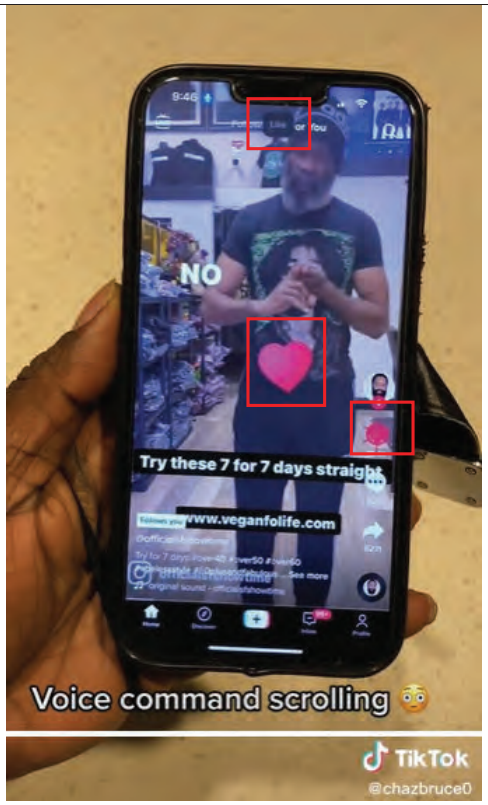
## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

| | |
|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

464

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |



465

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





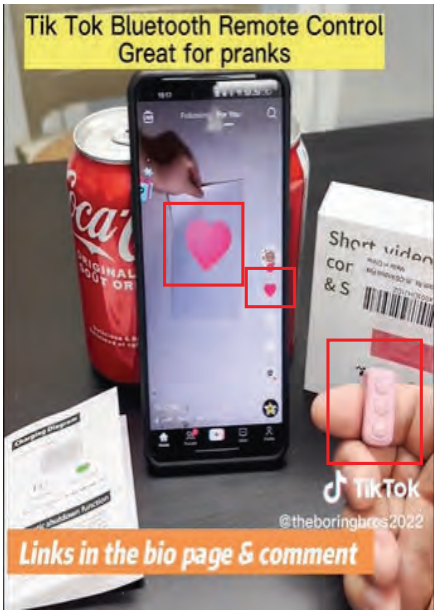
LifeScan, Inc. Ex. 1036
Page 466 of 2225
IPR2025-00102

| | |
|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 467 of 2225
IPR2025-00102

| | |
|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.10] transferring the obtained new data along with a user identifier to a remote internet server, comprising configuring the obtained new data to comprise an action | Defendant performs and/or induces others to perform the step of transferring the obtained new data along with a user identifier to a remote internet server, comprising configuring the obtained new data to comprise an action setting and destination web address of a remote internet server, wherein action setting comprises one of a remote procedure call (RPC) method and hypertext transfer protocol (HTTP) method, and wherein the user identifier uniquely identifies a particular user of the internet service provided by a remote internet server.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

| | |
|---|---|
| setting and destination web address of a remote internet server, wherein action setting comprises one of a remote procedure call (RPC) method and hypertext transfer protocol (HTTP) method, and wherein the user identifier uniquely identifies a particular user of the internet service provided by a remote internet server. | For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to transfer (or backup) data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok App for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app.<br><br>**Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |



469

## Initialize video upload

To upload a video to a TikTok user's account, the first step is to initialize the upload.

| | |
|---|---|
| HTTP URL | /v2/post/publish/inbox/video/init/ |
| HTTP Method | POST |
| Scope | video.upload |

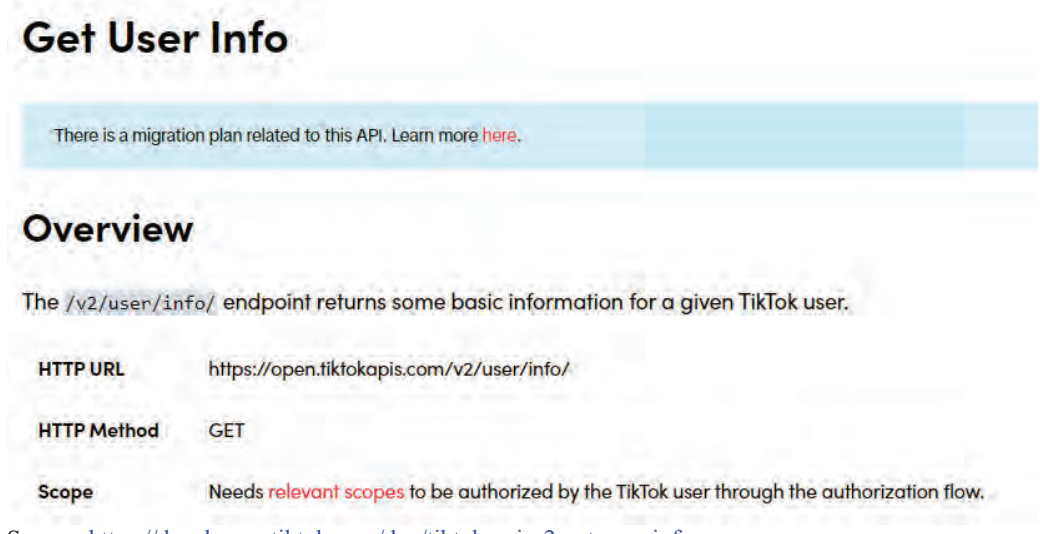
Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

## File upload

Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.

To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference.

Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide



# Get User Info

There is a migration plan related to this API. Learn more here.

## Overview

The `/v2/user/info/` endpoint returns some basic information for a given TikTok user.

| | |
|---|---|
| **HTTP URL** | https://open.tiktokapis.com/v2/user/info/ |
| **HTTP Method** | GET |
| **Scope** | Needs relevant scopes to be authorized by the TikTok user through the authorization flow. |

Source: https://developers.tiktok.com/doc/tiktok-api-v2-get-user-info

## Information You Provide

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

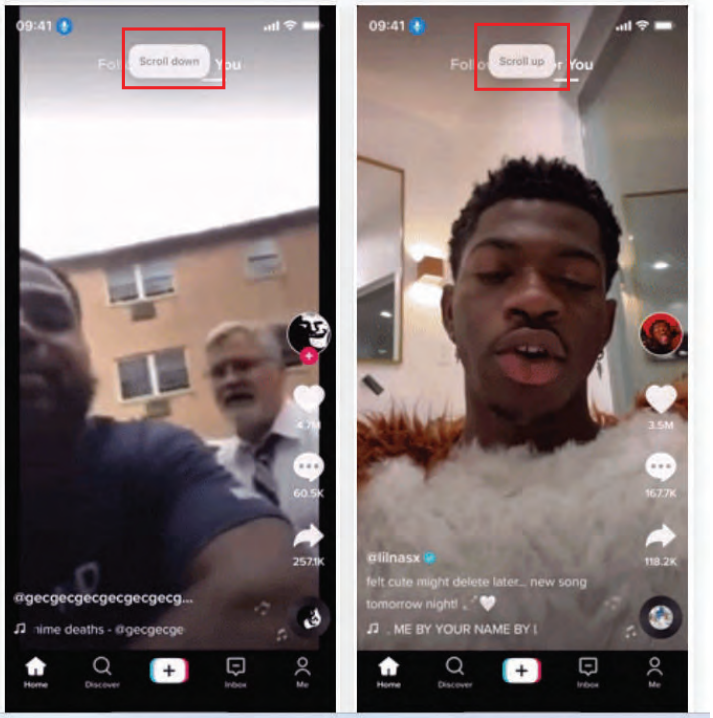
Source: https://www.tiktok.com/legal/Page/row/privacy-policy/en

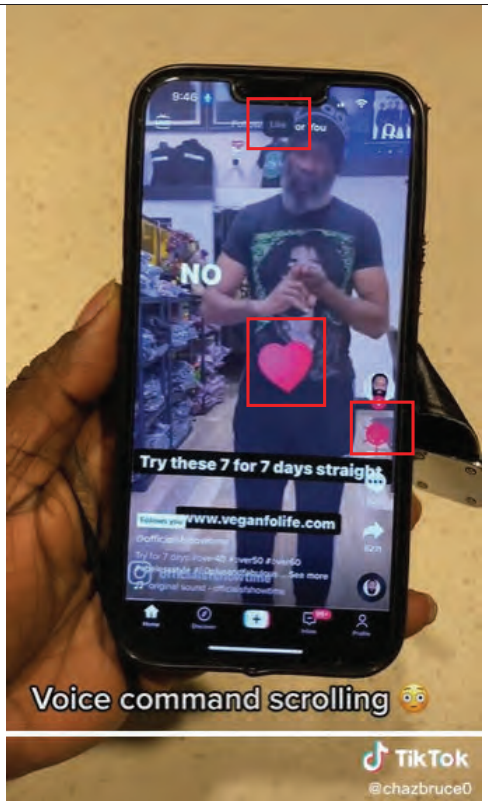
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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |





LifeScan, Inc. Ex. 1036
Page 472 of 2225
IPR2025-00102

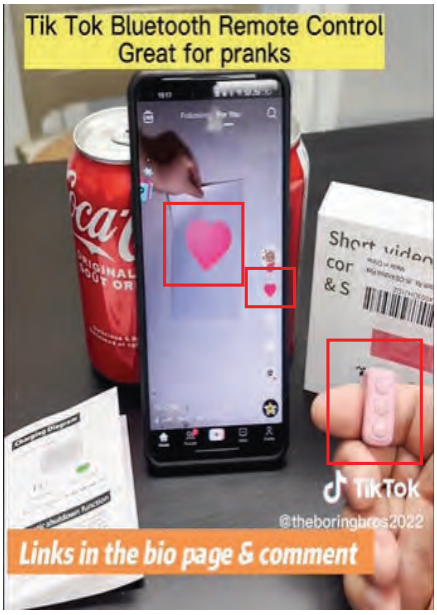
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

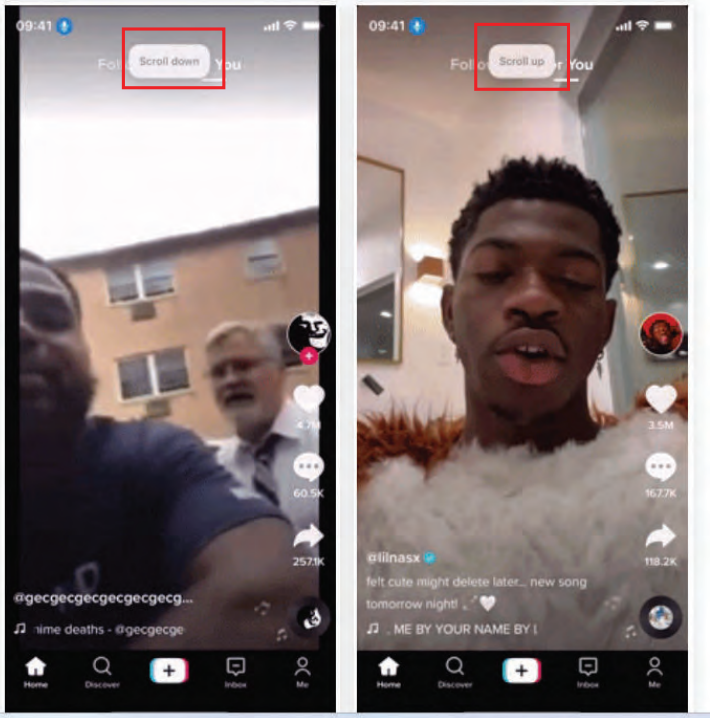
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13] The method of claim 12, wherein the new data for transfer comprises one or more of audio data, video data, image | Defendant performs and/or induces others to perform the method of claim 12, wherein the new data for transfer comprises one or more of audio data, video data, image data, text data, or digital data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

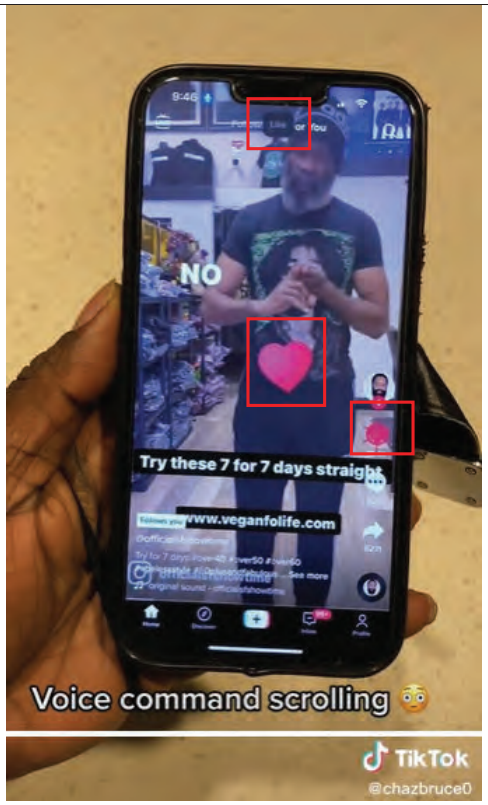
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| data, text data, or digital data. | For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command ("audio data") provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("new-data") on AirPods or earphones, the TikTok app receives the user's command in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as a signal notification in order to like or scroll the subsequent video.<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  |

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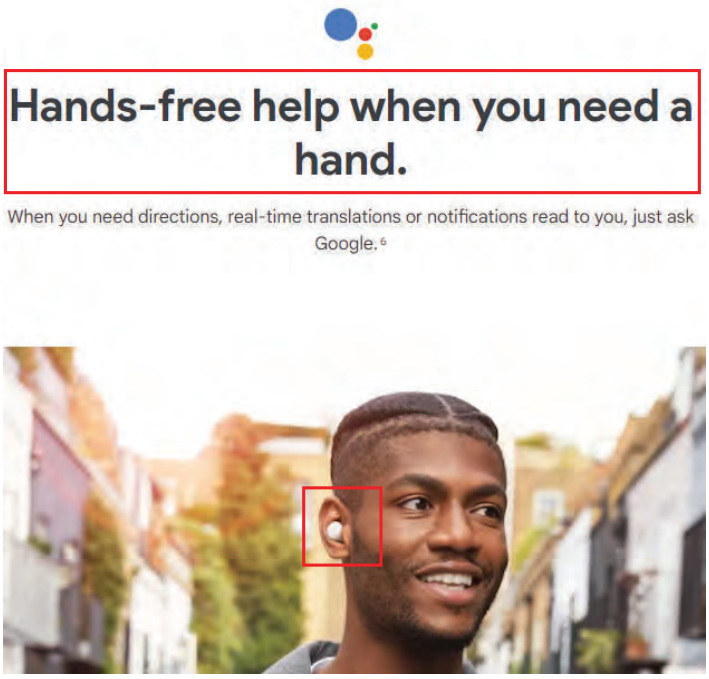
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| | Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help





LifeScan, Inc. Ex. 1036
Page 483 of 2225
IPR2025-00102

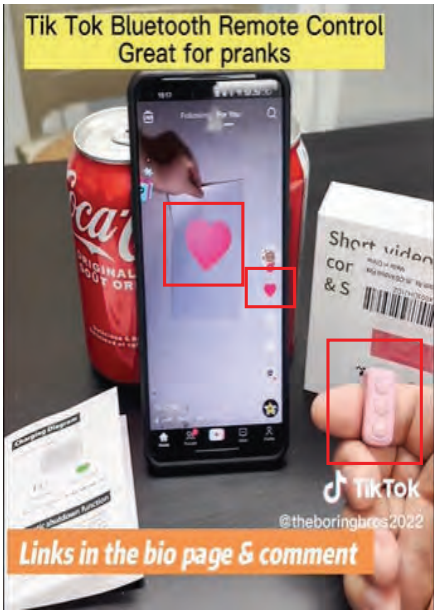
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

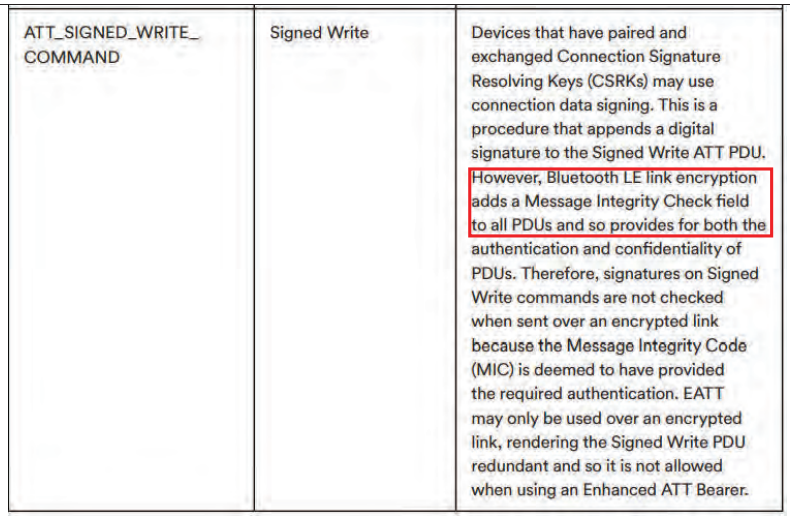
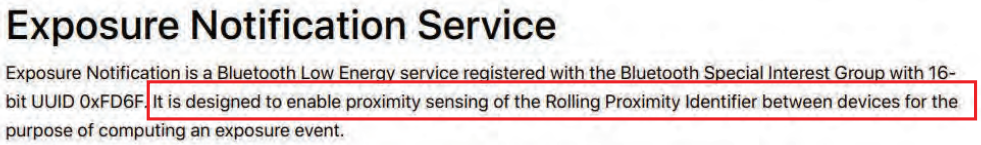
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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [14.] The method of claim 12, wherein event notification corresponds to creation of new data for transfer or change in | Defendant performs and/or induces others to perform the method of claim 12, wherein event notification corresponds to creation of new data for transfer or change in status of new data for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| status of new data for transfer. | For example, after establishing Bluetooth connection, BLE allows the mobile device to send a message to the Bluetooth device, intending to enable event notifications on the Bluetooth device, notifying the mobile device when the new data is acquired. Therefore, the event notification corresponds to creation of new data for transfer.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized to transfer the data from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control specification), including, but not limited to, AirPods, Earphones and Bluetooth remotes, to the Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed. The mobile devices notify ("sending a message") the Bluetooth devices, to register and send them notifications when the new data is acquired.<br><br>3. CT devices have the capability to provide a NOTIFY AV/C command to the TG, to register for specific events on the TG.<br>4. The TG shall for every supported NOTIFY AV/C command send an INTERIM response to the CT with the current status of the registered event within $T_{MTP}$ from the time of registration.<br><br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 38<br><br>**6.7 Notification PDUs**<br>The Notification PDUs are used to obtain synchronous as well as asynchronous updates from the TG based on change of status at the target's side.<br><br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/ |

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

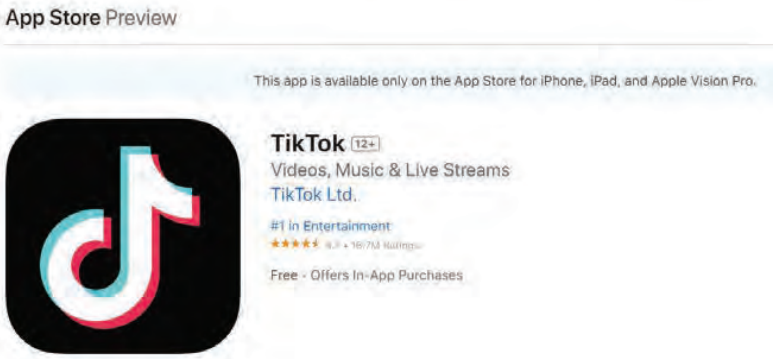
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| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

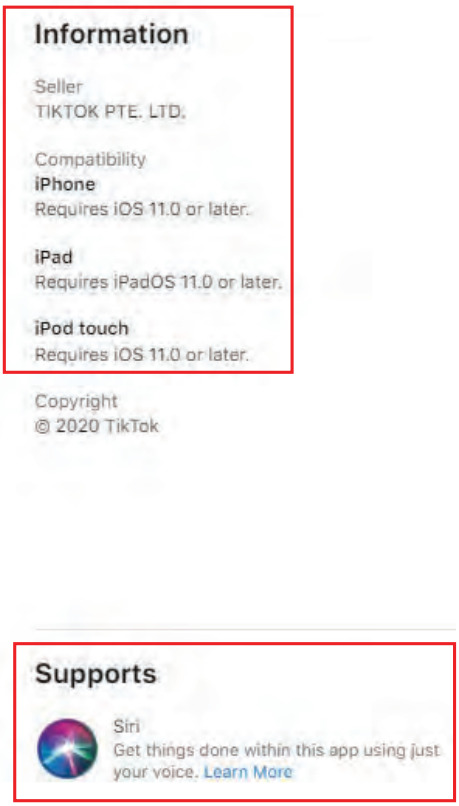
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| | **Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15P] A method for transferring data to a remoter internet server by a Bluetooth enabled mobile device comprising: | ByteDance ("Defendant") performs and/or induces others to perform a method for transferring data to a remoter internet server by a Bluetooth enabled mobile device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, Defendant provides TikTok[7] app which is installed in a mobile device such as iPhone and an Android phone ("Bluetooth enabled mobile device"). The TikTok app installed in the mobile device can be remotely controlled through Bluetooth devices such as AirPods and Bluetooth remotes[8]. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided to the Bluetooth devices.<br><br>Further, the TikTok app uploads ("transferring") data provided by the user on the Defendant's servers ("remote internet server"). The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'.<br><br>For example, mobile devices such as iPhones and Android phones on which the TikTok app is installed are sold on the TikTok app using the TikTok Shop functionality. |

[7]While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

[8] TikTok app is compatible with a wide variety of Bluetooth remotes, for example, Smart Ring Controller and other Bluetooth remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

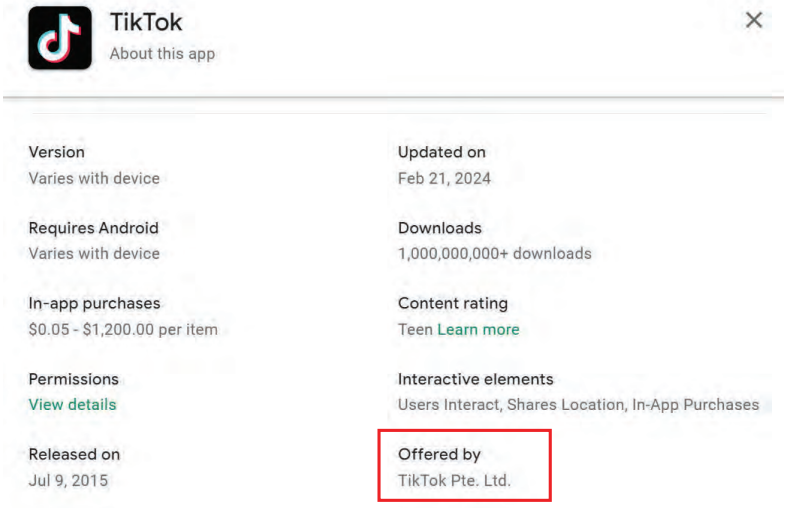
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| |  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |




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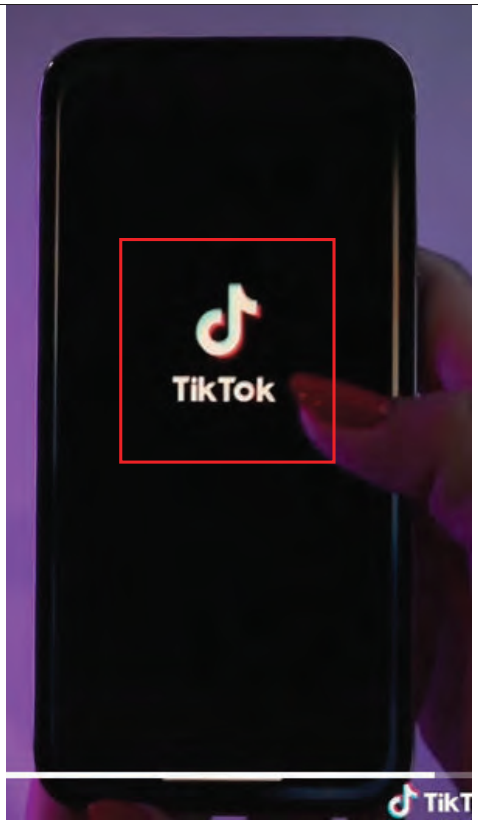



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

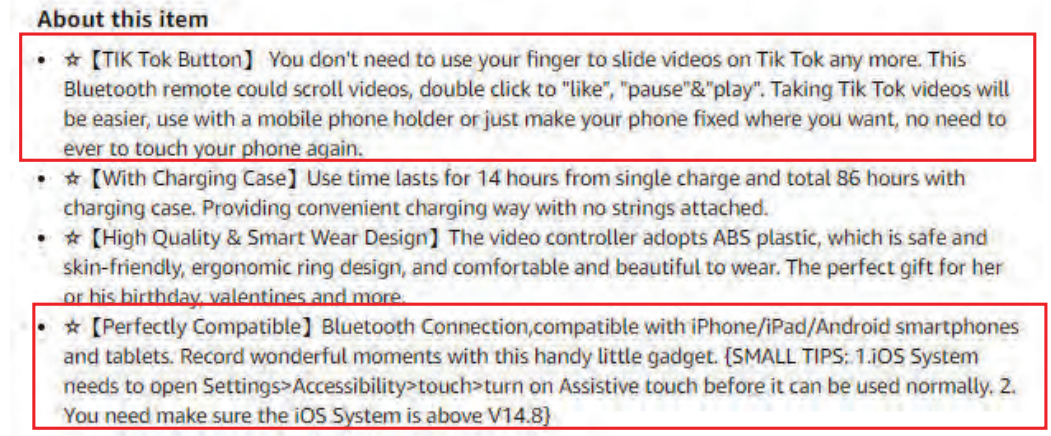



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

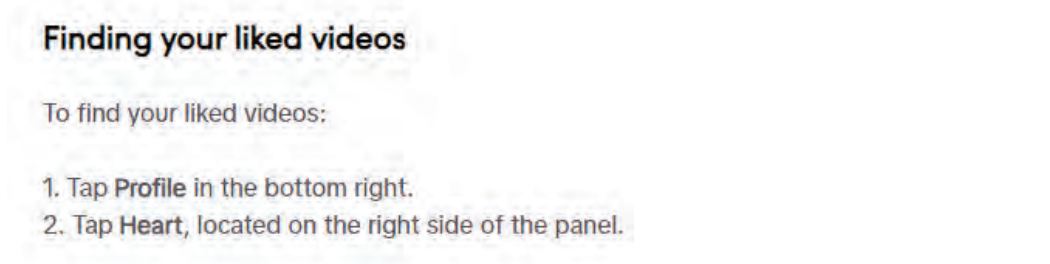
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**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa



**Finding your liked videos**

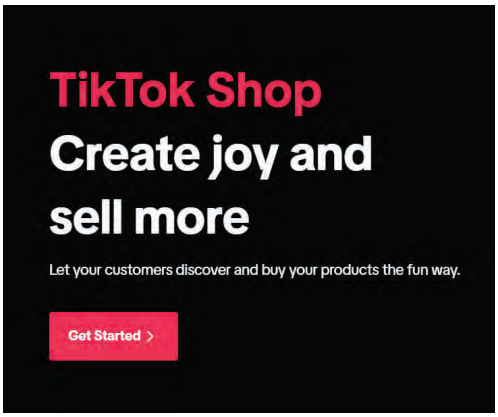
To find your liked videos:

1. Tap **Profile** in the bottom right.
2. Tap **Heart**, located on the right side of the panel.

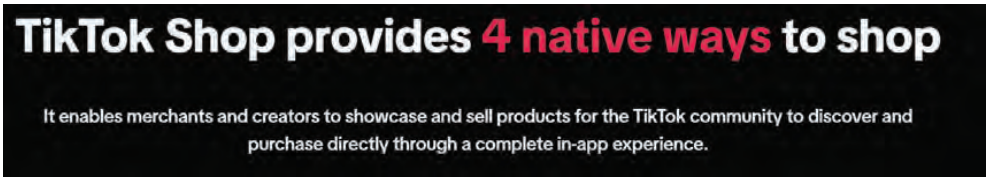
Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking

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| | If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/<br><br>**Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US. |

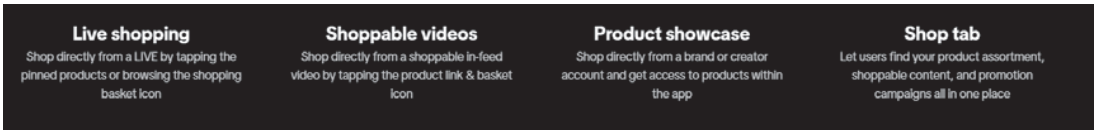
Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance




Source: https://shop.tiktok.com/business/en



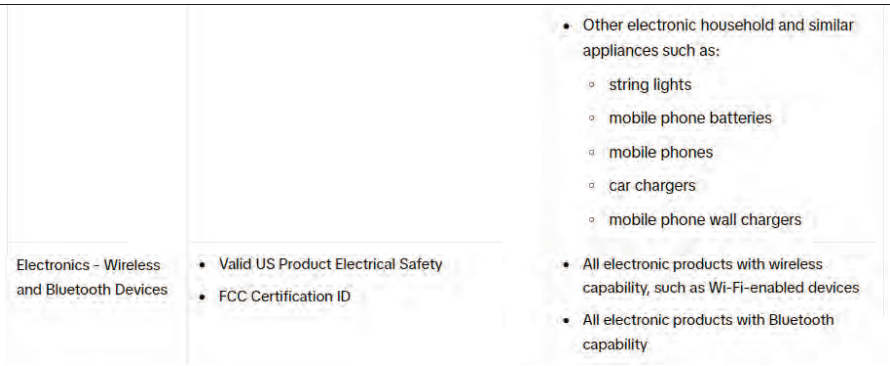

Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en

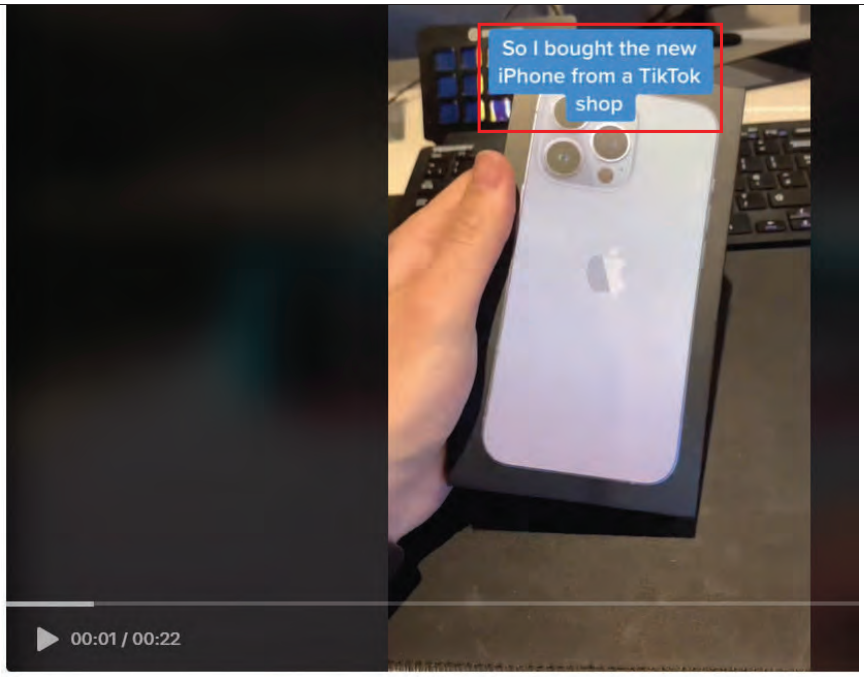
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| | **Seller**<br>TikTok Shop enables brands to showcase and sell products for the TikTok community to discover and purchase.<br>  <br>**Purchase & Conversion**<br>With an all-in-app experience, there is no redirection to partnered shopping apps or websites, meaning higher conversion and sales.<br>  <br>**Campaigns & Promotion**<br>Get access to TikTok Shop's platform campaigns and extensive selection of promotion tools.<br>  <br>**Direct Creator Collaboration**<br>Discover, communicate and collaborate with thousands of creators through our affiliate programme directly accessible on TikTok Shop.<br>  <br>**Performance Analysis**<br>Track performance, traffic, customer reviews and transaction data through TikTok Shop's data dashboards<br>Source: https://shop.tiktok.com/business/en<br>**How does TikTok Commerce work?**<br>TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop. |

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| | Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en<br><br>**About TikTok Shop**<br><br>TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.<br><br>Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.<br><br>• See TikTok Shop and Showcase<br>• See How to Add Product Links to TikTok Videos<br><br>With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en<br><br>**Electrical Products and Electronics**<br><br>Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.<br><br>Electrical and electronic products include but are not limited to:<br><br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

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| |  <br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

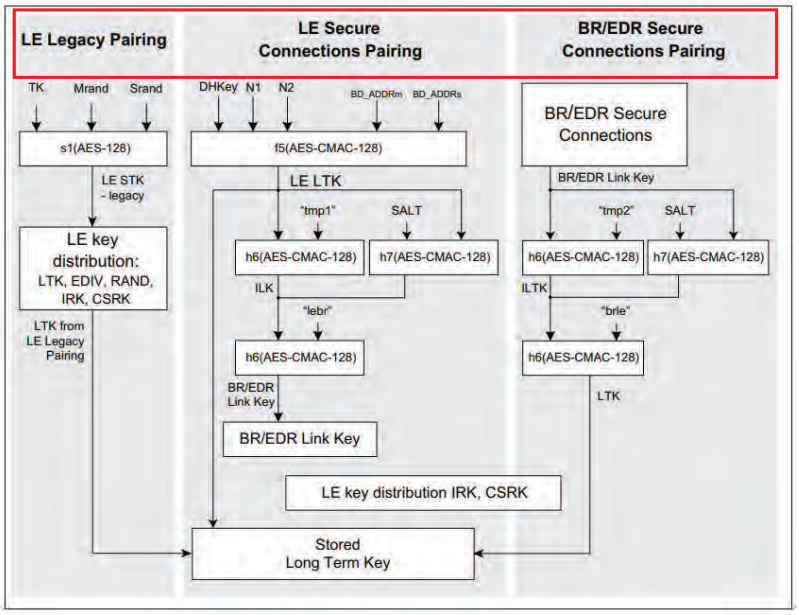


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| |  <br>So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime<br>Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502, at 0:01<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15.1] performing at a Bluetooth enabled mobile device: | Defendant performs and/or induces others to perform the step of performing at a Bluetooth enabled mobile device: establishing a paired secure connection between the Bluetooth enabled mobile device and a Bluetooth enabled data capture device, wherein the secure paired Bluetooth connection uses cryptographic encryption key. |

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| establishing a paired secure connection between the Bluetooth enabled mobile device and a Bluetooth enabled data capture device, wherein the secure paired Bluetooth connection uses cryptographic encryption key; | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device ("Bluetooth enabled mobile device") which comprises Bluetooth. Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("Bluetooth enabled data capture device"). The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the mobile device and the Bluetooth device are connected through an encrypted connection created by exchanging secret keys ("cryptographic encryption key"). The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |

504




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

505

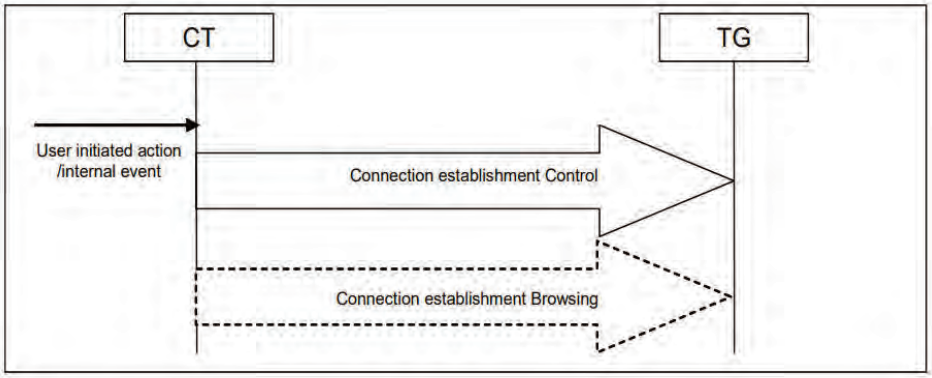



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

506

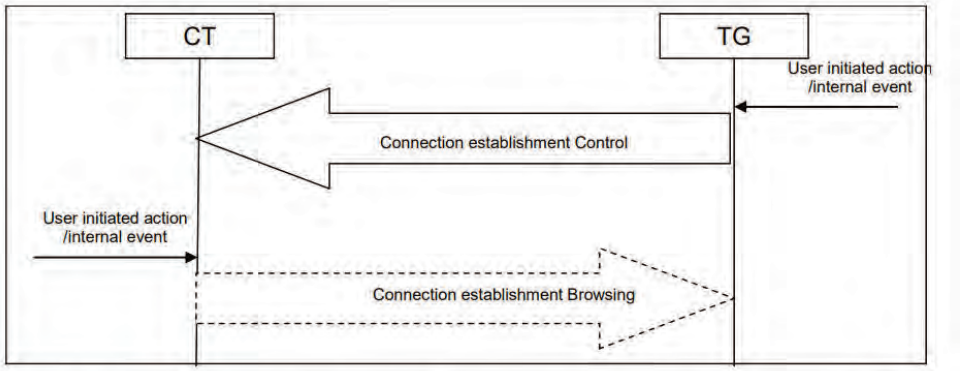



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

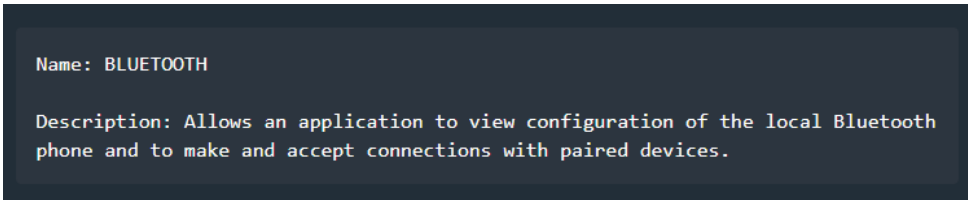
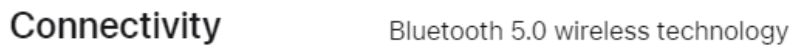
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

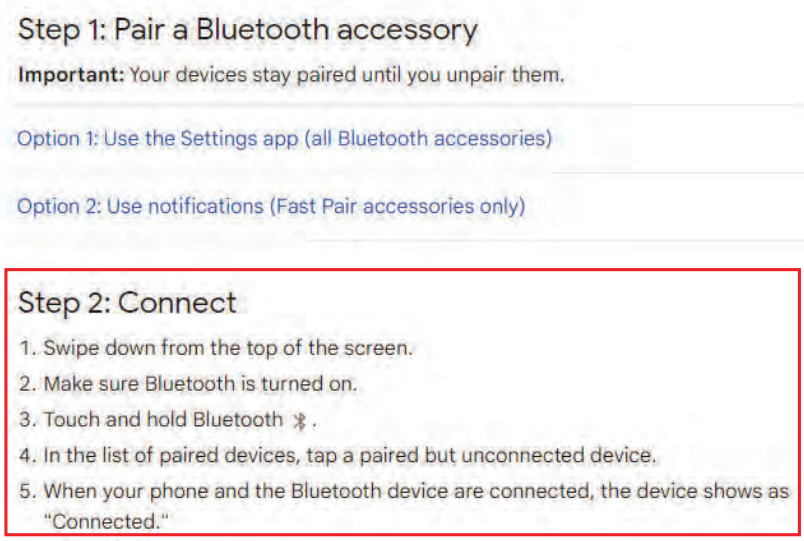
android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>  <br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web<br>**Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US |

509




Source: https://support.google.com/android/answer/9075925?hl=en

510



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

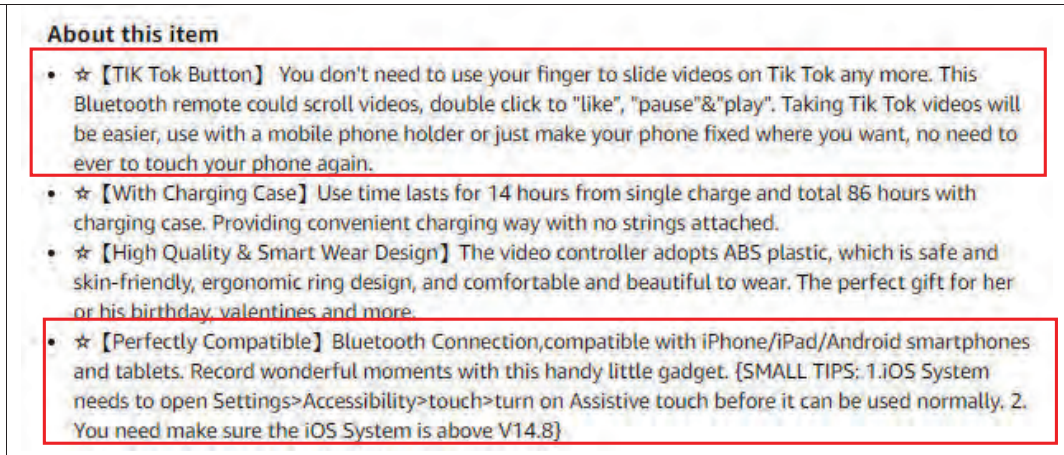
Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

512



LifeScan, Inc. Ex. 1036
Page 512 of 2225
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**About this item**

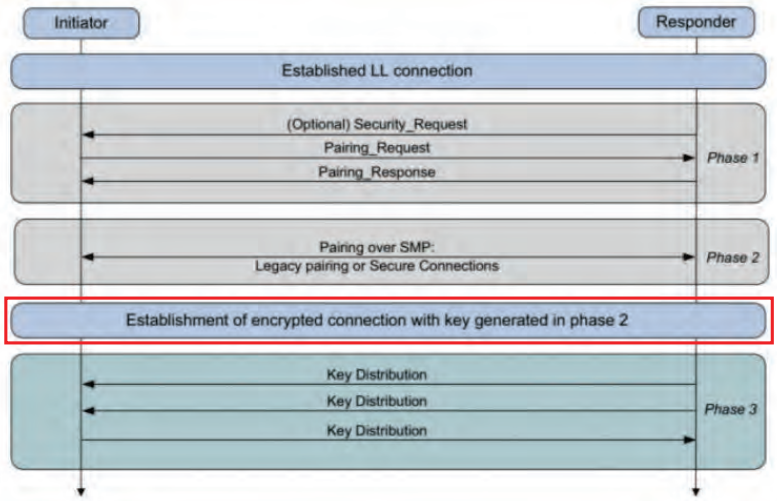
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/

514

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| | **2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.<br>5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.9 Authentication**<br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

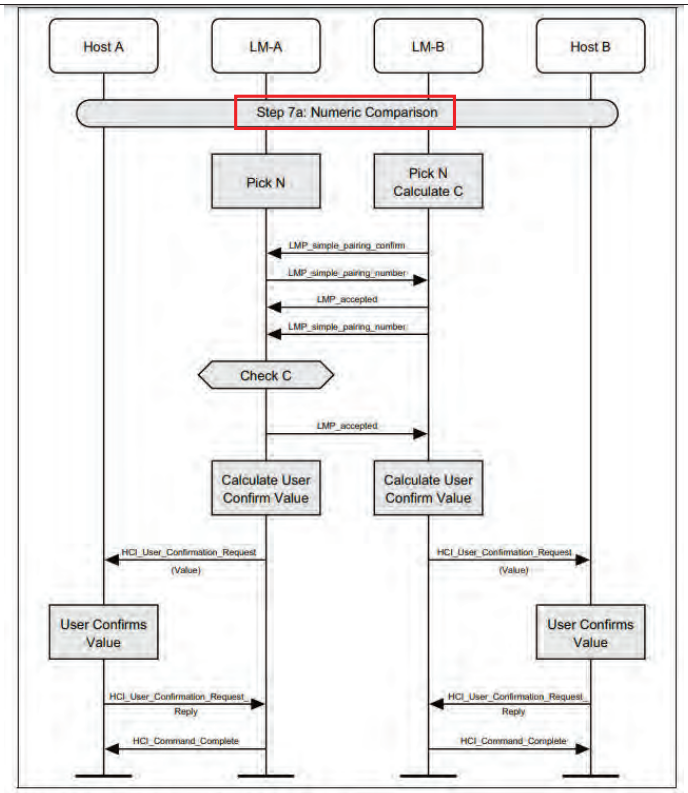



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

516

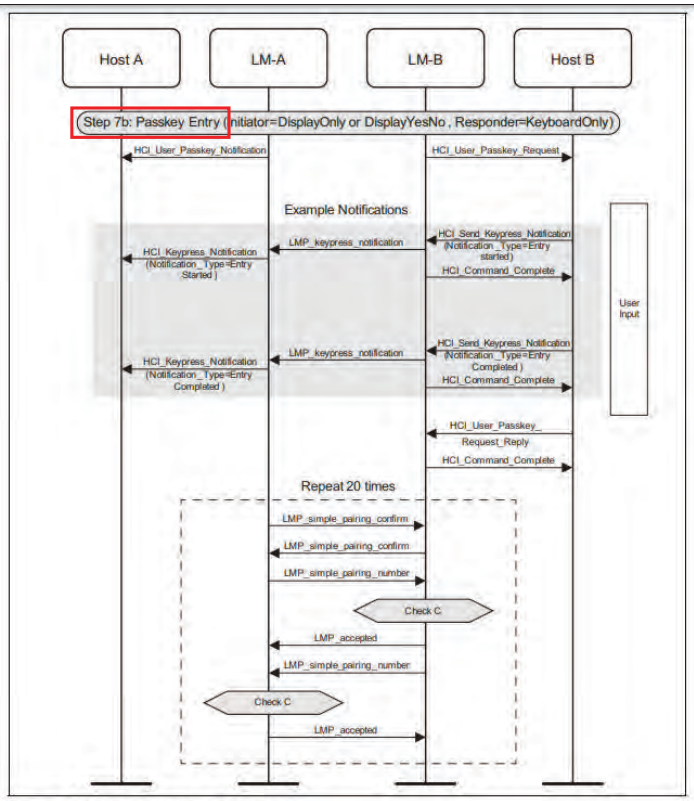
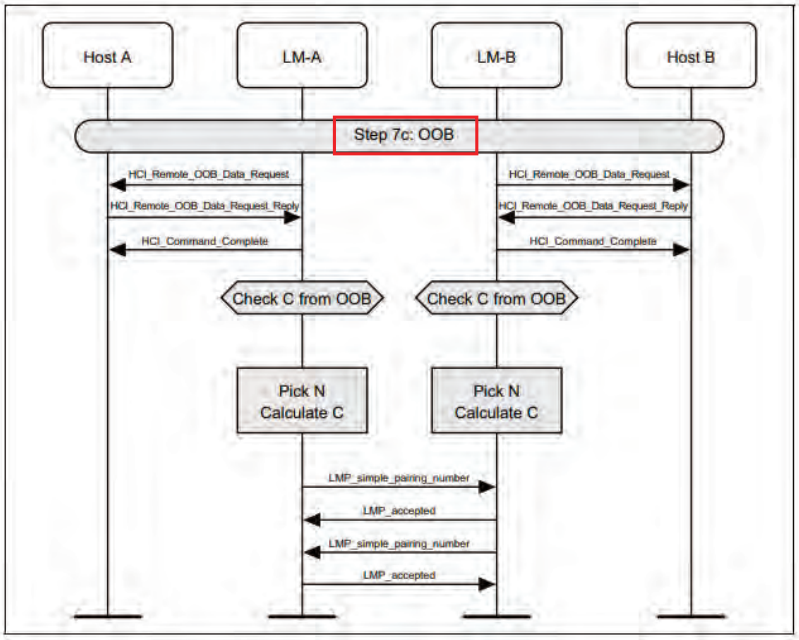



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

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| |  <br>*Figure 4.20: OOB authentication (P-192)*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15.2] detecting new data acquired by the Bluetooth enabled data capture device for transfer, | Defendant performs and/or induces others to perform the step of detecting new data acquired by the Bluetooth enabled data capture device for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, the TikTok app installed on the mobile device receives the command provided through Bluetooth devices such as AirPods, earphones or Bluetooth remote ("Bluetooth enabled data capture device"). As is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled data capture device acquires new data (audio command or the button pressed on the Bluetooth remote) and then notifies the software module about the availability of the new data by sending an event notification ("signaling the new data for transfer").<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("new-data") on AirPods or earphones, the TikTok app detects the user's command. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app detects the user's command.<br><br>A new Data Channel PDU is a Data Channel PDU sent for the first time by the Link Layer. A last Data Channel PDU is a Data Channel PDU that is resent by the Link Layer. When resending a Data Channel PDU, the LLID field, the SN field and the payload of the sent Data Channel PDU shall be equal to those of the last Data Channel PDU sent by the Link Layer.<br><br>For each new Data Channel PDU that is sent, the SN bit of the Header shall be set to *transmitSeqNum*. If a Data Channel PDU is resent, then the SN bit shall not be changed.<br><br>Upon reception of a Data Channel PDU, the SN bit shall be compared to *nextExpectedSeqNum*. If the bits are different, then this is a resent Data Channel PDU, and *nextExpectedSeqNum* shall not be changed. If the bits are the same, then this is a new Data Channel PDU, and *nextExpectedSeqNum* may be incremented by one (see Section 4.5.9.1).<br><br>When a Data Channel PDU is sent, the NESN bit of the Header shall be set to *nextExpectedSeqNum*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649 |

519

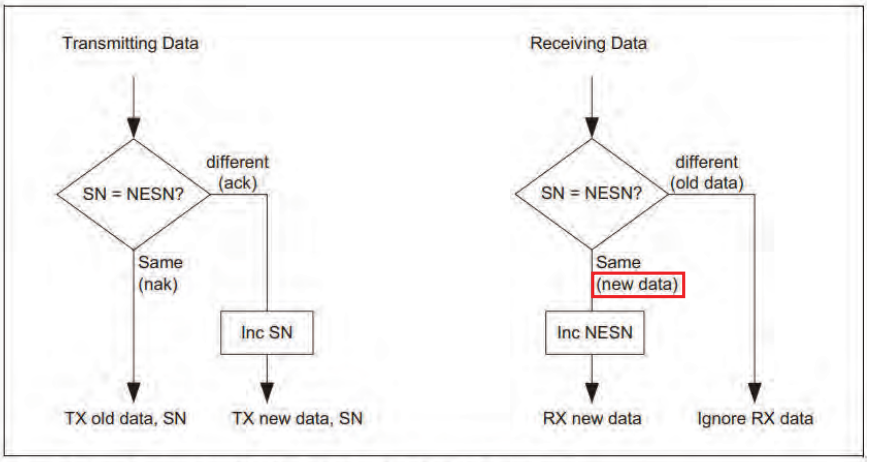



*Figure 4.39: Transmit and Receive SN and NESN flow diagram*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649

Connectionless Slave Broadcast packets are transmitted at each scheduled Connectionless Slave Broadcast Instant. If no new data is available, the Connectionless Slave Broadcast Transmitter shall transmit a packet with the last available data in the payload.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 441

| Value | Parameter Description |
|---|---|
| Variable | Data to send in future Connectionless Slave Broadcast packets. This data will be repeated in future Connectionless Slave Broadcast instants until new data is provided |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1030

If Operation indicates the start of new data (values 0x01 or 0x03), then any existing partial or complete advertising data shall be discarded. If the Advertising_Data_Length parameter is zero and Operation is 0x03, any existing partial or complete data shall be deleted (with no new data provided).

If Operation is 0x04, the behavior is the same as if the current advertising data had been sent again; this can be used to cause the Advertising DID value to be updated (see [Vol 6] Part B, Section 4.4.2.11).

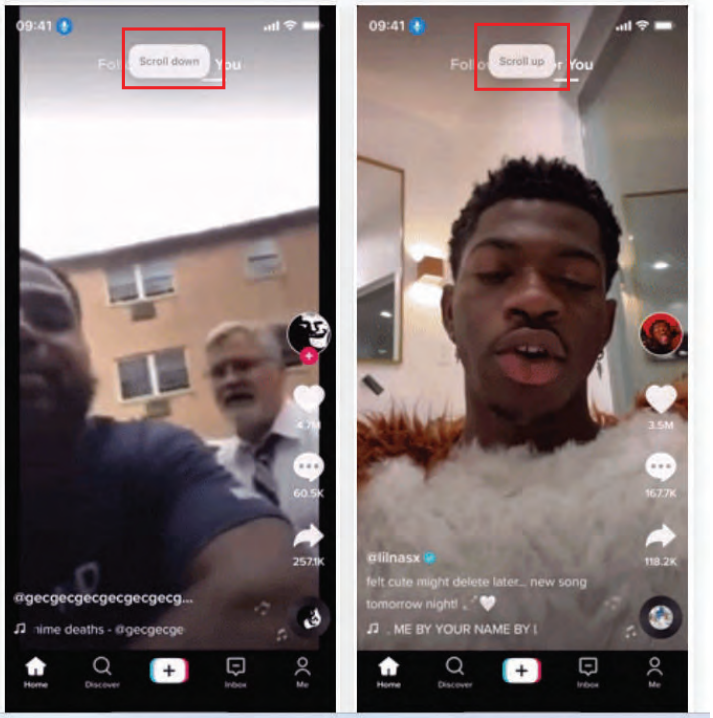
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1345

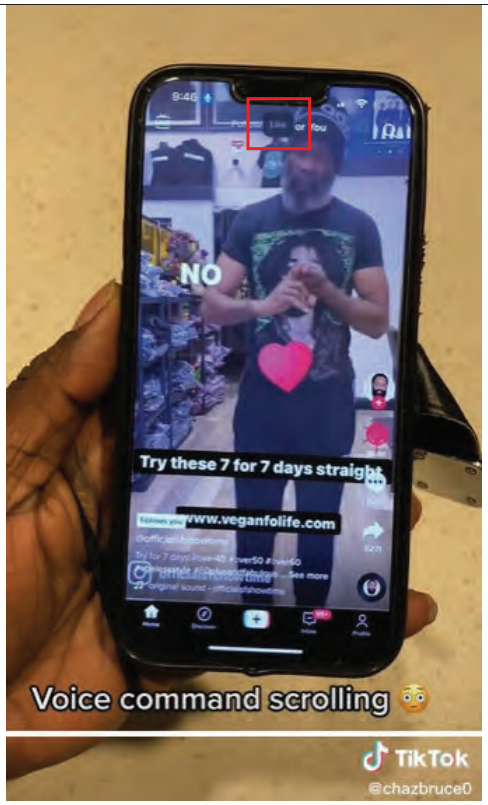
| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

522



LifeScan, Inc. Ex. 1036
Page 522 of 2225
IPR2025-00102

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

524

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 526 of 2225
IPR2025-00102

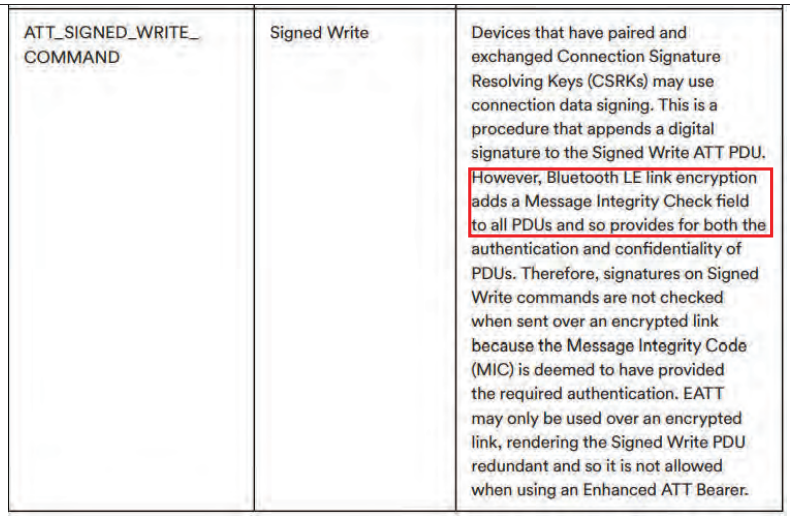
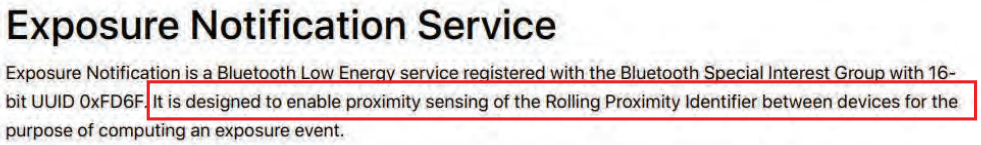
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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15.3] wherein detecting the new data for transfer comprises: sending a message to the Bluetooth enabled data capture device, over the established paired secure | Defendant performs and/or induces others to perform the step wherein detecting the new data for transfer comprises: sending a message to the Bluetooth enabled data capture device, over the established paired secure Bluetooth connection, to enable event notifications on the Bluetooth enabled data capture device corresponding to new data, wherein the new data is data acquired by Bluetooth enabled data capture device after establishing the secure Bluetooth pairing connection between the Bluetooth enabled data capture device and the Bluetooth enabled mobile device. |

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| Bluetooth connection, to enable event notifications on the Bluetooth enabled data capture device corresponding to new data, wherein the new data is data acquired by Bluetooth enabled data capture device after establishing the secure Bluetooth pairing connection between the Bluetooth enabled data capture device and the Bluetooth enabled mobile device; | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after establishing Bluetooth connection, BLE allows the mobile device ("Bluetooth enabled mobile device") to send a message to the Bluetooth device ("Bluetooth enabled data captured device"), intending to enable event notifications on the Bluetooth device, notifying the mobile device when the new data is acquired.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized to transfer the data from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control specification), including, but not limited to, AirPods, Earphones and Bluetooth remotes, to the Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed. The mobile devices notify ("sending a message") the Bluetooth devices, to register and send them notifications when the new data is acquired.<br><br>3. CT devices have the capability to provide a NOTIFY AV/C command to the TG, to register for specific events on the TG.<br>4. The TG shall for every supported NOTIFY AV/C command send an INTERIM response to the CT with the current status of the registered event within $T_{MTP}$ from the time of registration.<br><br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 38<br><br>**6.7 Notification PDUs**<br>The Notification PDUs are used to obtain synchronous as well as asynchronous updates from the TG based on change of status at the target's side.<br><br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/ |

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

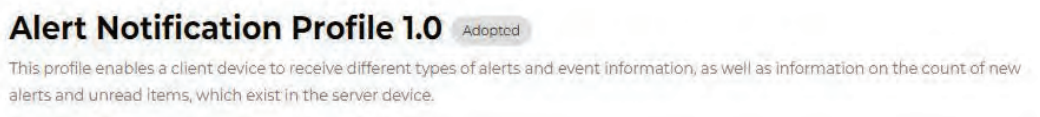
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| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

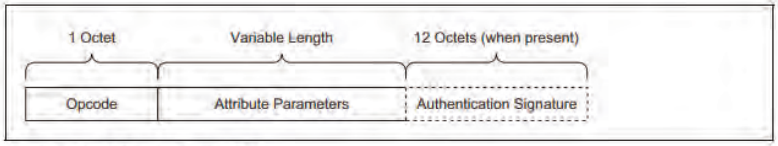
| | | |
|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

## Exposure Notification Service

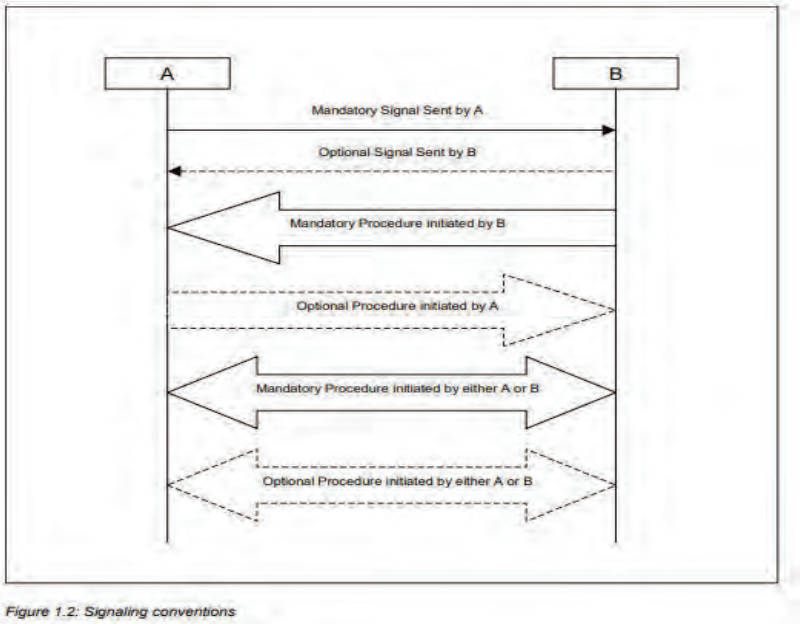
Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

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| |  <br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15.4] enabling event notification listening on the Bluetooth enabled mobile device, to listen for event notifications sent from the Bluetooth enabled data capture device, over the established paired secure Bluetooth connection; | Defendant performs and/or induces others to perform the step of enabling event notification listening on the Bluetooth enabled mobile device, to listen for event notifications sent from the Bluetooth enabled data capture device, over the established paired secure Bluetooth connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after establishing a Bluetooth connection with the Bluetooth device ("Bluetooth enabled data capture device"), the mobile device ("Bluetooth enabled mobile device") is allowed to enable event notification for a command captured through the Bluetooth device for the TikTok app installed in the mobile device. Based on the received (“listening”) event notification, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data’s (audio command and information corresponding to button press) notification is received in the mobile device on which the TikTok app is installed.<br><br>Further, after establishing Bluetooth connection, when an audio command is sent through the Bluetooth devices, such as AirPods or earphones, or when a button is pressed on the Bluetooth remote control, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client (e.g., |

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| | a mobile device) establishes a connection with a GATT server (e.g., a Bluetooth device), it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>Further, when an audio command is sent from the Bluetooth devices or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>**Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br><br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

| | |
|---|---|
| | The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br>  <br>*Figure 2.3: Attribute Protocol PDU*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |

533

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| |  <br>*Figure 1.2: Signaling conventions*<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11 |

534

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

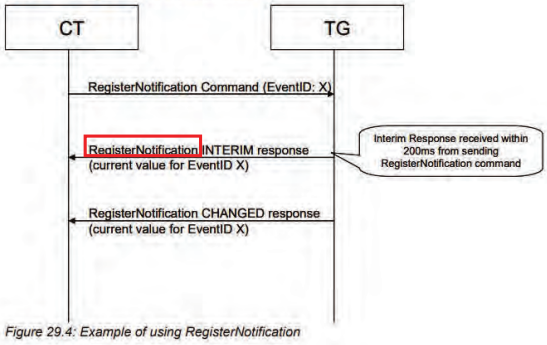



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139

535

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

### Use More Voice Commands on TikTok

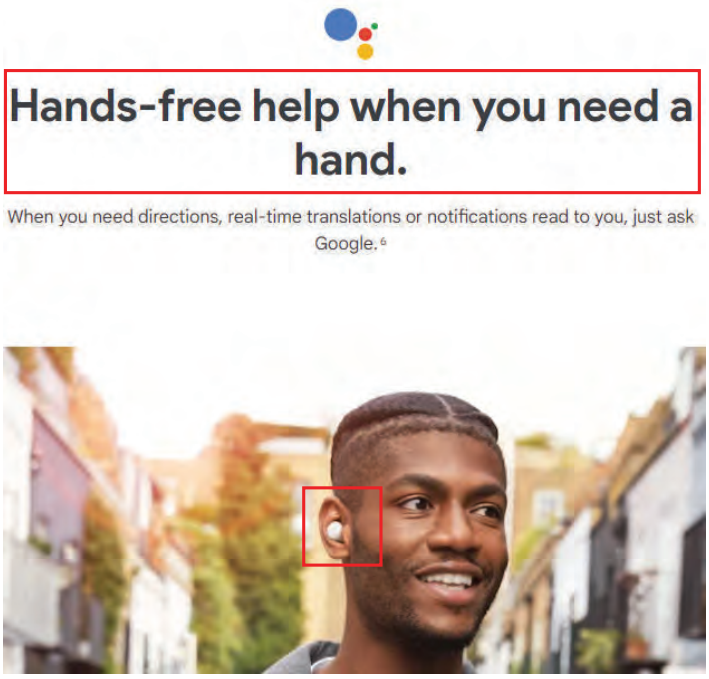
You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

| | |
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| | Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa | Jan 30 2017 - 10:34 am PT | 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

539



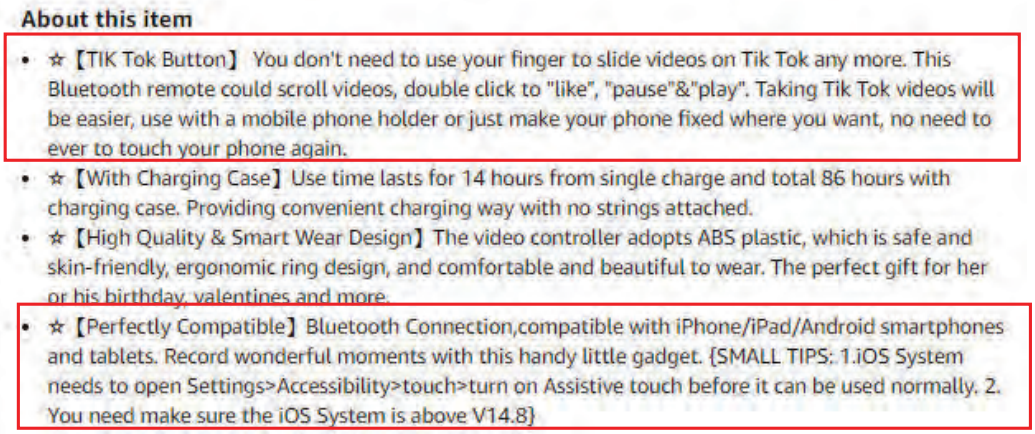

Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

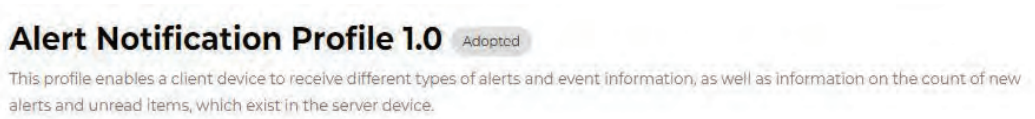
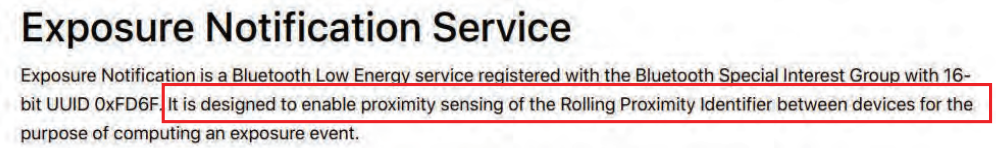
| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

541

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15.6] receiving, from the Bluetooth enabled data capture device, an event notification corresponding to existence of new data for transfer, over the established paired secure Bluetooth connection; and | Defendant performs and/or induces others to perform the step of receiving, from the Bluetooth enabled data capture device, an event notification corresponding to existence of new data for transfer, over the established paired secure Bluetooth connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, once the Bluetooth pairing is done securely between the Bluetooth enabled cellular phone and the Bluetooth enabled data capture device, and the event notification is enabled, the mobile device ("Bluetooth enabled mobile device") receives notification when the Bluetooth device ("Bluetooth enabled data capture device") captures the new data for the TikTok app installed in the mobile device. Based on the received event notification, the TikTok app performs the functionality corresponding to the received command. |

| | |
|---|---|
| | For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data's (audio command and information corresponding to button press) notification is received in the mobile device on which the TikTok app is installed.<br><br>Further, after establishing Bluetooth connection, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT as part of their BLE functionality that defines a framework for organizing and exchanging data between the BLE devices. When a GATT server, has new data or an event to notify the GATT client, it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data to Bluetooth enabled mobile device on which the TikTok app is installed.<br><br>  <br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>  <br><br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.

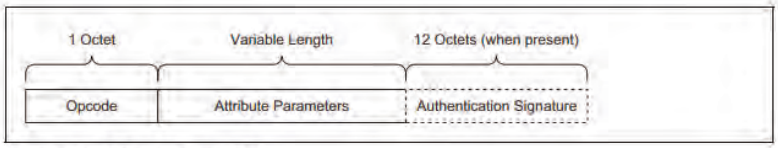



*Figure 2.3: Attribute Protocol PDU*

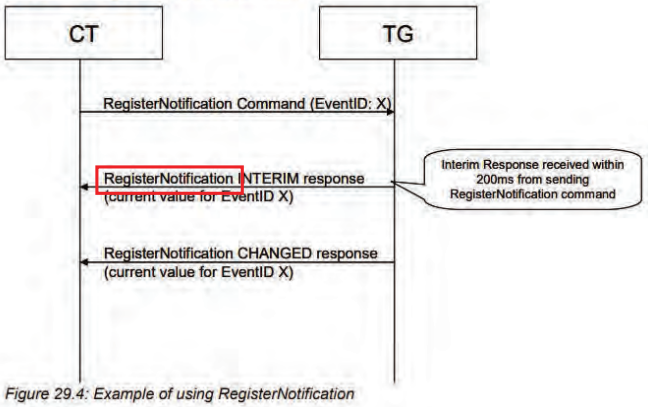
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

| | |
|---|---|
| | **29.3 RegisterNotification**<br>  <br><br>*Figure 29.4: Example of using RegisterNotification*<br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139 |

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.

ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).

ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

548

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

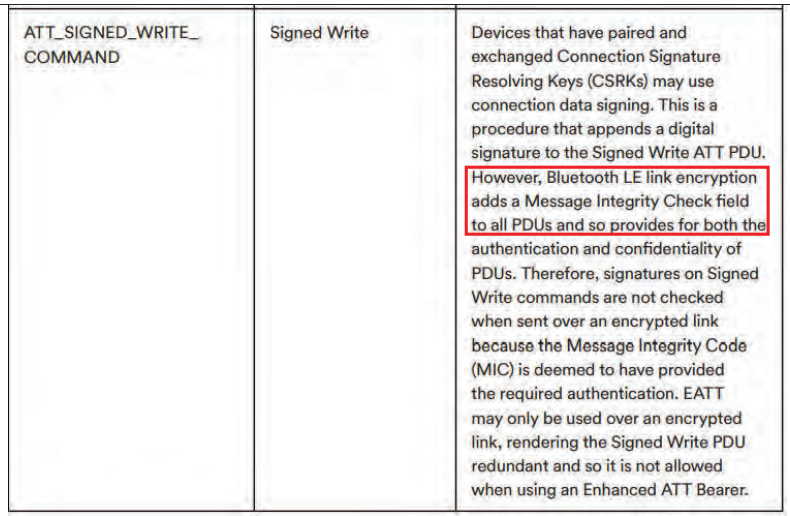
### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

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|---|---|
| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17 |

| | | |
|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

550

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| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

| | |
|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

## 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

| | |
|---|---|
| | Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |





LifeScan, Inc. Ex. 1036
Page 553 of 2225
IPR2025-00102

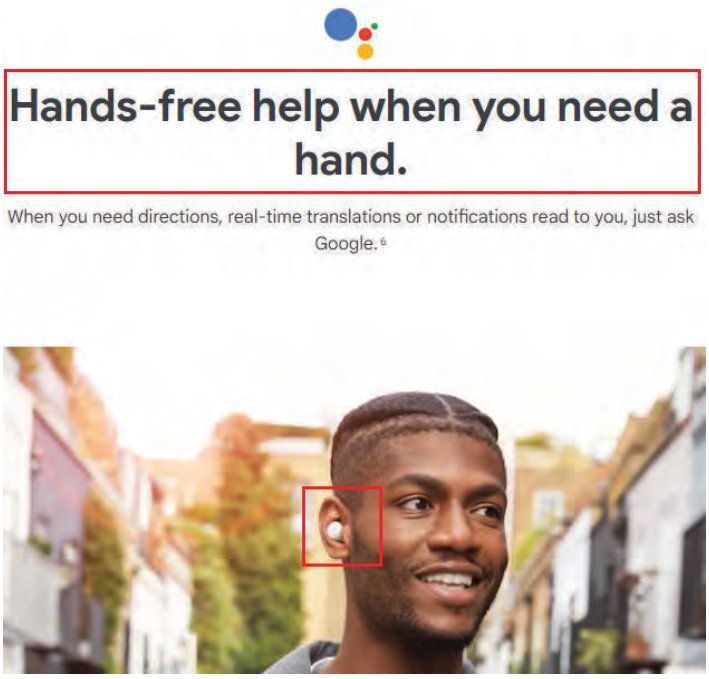
| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

| | |
|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |





LifeScan, Inc. Ex. 1036
Page 555 of 2225
IPR2025-00102




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help





LifeScan, Inc. Ex. 1036
Page 556 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 557 of 2225
IPR2025-00102

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

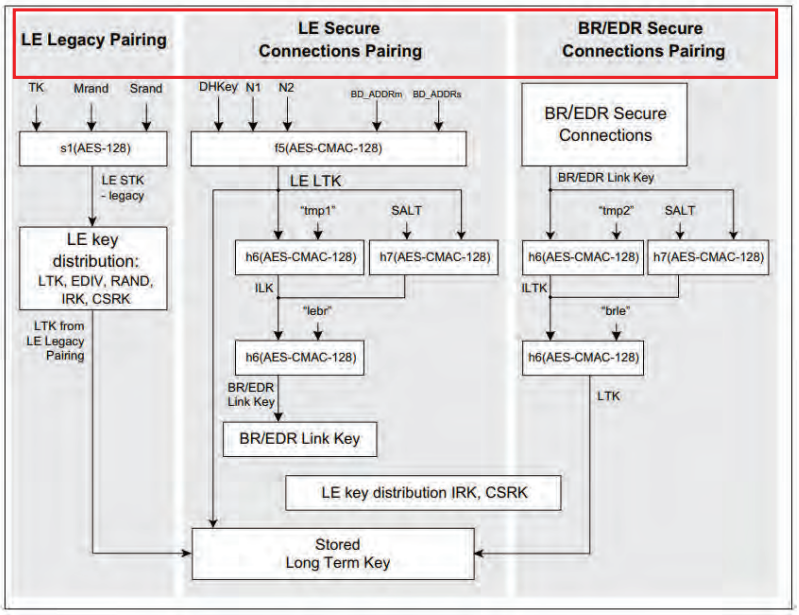




LifeScan, Inc. Ex. 1036
Page 558 of 2225
IPR2025-00102

| | |
|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |

559




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

| | | |
|---|---|---|
| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

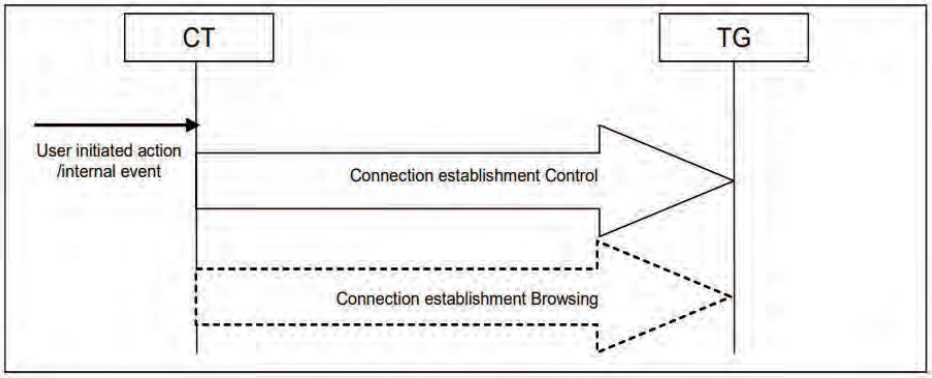



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

561

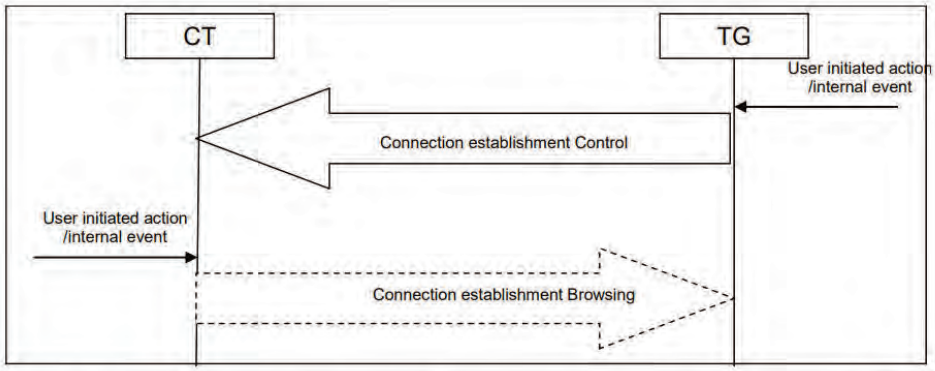



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

562

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

### 4.2.9 Authentication

A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.

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| | Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15.7] sending a request to the Bluetooth enabled data capture device, to get new data object for transfer, wherein new data object comprises of new data, data associated with new data and time-stamp, and wherein the time-stamp corresponds to a time when new data was acquired; | Defendant performs and/or induces others to perform the step of sending a request to the Bluetooth enabled data capture device, to get new data for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after receiving notification about capturing of the new data for the TikTok app installed in the mobile device, the Bluetooth enabled mobile device receives the new data captured by the Bluetooth device ("Bluetooth enabled data capture device") that includes metadata associated with the new data ("data associated with new data"). Further, the signal notification includes a time change log of the data that maintains a timestamp of the new data stored in the Bluetooth device. It would be apparent to a person having ordinary skill in the art that the mobile device sends a request to the Bluetooth device to retrieve new data for transfer.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data's (audio command and information corresponding to button press) notification is received in the mobile device on which the TikTok app is installed and the mobile device requests to receive the command in order to perform the corresponding functionality in the TikTok app.<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT defines a framework for organizing and exchanging data between the BLE devices. When a GATT server (e.g., a Bluetooth device), has new data or an event to notify the GATT client (e.g., a mobile device), it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics. |

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| | Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Transfer Bluetooth data**<br><br>After you have successfully connected to a Bluetooth device, each one has a connected `BluetoothSocket`. You can now share information between devices. Using the `BluetoothSocket`, the general procedure to transfer data is as follows:<br><br>1. Get the `InputStream` and `OutputStream` that handle transmissions through the socket using `getInputStream()` and `getOutputStream()`, respectively.<br>2. Read and write data to the streams using `read(byte[])` and `write(byte[])`.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth/transfer-data |

| | |
|---|---|
| | A new Data Channel PDU is a Data Channel PDU sent for the first time by the Link Layer. A last Data Channel PDU is a Data Channel PDU that is resent by the Link Layer. When resending a Data Channel PDU, the LLID field, the SN field and the payload of the sent Data Channel PDU shall be equal to those of the last Data Channel PDU sent by the Link Layer.<br><br>For each new Data Channel PDU that is sent, the SN bit of the Header shall be set to *transmitSeqNum*. If a Data Channel PDU is resent, then the SN bit shall not be changed.<br><br>Upon reception of a Data Channel PDU, the SN bit shall be compared to *nextExpectedSeqNum*. If the bits are different, then this is a resent Data Channel PDU, and *nextExpectedSeqNum* shall not be changed. If the bits are the same, then this is a new Data Channel PDU, and *nextExpectedSeqNum* may be incremented by one (see Section 4.5.9.1).<br><br>When a Data Channel PDU is sent, the NESN bit of the Header shall be set to *nextExpectedSeqNum*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649 |

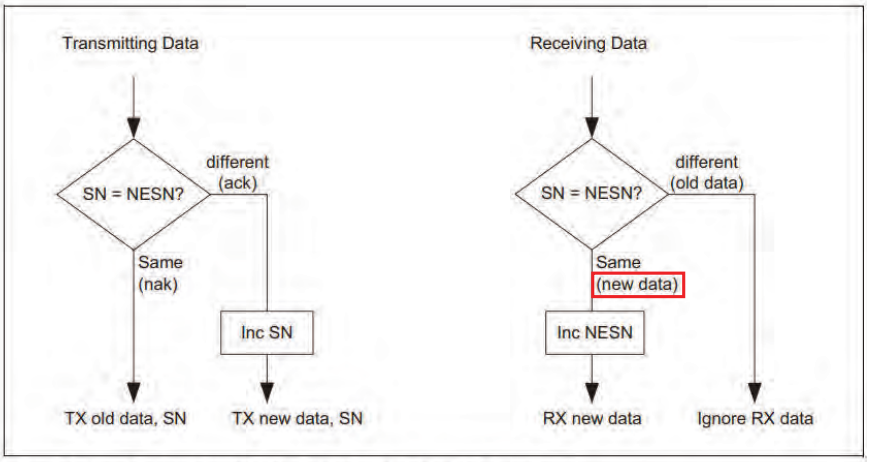



*Figure 4.39: Transmit and Receive SN and NESN flow diagram*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649

Connectionless Slave Broadcast packets are transmitted at each scheduled Connectionless Slave Broadcast Instant. If no new data is available, the Connectionless Slave Broadcast Transmitter shall transmit a packet with the last available data in the payload.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 441

| Value | Parameter Description |
|---|---|
| Variable | Data to send in future Connectionless Slave Broadcast packets. This data will be repeated in future Connectionless Slave Broadcast instants until new data is provided |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1030

If Operation indicates the start of new data (values 0x01 or 0x03), then any existing partial or complete advertising data shall be discarded. If the Advertising_Data_Length parameter is zero and Operation is 0x03, any existing partial or complete data shall be deleted (with no new data provided).

If Operation is 0x04, the behavior is the same as if the current advertising data had been sent again; this can be used to cause the Advertising DID value to be updated (see [Vol 6] Part B, Section 4.4.2.11).

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1345

Use More Voice Commands on TikTok

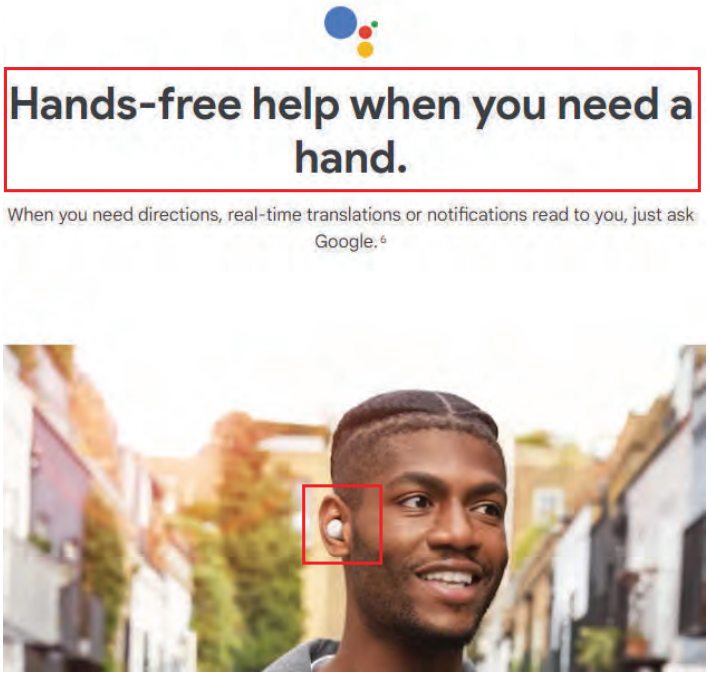
You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

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| |  <br>Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

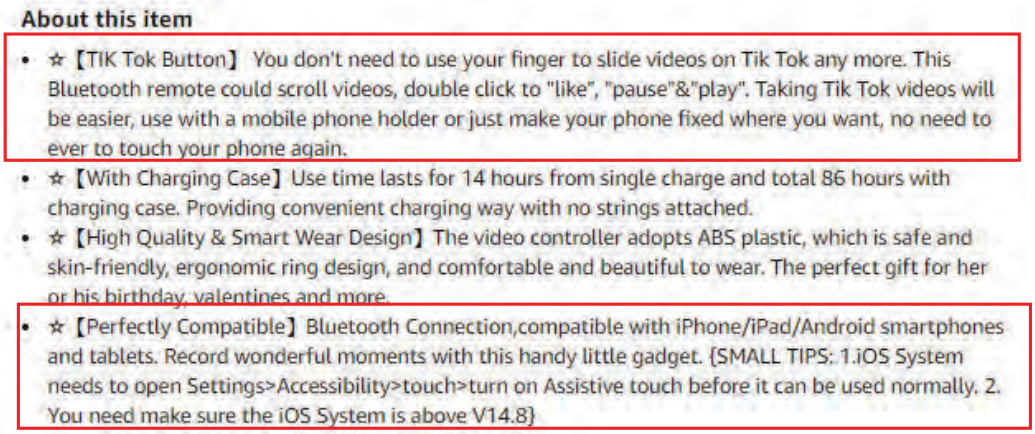
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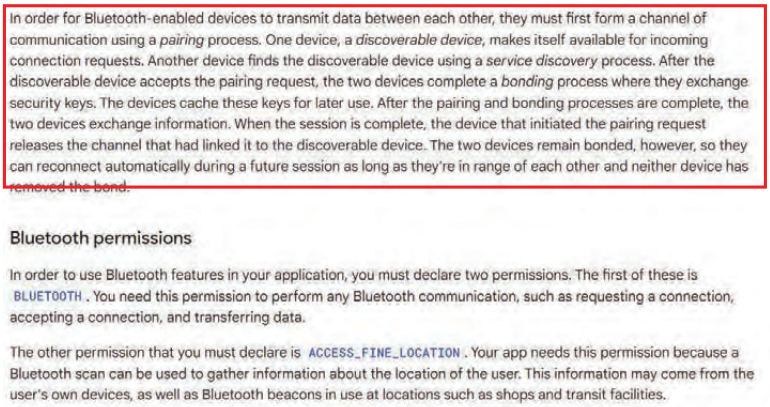


LifeScan, Inc. Ex. 1036
Page 572 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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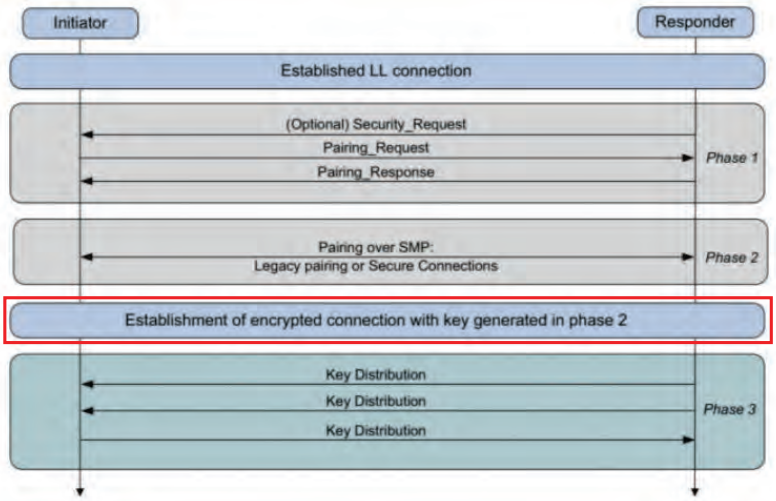
| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15.8] receiving, by the Bluetooth enabled mobile device, encrypted data object corresponding to the new data object over the established Bluetooth paired wireless connection; | Defendant performs and/or induces others to perform the step of receiving, by the Bluetooth enabled mobile device, encrypted data object corresponding to the new data object over the established Bluetooth paired wireless connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the devices, the Bluetooth devices capture the user's command and send the command to the mobile device through the Bluetooth connection in an encrypted form. The TikTok application in the mobile device receives the user command in the encrypted form and performs the functionality corresponding to the received command. The BLE defines two types of encryption mechanisms: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM is used when encryption |

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| | is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 is used when encryption is enabled.<br><br>For example, when the user provides the audio command such as “Double Tap” or “Scroll Down” on AirPods or earphones, the TikTok app receives the user’s command securely, in the encrypted form, in order to ‘like’ or ‘scroll down’ the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote (“Bluetooth enabled data capture device”), the TikTok app receives the user’s command in order to like the subsequent video.<br><br>  <br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

576

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| | **2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.5 Encryption**<br>If at least one authentication has been performed encryption may be used. Two encryption mechanisms are defined: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM shall be used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 shall be used when encryption is enabled.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 567 |

| M/O | PDU | Contents |
|---|---|---|
| O | LMP_encryption_mode_req | encryption mode |
| O | LMP_encryption_key_size_req | key size |
| O | LMP_start_encryption_req | random number |
| O | LMP_stop_encryption_req | - |
| O (42) | LMP_pause_encryption_req | |
| O (42) | LMP_resume_encryption_req | |
| O (136) | LMP_pause_encryption_aes_req | random number |

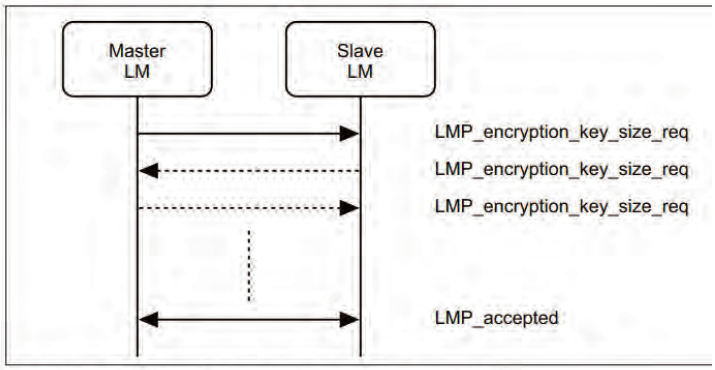
*Table 4.21: Encryption handling PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 568

578

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| | ***4.2.5.2 Encryption Key Size***<br><br>Note: This section uses the same terms as in [Vol 2] Part H, Section 4.1. The master sends an LMP_encryption_key_size_req PDU including the suggested key size $L_{sug, m}$, that is initially equal to $L_{max, m}$. If $L_{min, s} \leq L_{sug, m}$ and the slave supports $L_{sug, m}$ it shall respond with an LMP_accepted PDU and $L_{sug, m}$ shall be used as the key size. If both conditions are not fulfilled the slave sends back an LMP_encryption_key_size_req PDU including the slave's suggested key size $L_{sug, s}$. This value shall be the slave's largest supported key size that is less than $L_{sug, m}$. Then the master performs the corresponding test on the slave's suggestion. This procedure is repeated until a key size agreement is reached or it becomes clear that no such agreement can be reached. If an agreement is reached a device sends an LMP_accepted PDU and the key size in the last LMP_encryption_key_size_req PDU shall be used. After this, encryption is started; see Section 4.2.5.3. If an agreement is not reached a device sends an LMP_not_accepted PDU with the error code *Unsupported*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 569 |

579




*Sequence 45: Encryption key size negotiation successful*

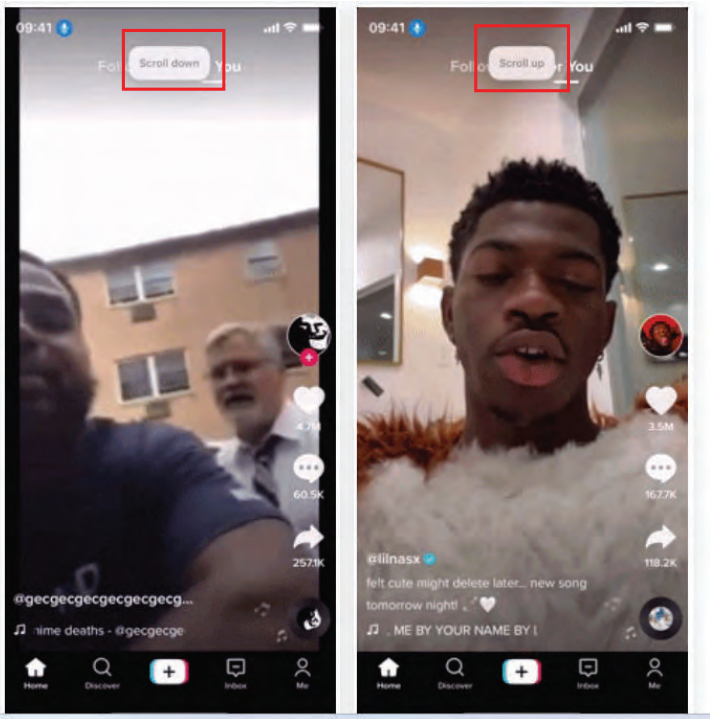
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 570

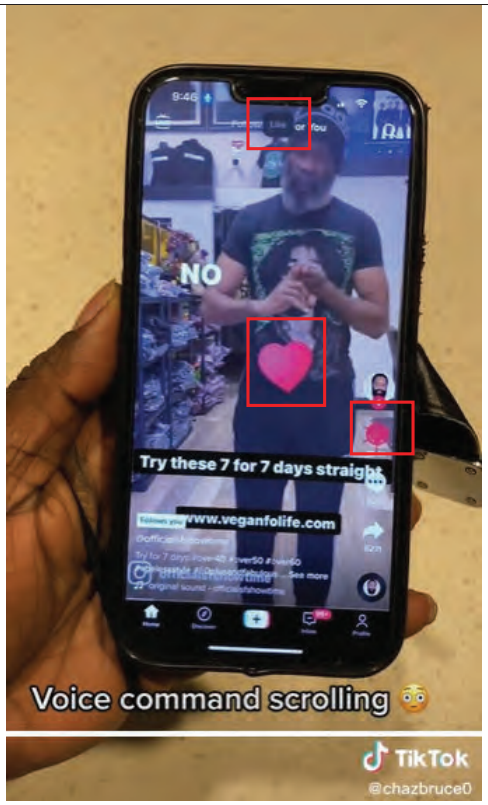
## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

582

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

583



LifeScan, Inc. Ex. 1036
Page 583 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

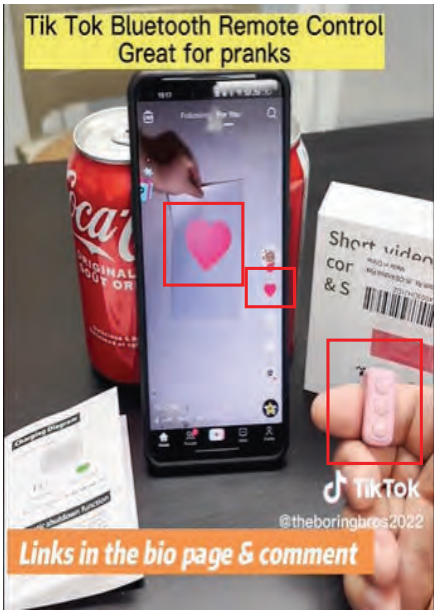
584

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|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 585 of 2225
IPR2025-00102

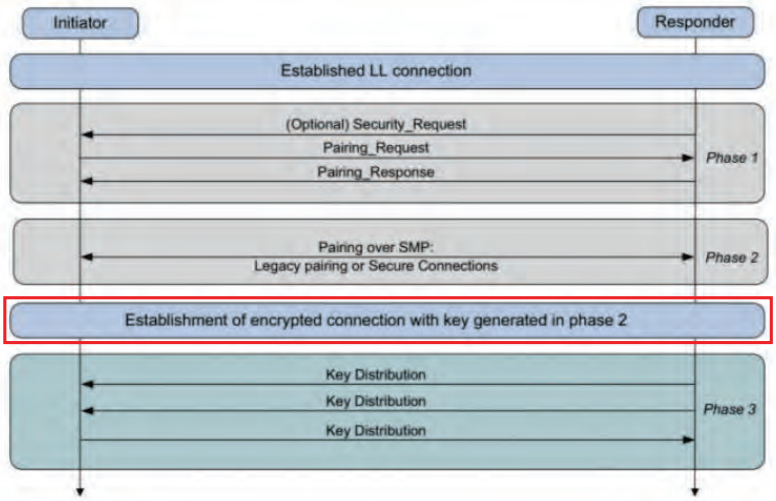
| | |
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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15.9] obtaining new data, data associated with new data and time-stamp from the received encrypted data object using cryptographic encryption key; and | Defendant performs and/or induces others to perform the step of obtaining new data, data associated with new data and time-stamp from the received encrypted data object using cryptographic encryption key.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the devices, the Bluetooth devices capture the user's command and send the command to the mobile device through the Bluetooth connection in an encrypted |

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| | form. The TikTok application in the mobile device receives the user command in the encrypted form and decrypts the received data in order to access the user commands and the timestamps of the commands in order to perform the functionality corresponding to the received command.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command securely, in the encrypted form, in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote ("Bluetooth enabled data capture device"), the TikTok app receives the user's command in order to like the subsequent video.<br><br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

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| | **2.4 Profile fundamentals**<br>The profile fundamentals, with which all applications shall comply, are the following.<br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20<br><br>**4.2.5 Encryption**<br>If at least one authentication has been performed encryption may be used. Two encryption mechanisms are defined: E0 encryption (legacy) and AES-CCM encryption. If both devices support the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then AES-CCM shall be used when encryption is enabled. If at least one device does not support both the Secure Connections (Controller Support) and Secure Connections (Host Support) features, then E0 shall be used when encryption is enabled.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 567 |

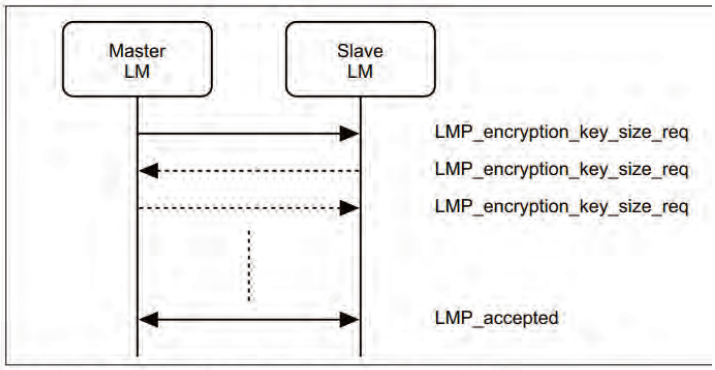
| M/O | PDU | Contents |
|---|---|---|
| O | LMP_encryption_mode_req | encryption mode |
| O | LMP_encryption_key_size_req | key size |
| O | LMP_start_encryption_req | random number |
| O | LMP_stop_encryption_req | - |
| O (42) | LMP_pause_encryption_req | |
| O (42) | LMP_resume_encryption_req | |
| O (136) | LMP_pause_encryption_aes_req | random number |

*Table 4.21: Encryption handling PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 568

590

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| | ***4.2.5.2 Encryption Key Size***<br><br>Note: This section uses the same terms as in [Vol 2] Part H, Section 4.1. The master sends an LMP_encryption_key_size_req PDU including the suggested key size $L_{sug, m}$, that is initially equal to $L_{max, m}$. If $L_{min, s} \leq L_{sug, m}$ and the slave supports $L_{sug, m}$ it shall respond with an LMP_accepted PDU and $L_{sug, m}$ shall be used as the key size. If both conditions are not fulfilled the slave sends back an LMP_encryption_key_size_req PDU including the slave's suggested key size $L_{sug, s}$. This value shall be the slave's largest supported key size that is less than $L_{sug, m}$. Then the master performs the corresponding test on the slave's suggestion. This procedure is repeated until a key size agreement is reached or it becomes clear that no such agreement can be reached. If an agreement is reached a device sends an LMP_accepted PDU and the key size in the last LMP_encryption_key_size_req PDU shall be used. After this, encryption is started; see Section 4.2.5.3. If an agreement is not reached a device sends an LMP_not_accepted PDU with the error code *Unsupported*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 569 |




*Sequence 45: Encryption key size negotiation successful*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 570

Note that there is a significant difference from a cryptographic point of view between Numeric Comparison and the PIN entry model used by Bluetooth Core Specification and earlier versions. In the Numeric Comparison association model, the six digit number is an artifact of the security algorithm and not an input to it, as is the case in the Bluetooth security model. Knowing the displayed number is of no benefit in decrypting the encoded data exchanged between the two devices.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 245

592

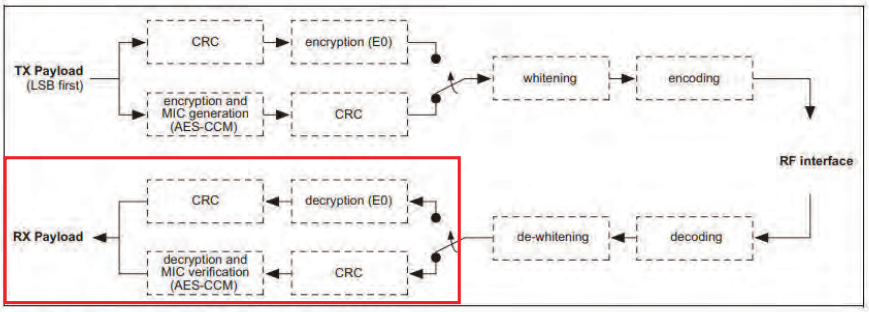



*Figure 7.2: Payload bit processes*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 428

### 4.3.1. Device Time Service characteristic discovery

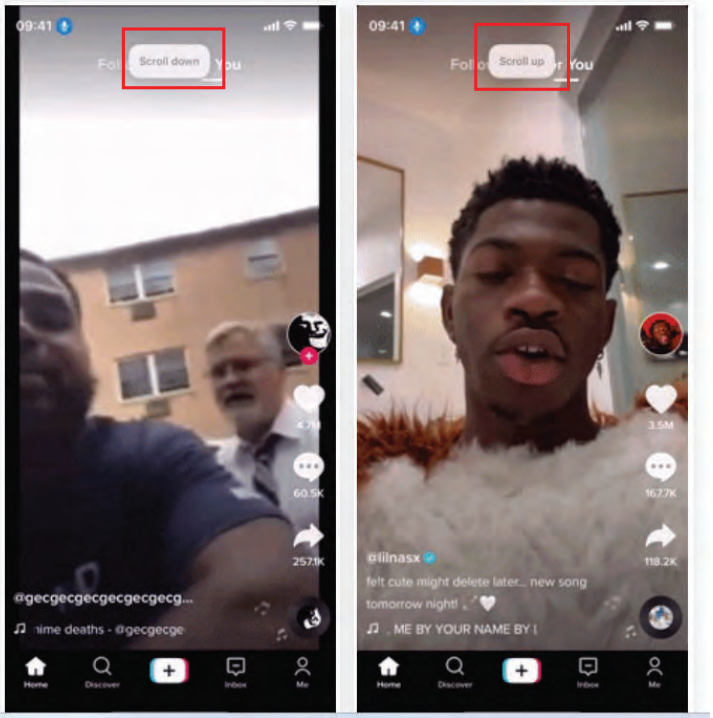
The Client shall perform either the GATT Discover All Characteristics of a Service sub-procedure or the GATT Discover Characteristics by UUID sub-procedure to discover the characteristics of the service.

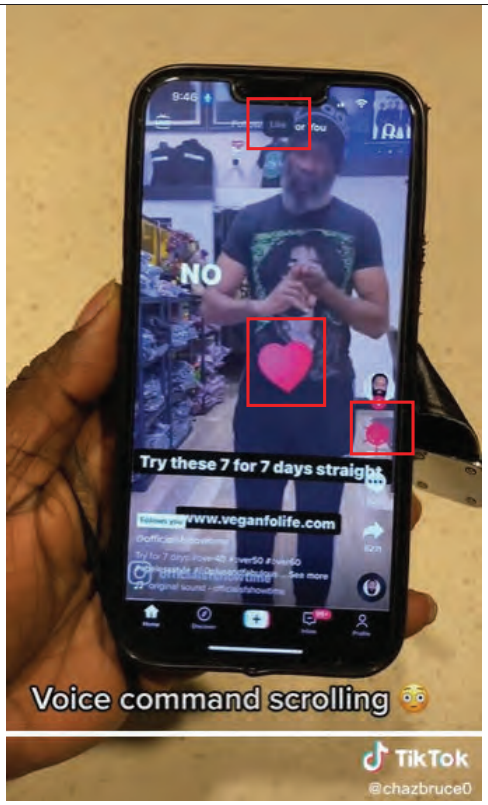
The Client should read and evaluate the DT Feature characteristic to learn what fields are to be expected within each DTS characteristic before reading the other characteristics of the DTS or enabling indications and notifications for characteristics.

The Client shall perform the GATT Discover All Characteristic Descriptors sub-procedure to discover the characteristic descriptors as revealed in the remainder of this section.

Source: https://www.bluetooth.com/specifications/dtp-1-0/

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| | **4.8. Time Change Log Data characteristic behavior**<br><br>The Time Change Log Data characteristic reveals the historical time changes logged by the Server due to changes in time value, time quality, and DT Parameters.<br><br>Clients can use the Segmentation_Header field within the notifications of the Time Change Log Data characteristic to properly reconstruct individual records of time change events by piecing together the Time_Change_Log_Data_Record field of multi-segmented records.<br><br>Clients can then use the Time_Change_Log_Data_Record field within the notifications of Time Change Log Data characteristic to verify timestamps of stored measurements, to audit time change events on the Server, and to evaluate the operational stability of the Server's clock over extended periods of time.<br><br>The Client shall read the DT Feature characteristic to obtain information about whether the Server supports time change logging and the supported time change logging methods implemented by the Server as further specified in the DT Parameters to understand the supported logging fields and thresholds.<br>Source: https://www.bluetooth.com/specifications/dtp-1-0/<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

596

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |





LifeScan, Inc. Ex. 1036
Page 597 of 2225
IPR2025-00102

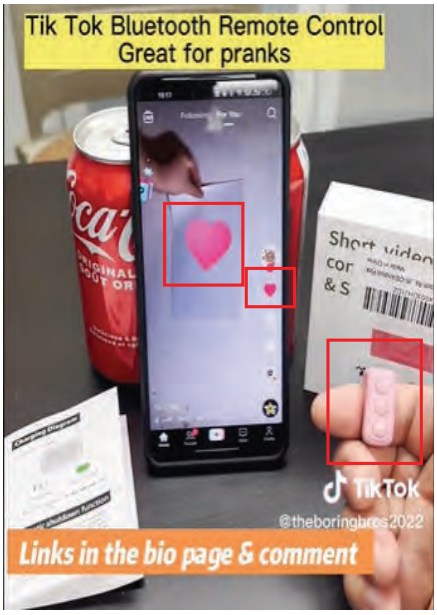
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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

598



LifeScan, Inc. Ex. 1036
Page 598 of 2225
IPR2025-00102

| | |
|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15.10] sending the obtained new data and the obtained time-stamp along with a user identifier to a remote internet server, comprising configuring | Defendant performs and/or induces others to perform the step of sending the obtained new data and the obtained time-stamp along with a user identifier to a remote internet server, comprising configuring the obtained new data to comprise an action setting and destination web address of a remote internet server, wherein action setting comprises one of a remote procedure call (RPC) method and hypertext transfer protocol (HTTP) method, and wherein the user identifier uniquely identifies a particular user of the internet service provided by a remote internet server. |

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| the obtained new data to comprise an action setting and destination web address of a remote internet server, wherein action setting comprises one of a remote procedure call (RPC) method and hypertext transfer protocol (HTTP) method, and wherein the user identifier uniquely identifies a particular user of the internet service provided by a remote internet server. | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to transfer (or backup) data (related to the commands provided by the user including time-stamps) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok App for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app.<br><br>**Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |

## Initialize video upload

To upload a video to a TikTok user's account, the first step is to initialize the upload.

| | |
|---|---|
| HTTP URL | /v2/post/publish/inbox/video/init/ |
| HTTP Method | POST |
| Scope | video.upload |

Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

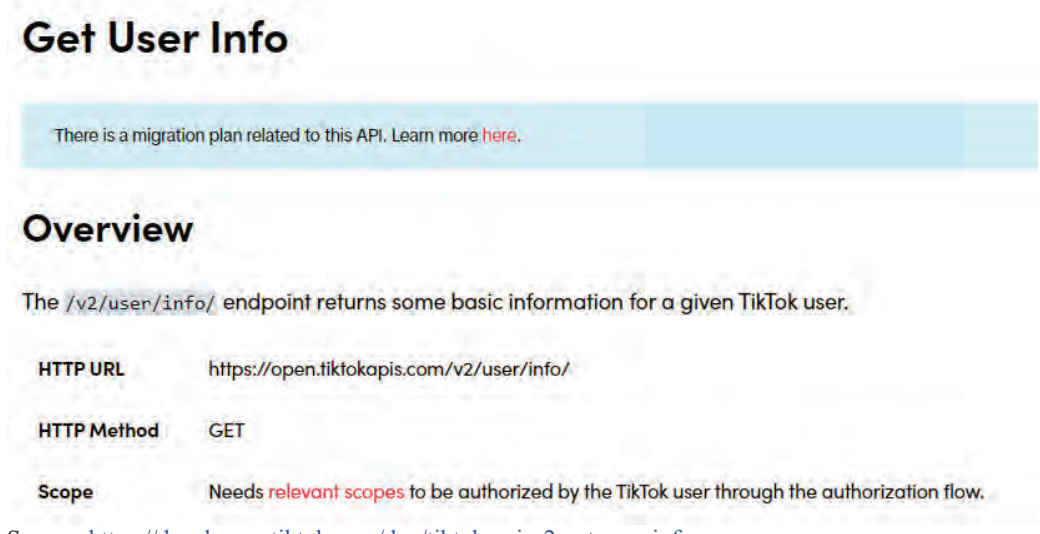
## File upload

Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.

To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference.

Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide

602



# Get User Info

There is a migration plan related to this API. Learn more here.

## Overview

The `/v2/user/info/` endpoint returns some basic information for a given TikTok user.

| | |
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| **HTTP URL** | https://open.tiktokapis.com/v2/user/info/ |
| **HTTP Method** | GET |
| **Scope** | Needs relevant scopes to be authorized by the TikTok user through the authorization flow. |

Source: https://developers.tiktok.com/doc/tiktok-api-v2-get-user-info

## Information You Provide

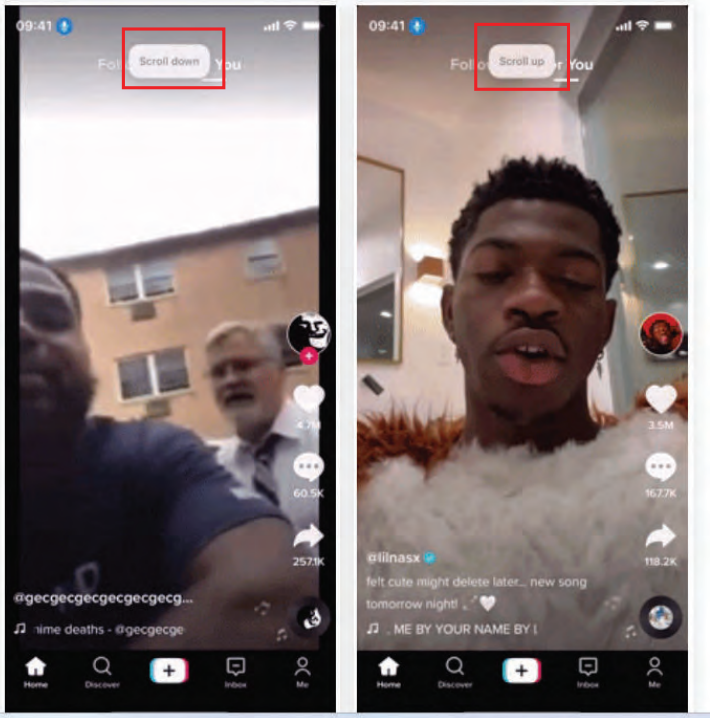
- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

Source: https://www.tiktok.com/legal/Page/row/privacy-policy/en

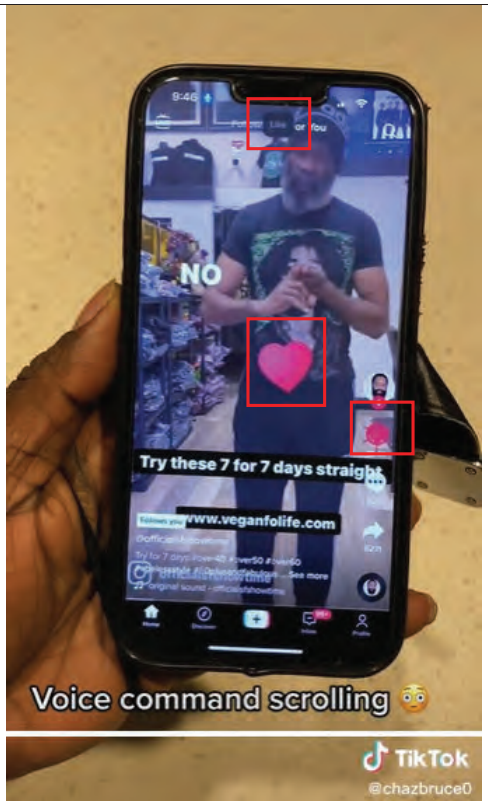
603

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

604

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

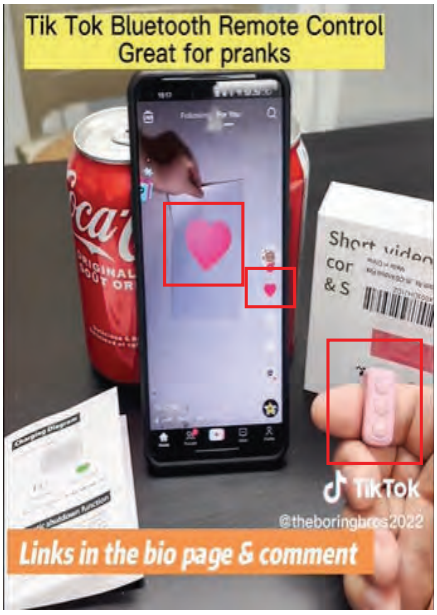




LifeScan, Inc. Ex. 1036
Page 607 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

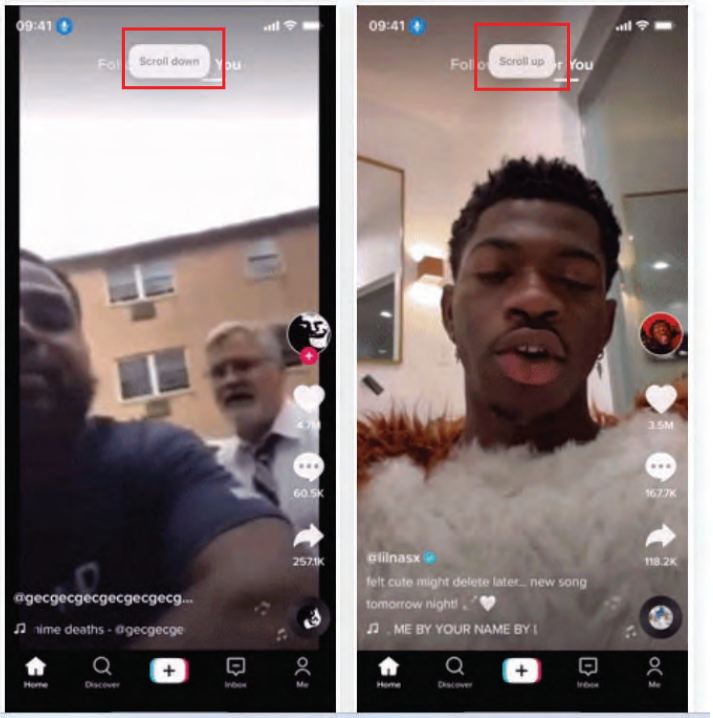
608

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [16] The method of claim 15, wherein the new data for transfer comprises one or more of audio data, video data, image | Defendant performs and/or induces others to perform the method of claim 15, wherein the new data for transfer comprises one or more of audio data, video data, image data, text data, or digital data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

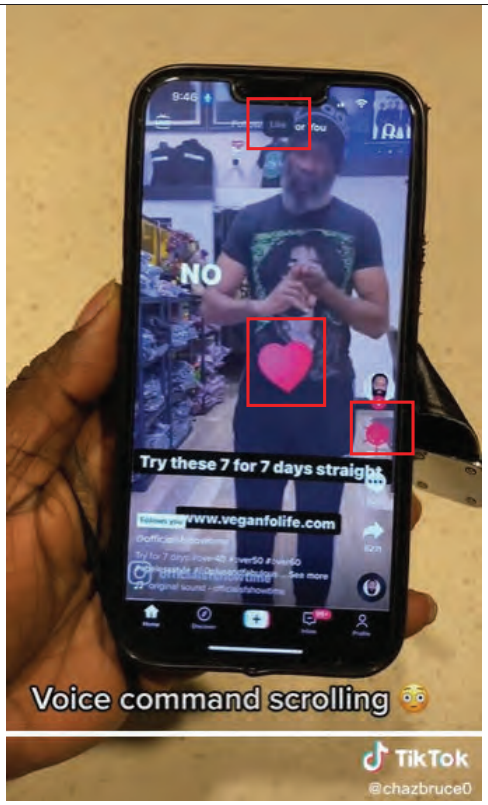
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| data, text data, or digital data. | For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command ("audio data") provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("new-data") on AirPods or earphones, the TikTok app receives the user's command in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as a signal notification in order to like or scroll the subsequent video.<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  |

610

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| | Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

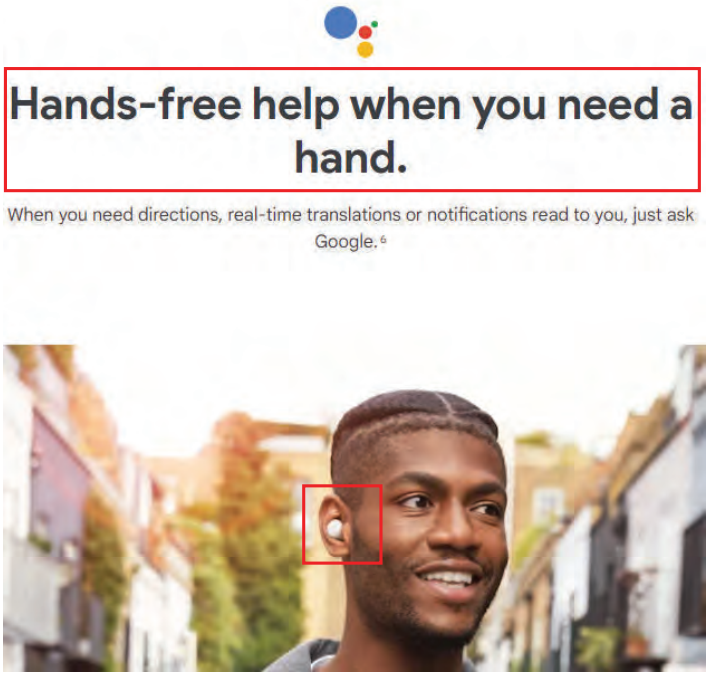
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

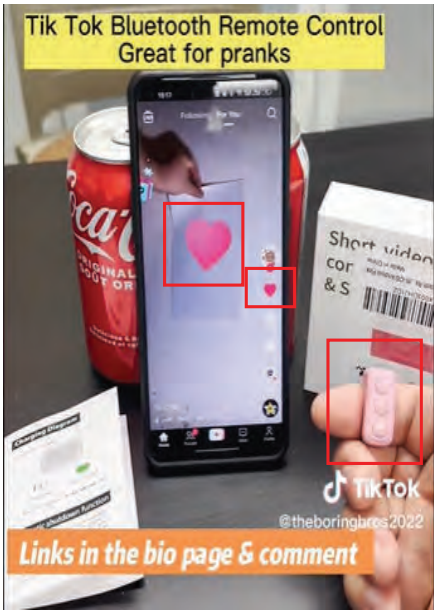
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

617

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| 17. The method of claim 15, wherein event notification corresponds to creation of new data for transfer or change in | Defendant performs and/or induces others to perform the method of claim 15, wherein event notification corresponds to creation of new data for transfer or change in status of new data for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| status of new data for transfer. | For example, after establishing Bluetooth connection, BLE allows the mobile device to send a message to the Bluetooth device, intending to enable event notifications on the Bluetooth device, notifying the mobile device when the new data is acquired. Therefore, the event notification corresponds to creation of new data for transfer<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized to transfer the data from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control specification), including, but not limited to, AirPods, Earphones and Bluetooth remotes, to the Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed. The mobile devices notify ("sending a message") the Bluetooth devices, to register and send them notifications when the new data is acquired.<br><br>3. CT devices have the capability to provide a NOTIFY AV/C command to the TG, to register for specific events on the TG.<br>4. The TG shall for every supported NOTIFY AV/C command send an INTERIM response to the CT with the current status of the registered event within $T_{MTP}$ from the time of registration.<br><br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 38<br><br>**6.7 Notification PDUs**<br>The Notification PDUs are used to obtain synchronous as well as asynchronous updates from the TG based on change of status at the target's side.<br><br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/ |

620

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

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| | ATT_SIGNED_WRITE_COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17

## Exposure Notification Service

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4

622

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| | **Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [18] The method of claim 6, wherein the time-stamp is either absolute time or relative time. | Defendant performs and/or induces others to perform the method of claim 6, wherein the time-stamp is either absolute time or relative time.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the event notification includes a time change log of the data that maintains a timestamp of the new data stored in the Bluetooth device. The timestamp is the relative time with respect to the time of the server device.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>4.3.1. Device Time Service characteristic discovery<br>The Client shall perform either the GATT Discover All Characteristics of a Service sub-procedure or the GATT Discover Characteristics by UUID sub-procedure to discover the characteristics of the service.<br>The Client should read and evaluate the DT Feature characteristic to learn what fields are to be expected within each DTS characteristic before reading the other characteristics of the DTS or enabling indications and notifications for characteristics.<br>The Client shall perform the GATT Discover All Characteristic Descriptors sub-procedure to discover the characteristic descriptors as revealed in the remainder of this section. |

Source: https://www.bluetooth.com/specifications/dtp-1-0/

### 4.8. Time Change Log Data characteristic behavior

The Time Change Log Data characteristic reveals the historical time changes logged by the Server due to changes in time value, time quality, and DT Parameters.

Clients can use the Segmentation_Header field within the notifications of the Time Change Log Data characteristic to properly reconstruct individual records of time change events by piecing together the Time_Change_Log_Data_Record field of multi-segmented records.

Clients can then use the Time_Change_Log_Data_Record field within the notifications of Time Change Log Data characteristic to verify timestamps of stored measurements, to audit time change events on the Server, and to evaluate the operational stability of the Server's clock over extended periods of time.

The Client shall read the DT Feature characteristic to obtain information about whether the Server supports time change logging and the supported time change logging methods implemented by the Server as further specified in the DT Parameters to understand the supported logging fields and thresholds.

Source: https://www.bluetooth.com/specifications/dtp-1-0/

## 1. Introduction

The Device Time Profile (DTP) allows a Device Time Client (Client) to interact with a Device Time Server (Server) on a device that supports the Device Time Service (DTS) for the purpose of providing the Server device's time and time quality information.

This profile allows a Client to use two separate Control Points (CP) to perform time management procedures with a Server. One CP allows a Client to provide for time synchronization with the Server device and to modify some of the Server device's time management parameters. The other CP allows the Client to audit time change events that the Server experienced to help the Client reconcile timestamped data received from the Server device.

Source: https://www.bluetooth.com/specifications/dtp-1-0/

The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.

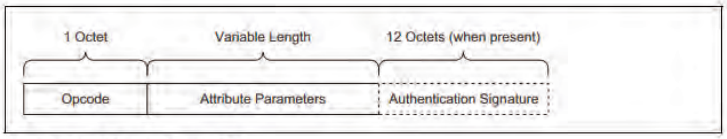



*Figure 2.3: Attribute Protocol PDU*

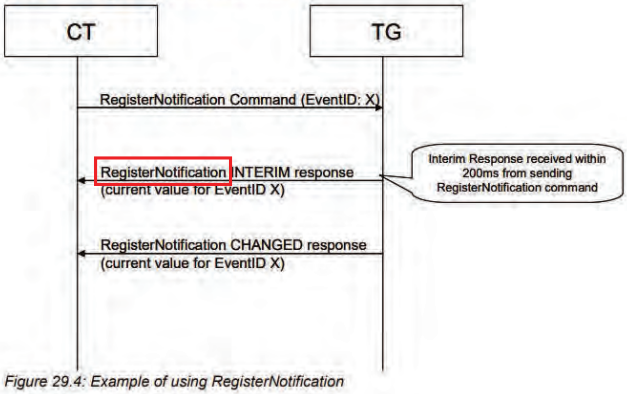
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

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| | 29.3 RegisterNotification<br>  <br><br>*Figure 29.4: Example of using RegisterNotification*<br>Source:https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139 |

626

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

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| | |
|---|---|
| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

628

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

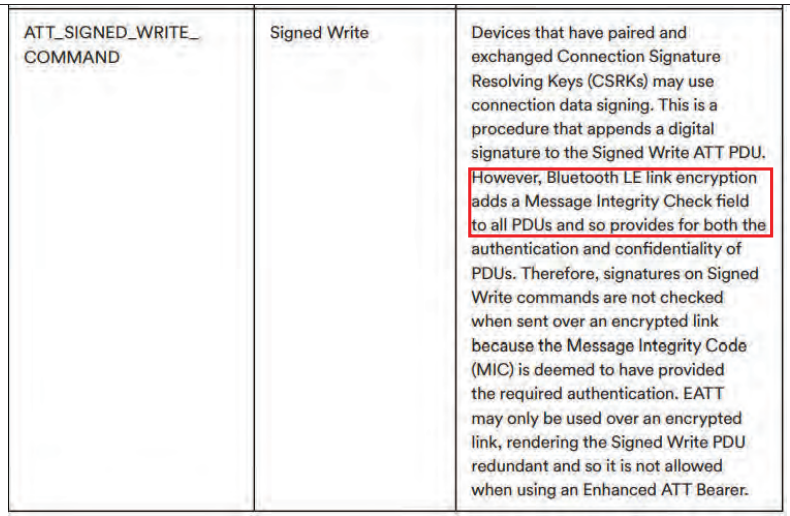
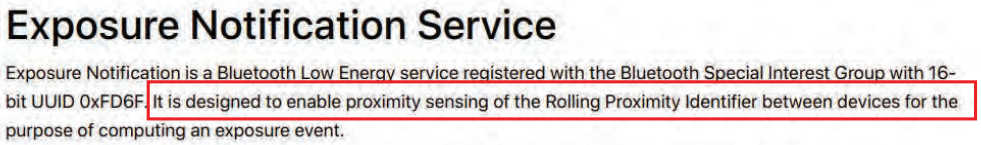
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

| | |
|---|---|
| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |





630

| | |
|---|---|
| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

631

| | |
|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant.

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Exhibit 5

# U.S. Patent No. 9,900,766 v. ByteDance
# Claims 1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.

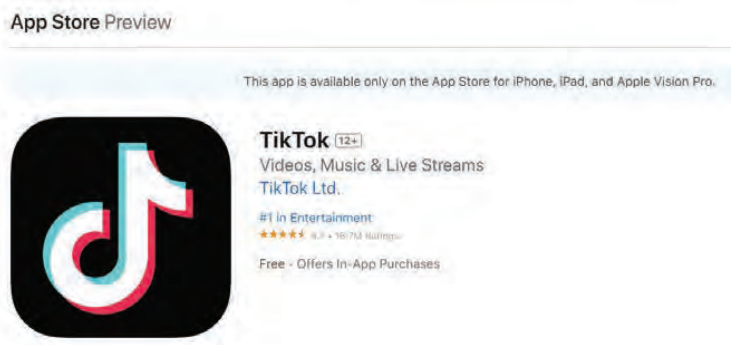
TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

[635 pages]

## 1. Claim Chart

| Claim | Analysis |
|---|---|
| [1.P] A short-range wireless enabled data capture device, comprising: | ByteDance ("Defendant") makes, uses, sells, and/or offers to sell a short-range wireless enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

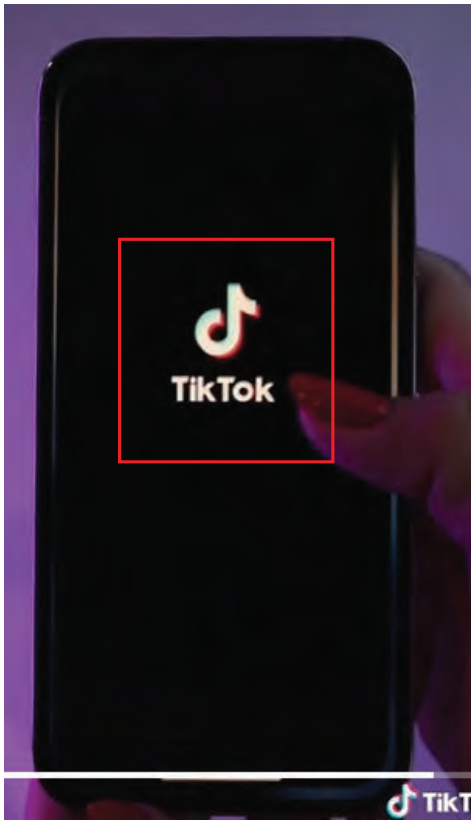
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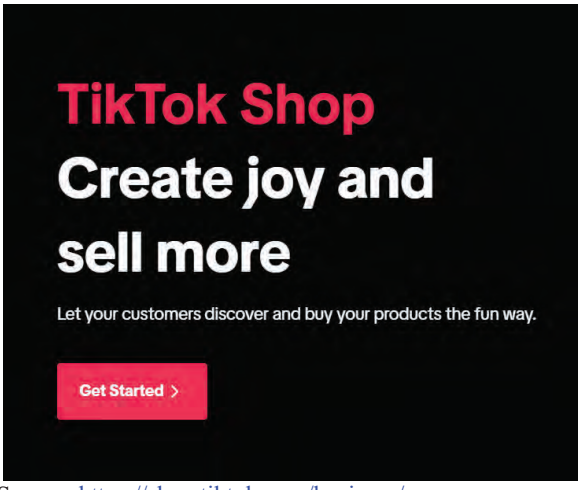
| | |
|---|---|
| | For example, Defendant provides TikTok[1] app which includes the functionality of TikTok Shop that enables merchants to sell products and allows the users to buy products from the TikTok app. TikTok App enables merchants to sell their products including, but not limited to, Bluetooth-enabled earphones, AirPods, and Bluetooth remotes[2] ("a short-range wireless enabled data capture device") to TikTok users.<br><br>For example, the TikTok app is installed in a mobile device such as an iPhone or an Android phone and can be remotely controlled through Bluetooth devices such as Bluetooth enabled earphones, AirPods, and Bluetooth remotes. The TikTok app utilizes the Bluetooth technology of Bluetooth devices and the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided to the Bluetooth devices.<br><br>  <br><br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

[1] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

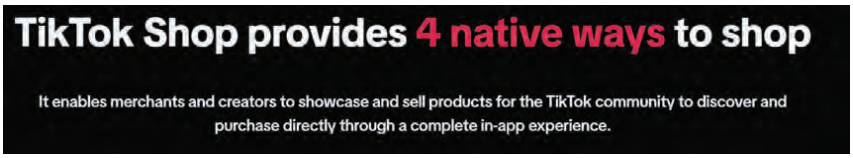
[2] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

| | |
|---|---|
| |  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

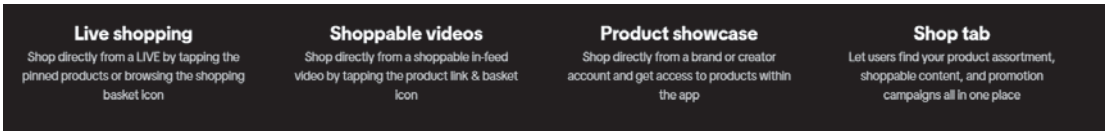
| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |



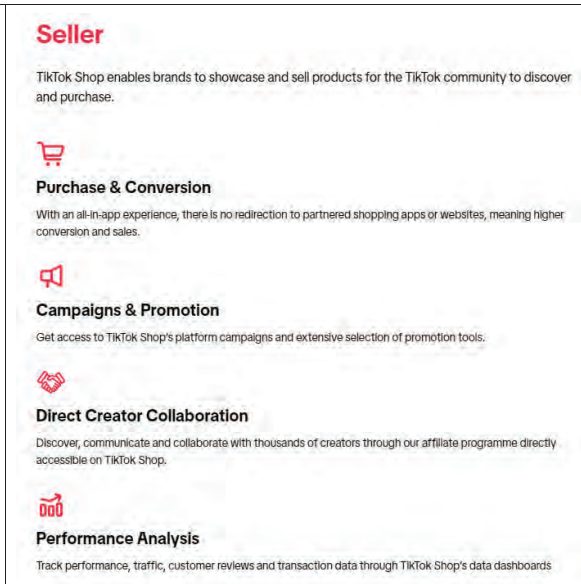

Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en

## How does TikTok Commerce work?

TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.

Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en

## About TikTok Shop

TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.

Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.

- See TikTok Shop and Showcase
- See How to Add Product Links to TikTok Videos

With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.

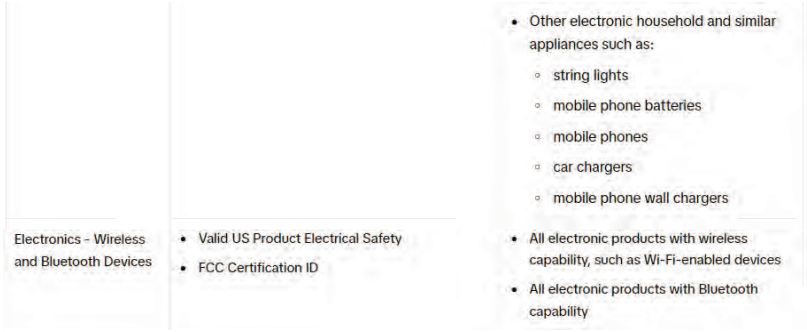
Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en

## Electrical Products and Electronics

Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.

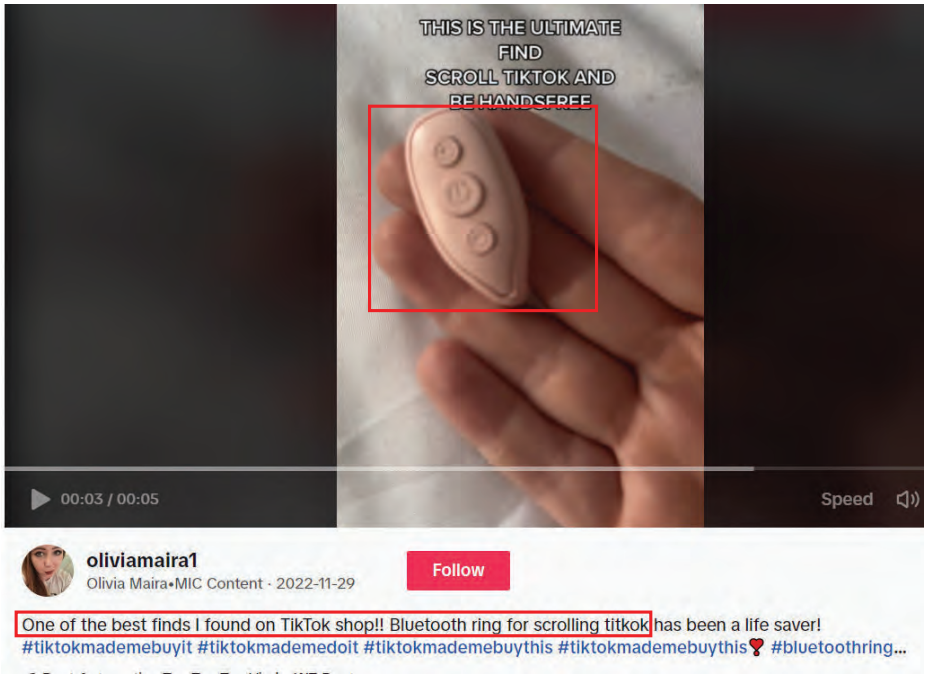
Electrical and electronic products include but are not limited to:

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy

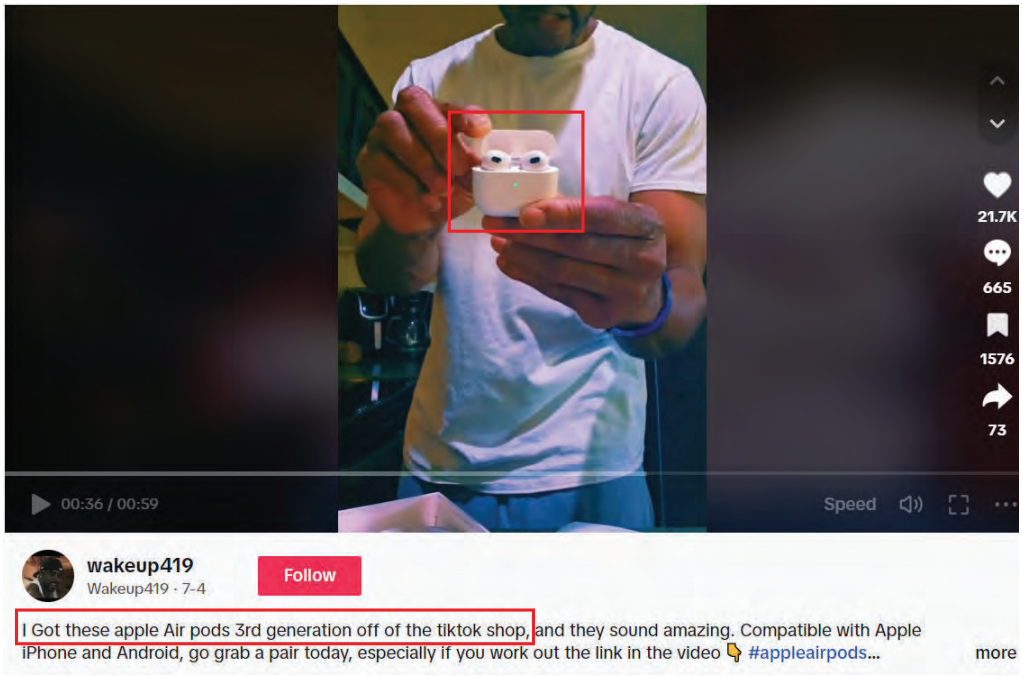


| | | |
|---|---|---|
| Electronics - Wireless and Bluetooth Devices | • Valid US Product Electrical Safety<br>• FCC Certification ID | • Other electronic household and similar appliances such as:<br>◦ string lights<br>◦ mobile phone batteries<br>◦ mobile phones<br>◦ car chargers<br>◦ mobile phone wall chargers<br>• All electronic products with wireless capability, such as Wi-Fi-enabled devices<br>• All electronic products with Bluetooth capability |

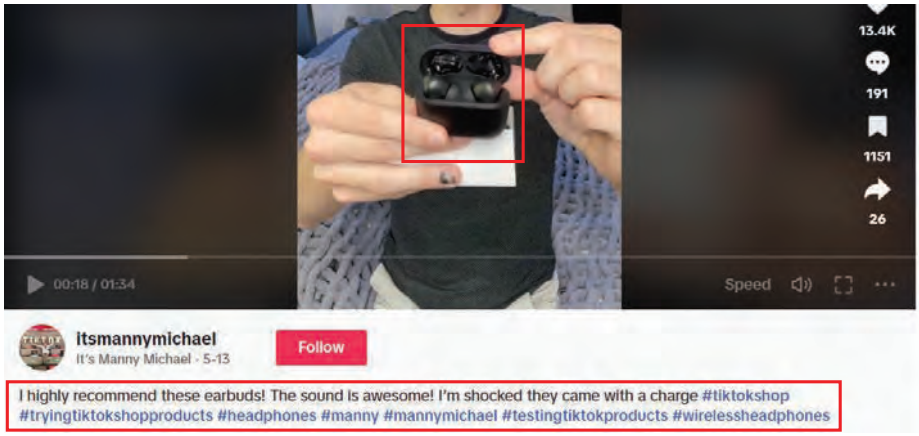
Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy



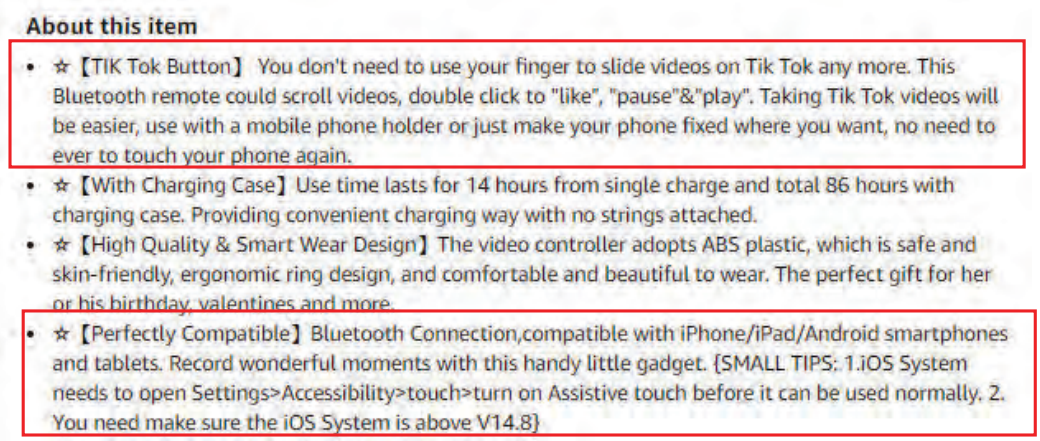

Source: https://www.tiktok.com/@oliviamaira1/video/7171162583678946566, at 0:03



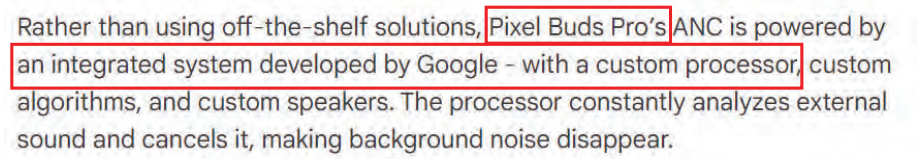

Source: https://www.tiktok.com/@wakeup419/video/7251981896937213226, at 0:36

| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@itsmannymichael/video/7232432938531671342, at 0:18 |

| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.1] a memory device; a processor coupled to said memory device; | Defendant provides a memory device, a processor coupled to said memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, AirPods and Bluetooth enabled earphones that comprises a memory ("memory device") and a processor coupled to the memory. The memory is used for temporary storage of audio data locally in the Bluetooth device such as AirPods and Bluetooth enabled earphones. The processor processes the user's data and sends it for execution to the mobile device, where the TikTok app is installed. |

| | |
|---|---|
| | For example, the users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, Bluetooth remote that upon information and belief comprises a memory ("memory device") and a processor coupled to the memory. The memory is used for temporary storing the user's selection of the clicked button locally. The processor processes the user's data and sends it for execution to the mobile device, where the TikTok app is installed.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>  <br>Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471 |

| | |
|---|---|
| |  <br>Source: https://store.google.com/product/pixel_buds_pro<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.2] a short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled data capture device and a short-range wireless enabled cellular phone, wherein establishing the short-range paired wireless connection comprises cryptographically authenticating identity of the short-range wireless enabled cellular phone, and wherein establishing the short-range paired | Defendant provides a short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled data capture device and a short-range wireless enabled cellular phone, wherein establishing the short-range paired wireless connection comprises cryptographically authenticating identity of the short-range wireless enabled cellular phone, and wherein establishing the short-range paired wireless connection further comprises the short-range wireless enabled data capture device using an association protocol.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app installed in the mobile device ("short-range wireless enabled cellular phone") using Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("short-range wireless enabled data capture device") which comprises Bluetooth ("short-range wireless communication device"). Using Bluetooth, the Bluetooth devices pair with the mobile device. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the Bluetooth device and the mobile device are connected through an encrypted connection ("association protocol") created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established |

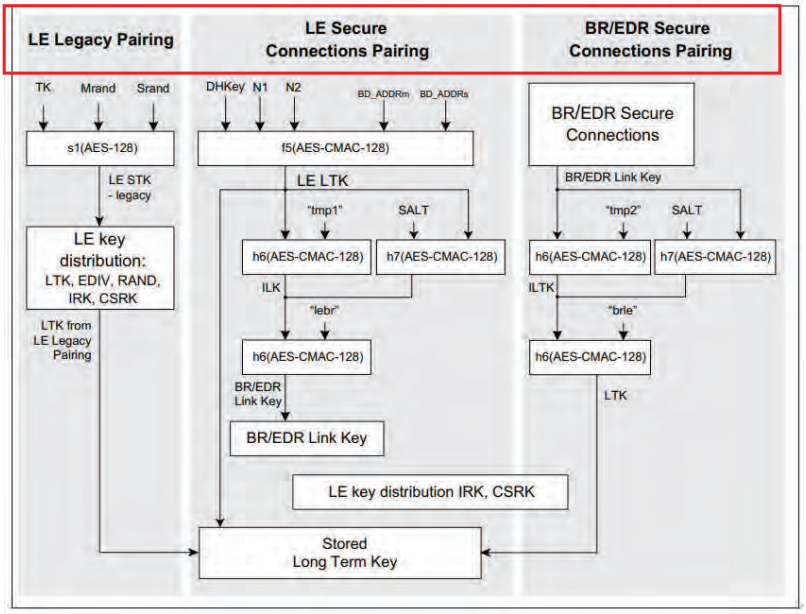
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| wireless connection further comprises the short-range wireless enabled data capture device using an association protocol; | between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>**Connectivity** Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>**Connectivity**<br><br>Each earbud: Bluetooth 5.0<br><br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US<br><br>  <br><br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1 |

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| | The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |





LifeScan, Inc. Ex. 1036
Page 651 of 2225
IPR2025-00102




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master trans-mits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

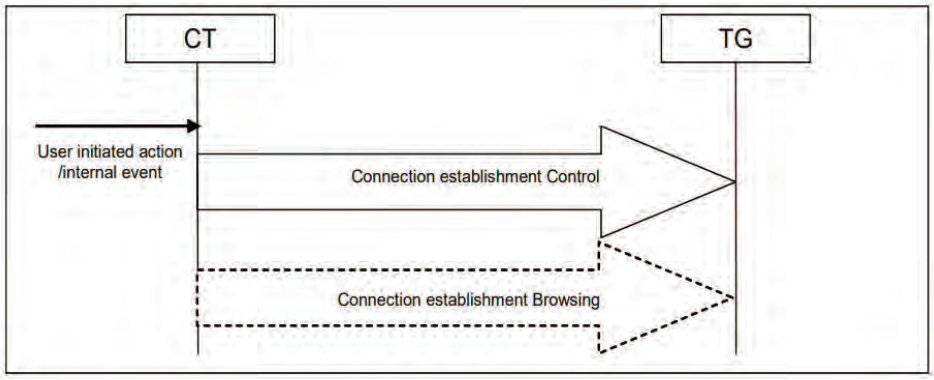



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

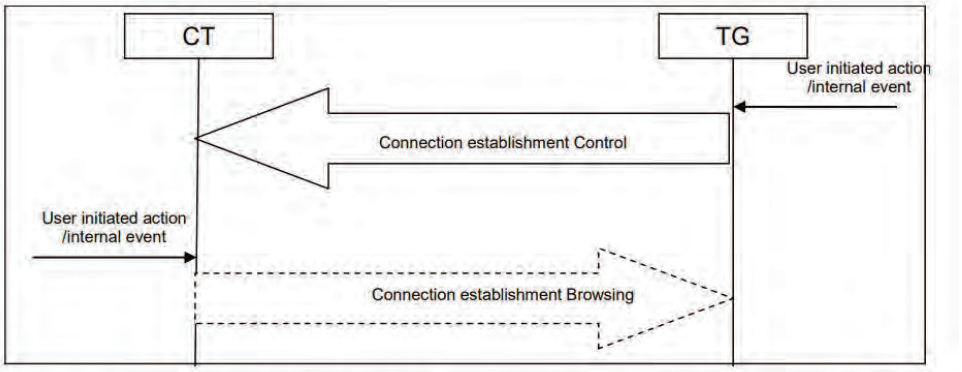



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

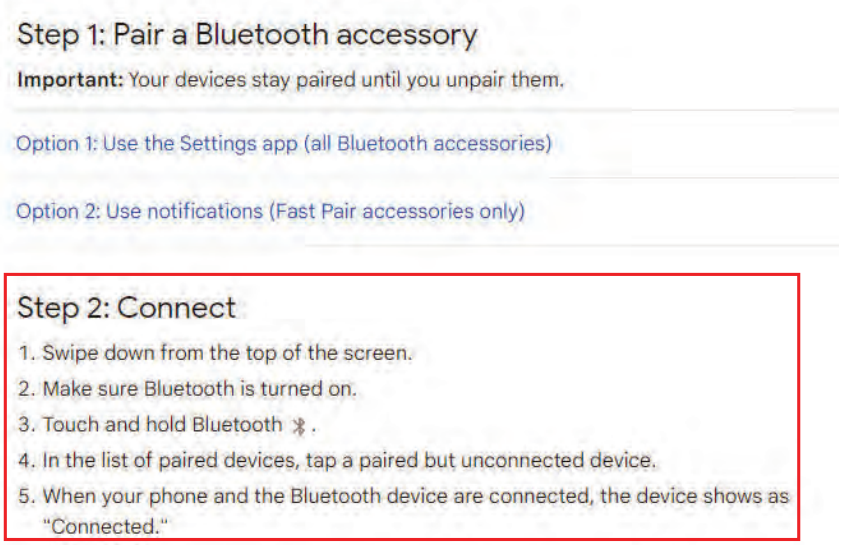
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

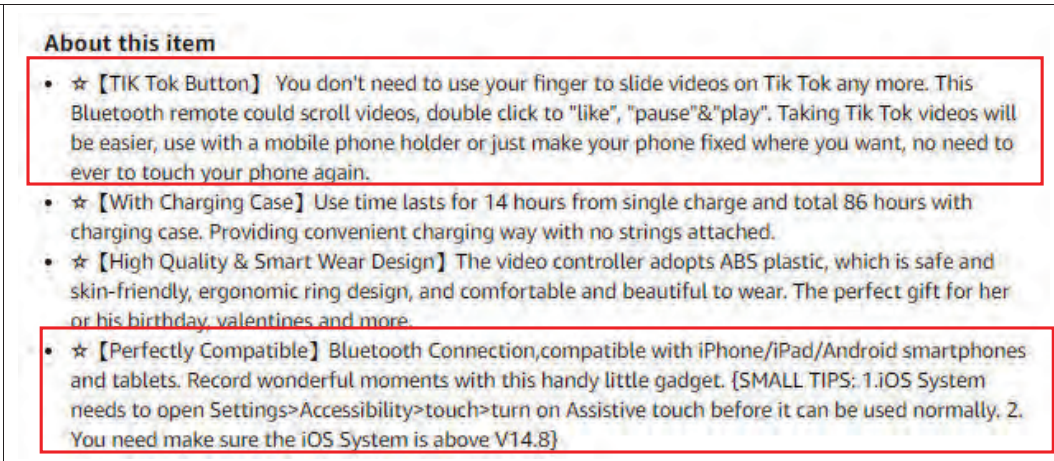
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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web |




Source: https://support.google.com/android/answer/9075925?hl=en

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

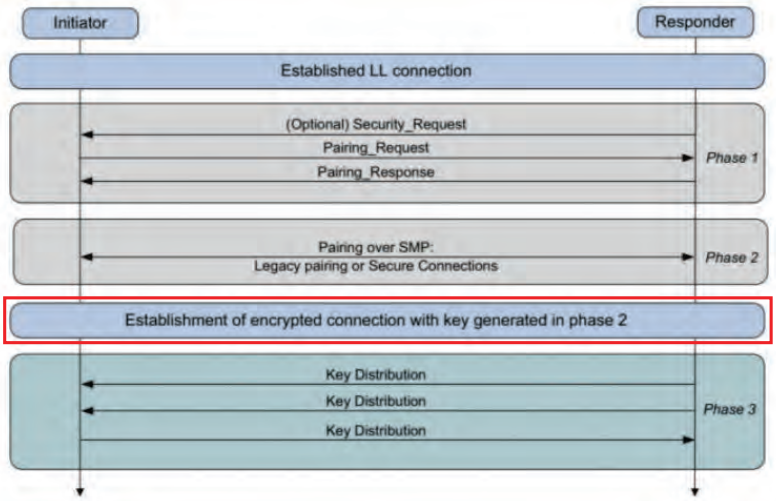
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

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| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

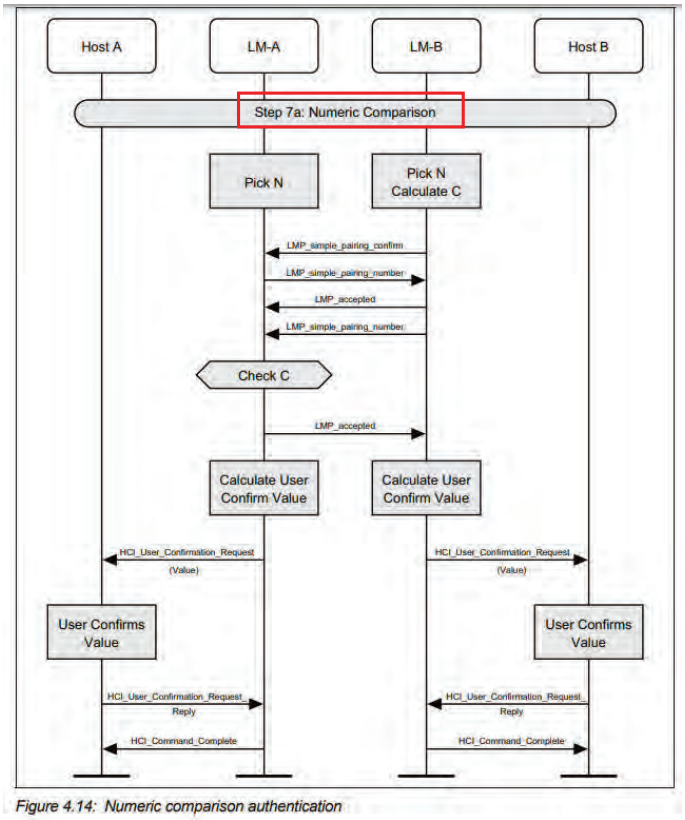



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

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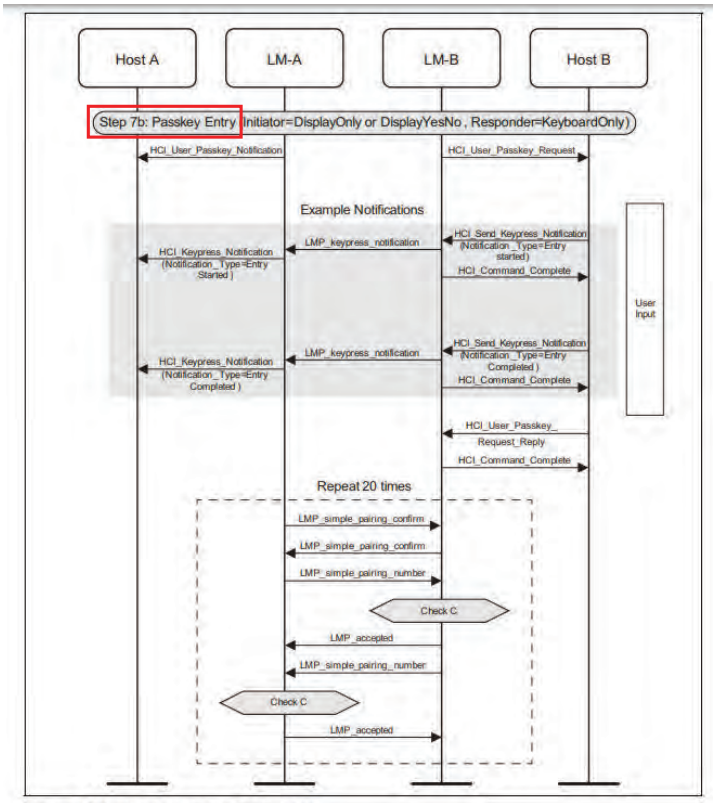



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

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LifeScan, Inc. Ex. 1036
Page 664 of 2225
IPR2025-00102

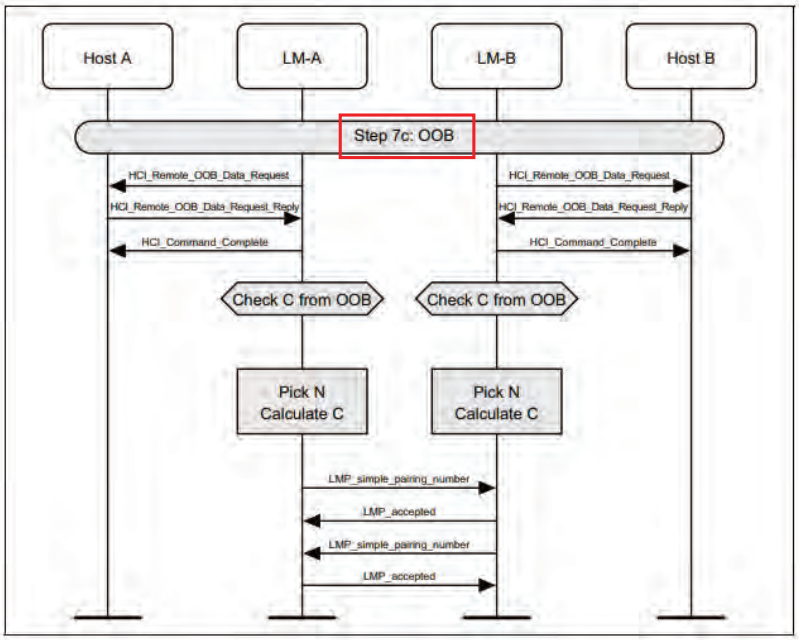
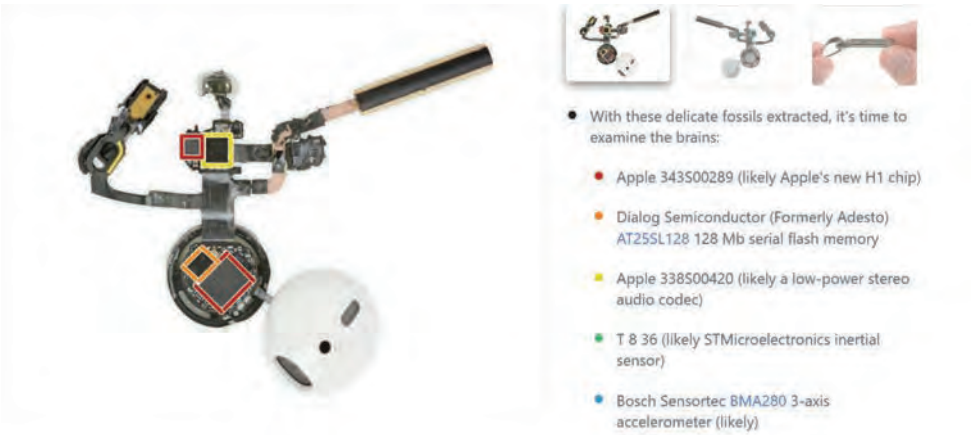



*Figure 4.20: OOB authentication (P-192)*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

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| | **Encryption Key Size Control Enhancements**<br>New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.<br>Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.<br>Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.3] a data capture circuitry; | Defendant provides a data capture circuitry.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as AirPods and Bluetooth-enabled earphones. The Bluetooth devices comprises microphone, sensors, chips, and controls among other components ("data capture circuitry") to capture user's audio commands.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as Bluetooth remote. The Bluetooth remote comprises buttons and sensors ("data capture circuitry") to capture the user's selection of the clicked button. |

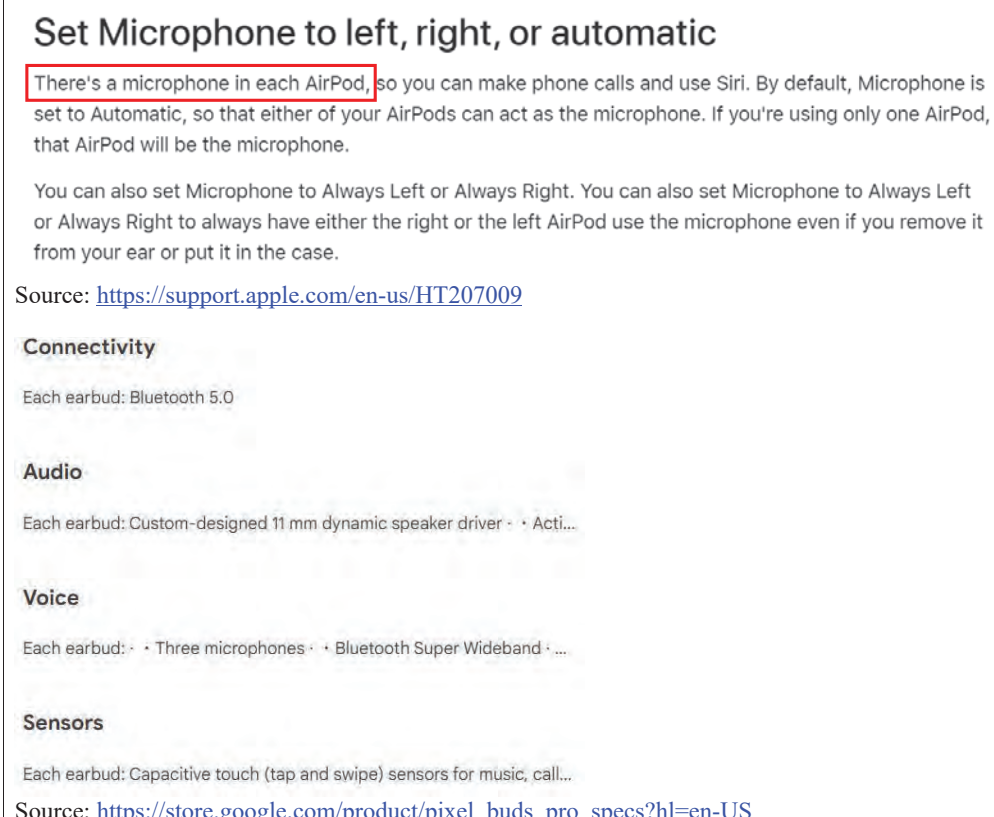
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| |  <br>Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471 |

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| | **Audio Technology**<br>▪ Custom high-excursion Apple driver<br>▪ Custom high dynamic range amplifier<br>▪ Active Noise Cancellation<br>▪ Adaptive Transparency<br>▪ Vent system for pressure equalization<br>▪ Personalized Spatial Audio with dynamic head tracking[1]<br>▪ Adaptive EQ<br>**Sensors**<br>▪ Dual beamforming microphones<br>▪ Inward-facing microphone<br>▪ Skin-detect sensor<br>▪ Motion-detecting accelerometer<br>▪ Speech-detecting accelerometer<br>▪ Touch control<br>**Chip**<br>▪ Apple H2 headphone chip<br>▪ Apple U1 chip in MagSafe Charging Case<br>**Controls**<br>▪ Press once to play, pause, or answer a phone call<br>▪ Press twice to skip forward<br>▪ Press three times to skip back<br>▪ Press and hold to switch between Active Noise Cancellation and Adaptive Transparency<br>▪ Swipe up or down to adjust volume<br>▪ Say "Hey Siri" to do things like play a song, make a call, or get directions<br>Source: https://support.apple.com/kb/SP880?locale=en_US |





LifeScan, Inc. Ex. 1036
Page 668 of 2225
IPR2025-00102



## Set Microphone to left, right, or automatic

There's a microphone in each AirPod, so you can make phone calls and use Siri. By default, Microphone is set to Automatic, so that either of your AirPods can act as the microphone. If you're using only one AirPod, that AirPod will be the microphone.

You can also set Microphone to Always Left or Always Right. You can also set Microphone to Always Left or Always Right to always have either the right or the left AirPod use the microphone even if you remove it from your ear or put it in the case.

Source: https://support.apple.com/en-us/HT207009

**Connectivity**

Each earbud: Bluetooth 5.0

**Audio**

Each earbud: Custom-designed 11 mm dynamic speaker driver · · Acti...

**Voice**

Each earbud: · · Three microphones · · Bluetooth Super Wideband · ...

**Sensors**

Each earbud: Capacitive touch (tap and swipe) sensors for music, call...

Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.4] said processor configured to acquire | Defendant provides a processor configured to acquire new-data in the short-range wireless enabled data capture device using the data capture circuitry, wherein the new-data is data acquired after establishing the short-range |

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| new-data in the short-range wireless enabled data capture device using the data capture circuitry, wherein the new-data is data acquired after establishing the short-range paired wireless connection between the short-range wireless enabled data capture device and the short-range wireless enabled cellular phone; | paired wireless connection between the short-range wireless enabled data capture device and the short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth device captures the user's command ("new-data") using its data capture circuitry, processes it and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is processed and transferred to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down", the Bluetooth devices such as AirPods or earphones capture the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button, the Bluetooth remote captures the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

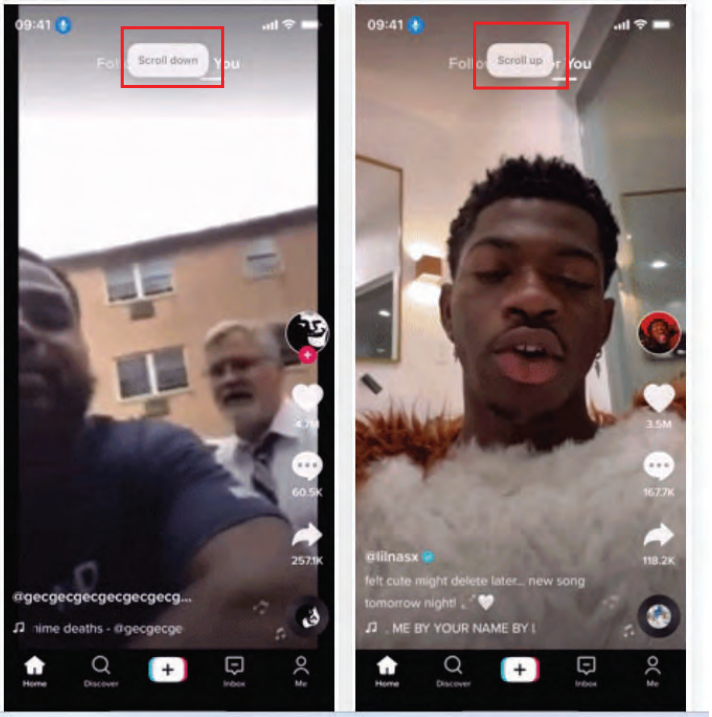


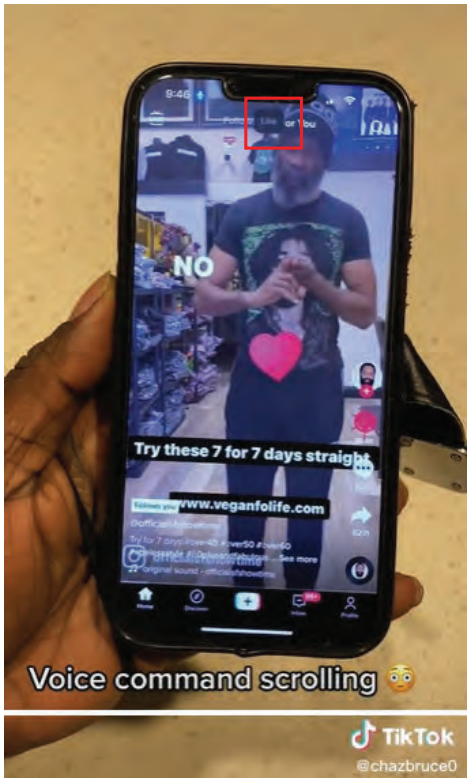


LifeScan, Inc. Ex. 1036
Page 671 of 2225
IPR2025-00102

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| | Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br><br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br><br>  <br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



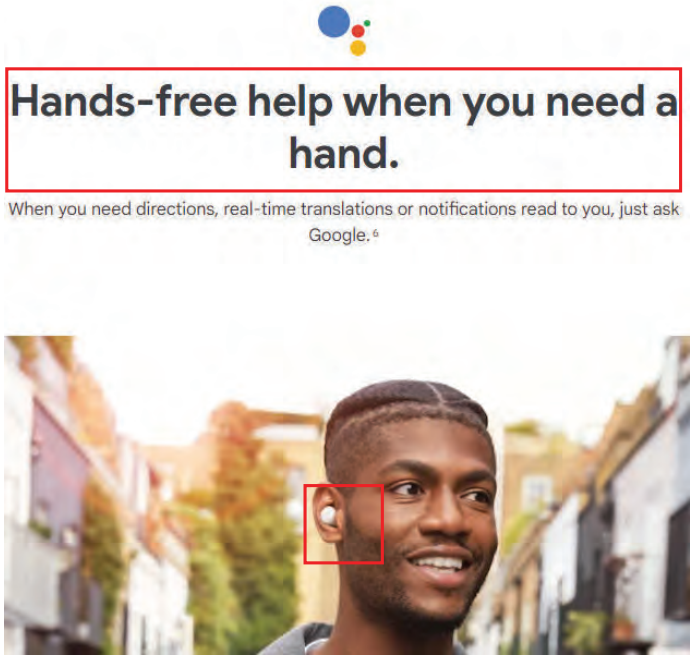

Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | android.permission.BLUETOOTH_CONNECT \| App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

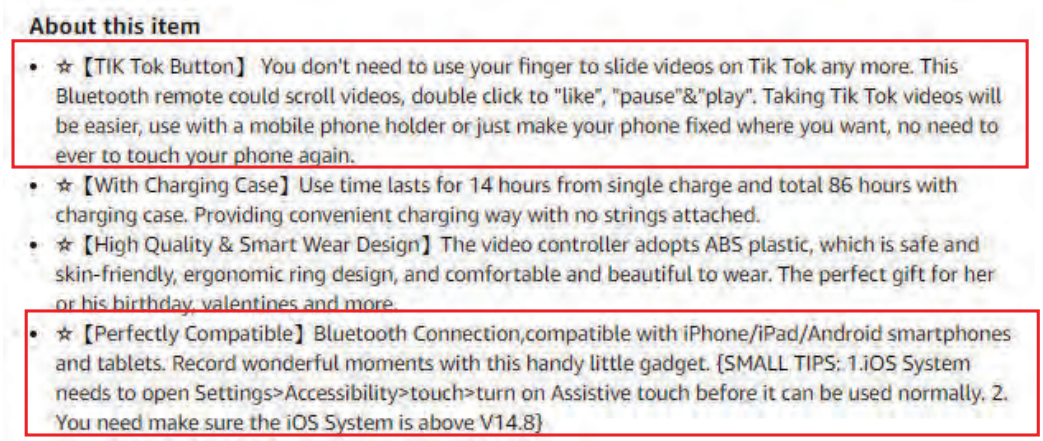




LifeScan, Inc. Ex. 1036
Page 679 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



**About this item**

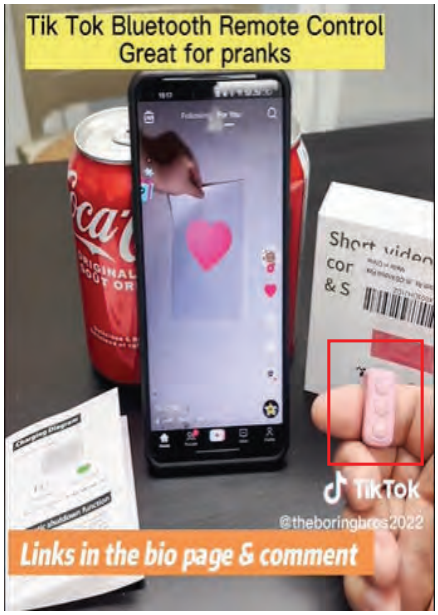
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa





LifeScan, Inc. Ex. 1036
Page 682 of 2225
IPR2025-00102

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.5] said processor further configured to store the new-data in the memory device; | Defendant provides a processor further configured to store the new-data in the memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device captures the user's command ("new-data"), processes it, temporarily stores it before buffering and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user, temporarily stores the audio data locally, processes, and transfers the command to the mobile device on which the TikTok app is installed. Similarly, the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote, upon information and belief, temporarily stores the user's selection of the clicked button locally prior to buffering purposes and transfer the command to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the audio command is stored, at least temporarily, processed and sent for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, upon information and belief, the user's selection is stored locally prior to buffering, processed and sent for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |



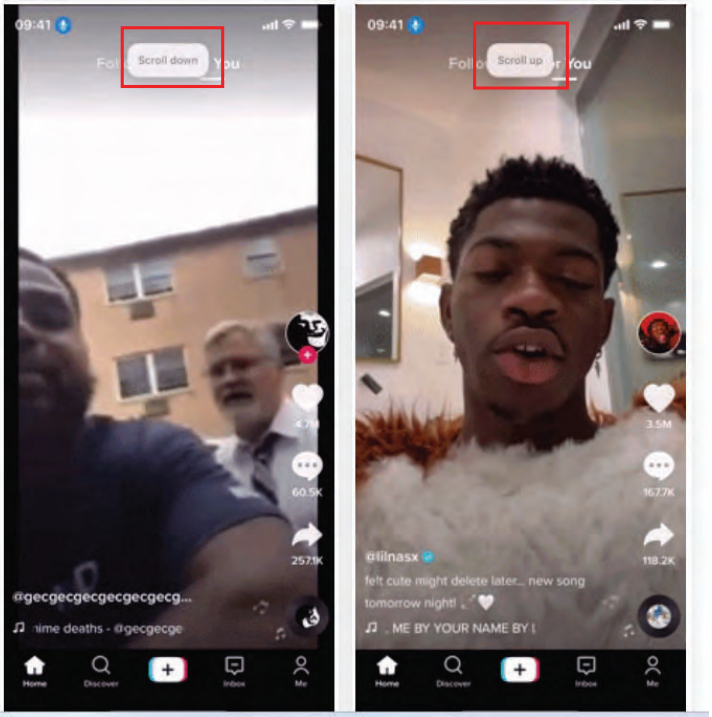

Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471

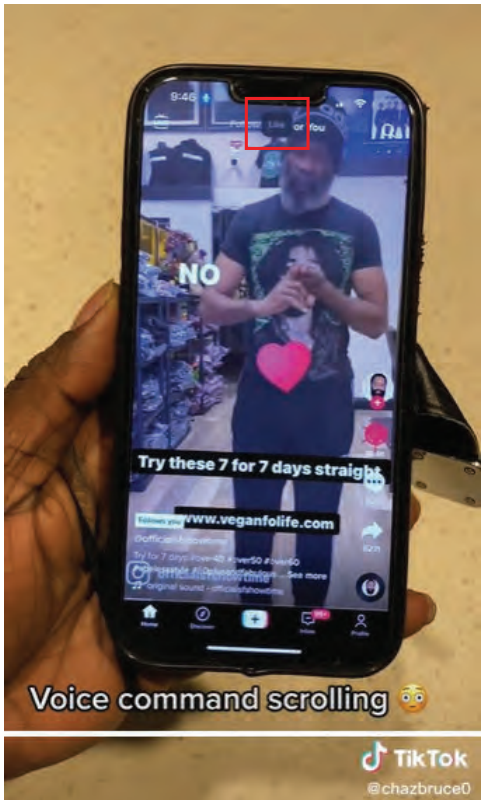
Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.

Source: https://store.google.com/product/pixel_buds_pro

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

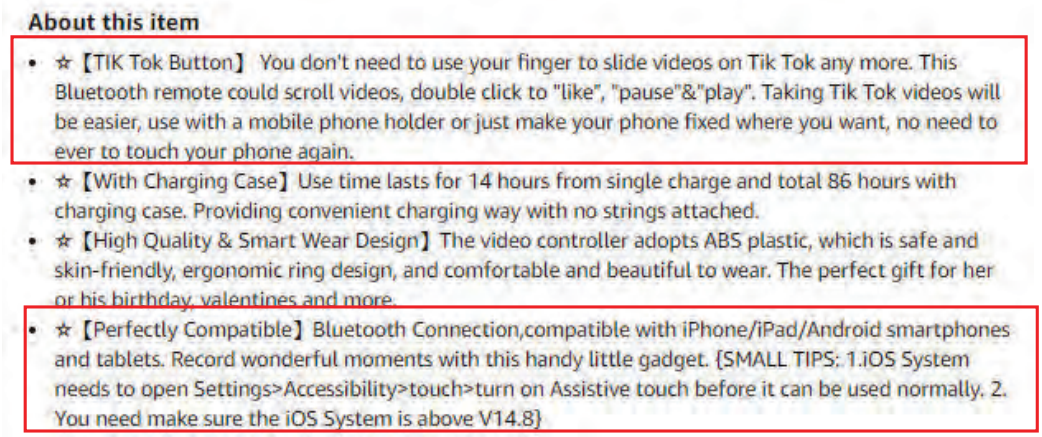
| | |
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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

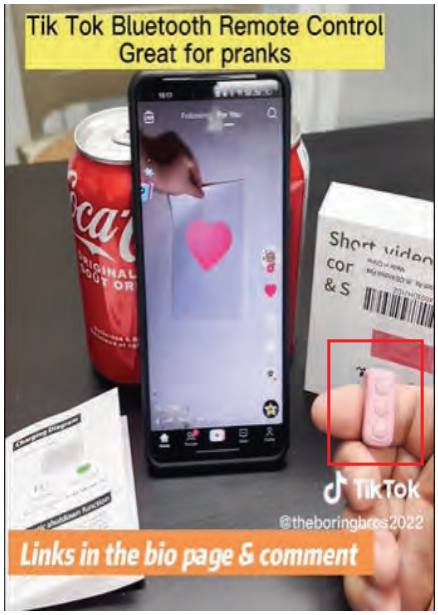
| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



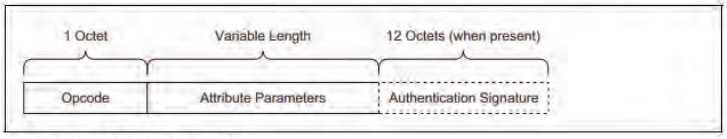
**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

| | |
|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.6] said processor further configured to create a new-data object, wherein the new-data object comprises: | Defendant provides a processor further configured to create a new-data object, wherein the new-data object comprises: signal to notify, wherein the signal to notify corresponds to the acquiring of the new-data for transfer to the cryptographically authenticated short-range wireless enabled cellular phone; the acquired new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| signal to notify, wherein the signal to notify corresponds to the acquiring of the new-data for transfer to the cryptographically authenticated short-range wireless enabled cellular phone;<br>the acquired new-data; and | For example, after a Bluetooth connection is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device, the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command in the form of signal notification ("signal to notify") that comprises the information related to the command. Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command as a signal notification in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as a signal notification in order to like or scroll the subsequent video.<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT defines a framework for organizing and exchanging data between the BLE devices. When a GATT server (e.g., a Bluetooth device), has new data or an event to notify the GATT client (e.g., a mobile device), it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, |

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| | but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br><br>  <br>*Figure 2.3: Attribute Protocol PDU*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2225 |

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

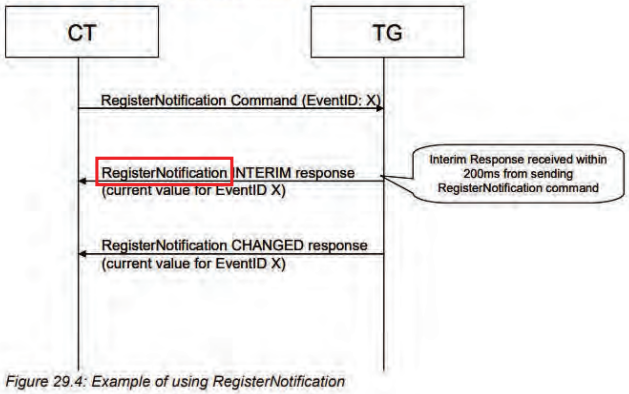



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139

62

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2267 |

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

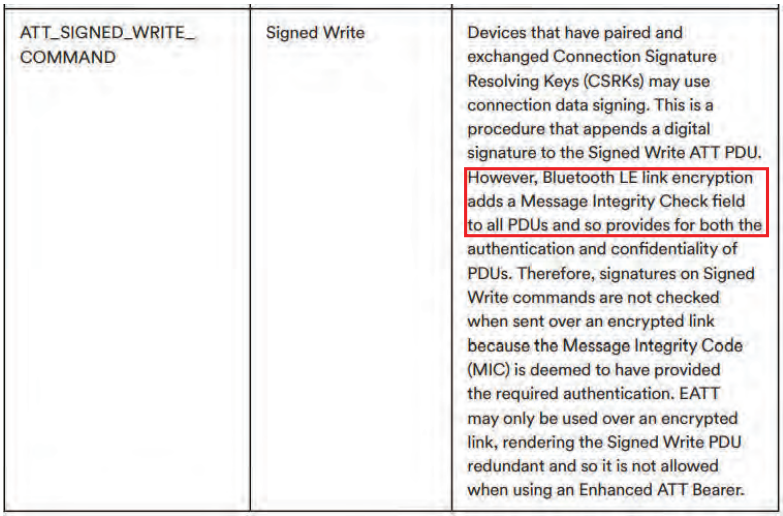
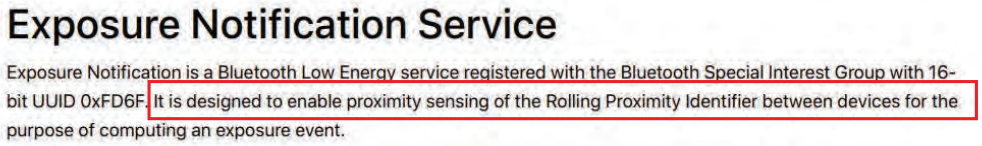
### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

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| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

| | | |
|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

## Exposure Notification Service

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

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| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

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| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified. This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

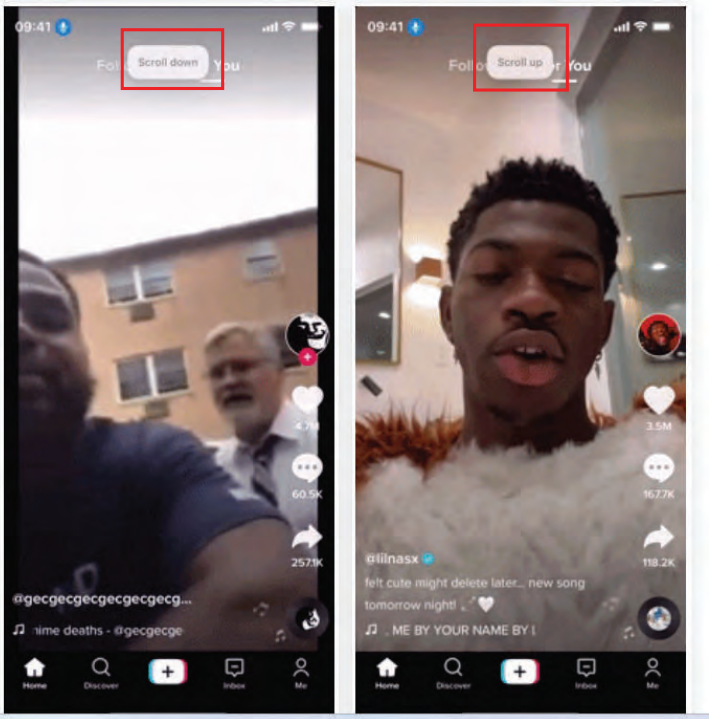
### 5.13 Browsing

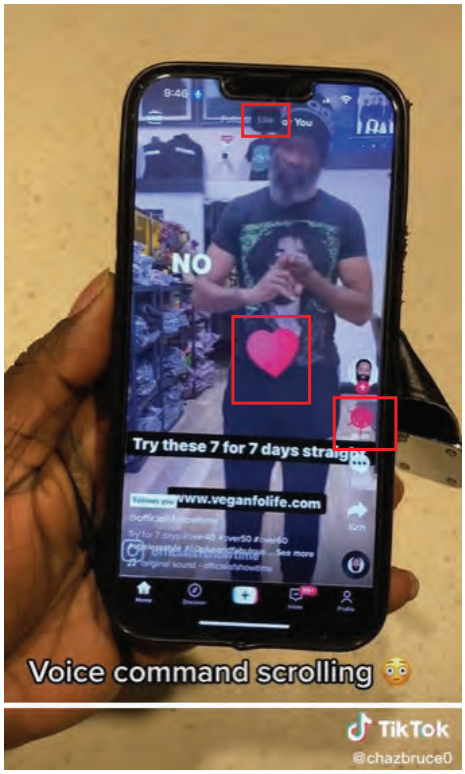
Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

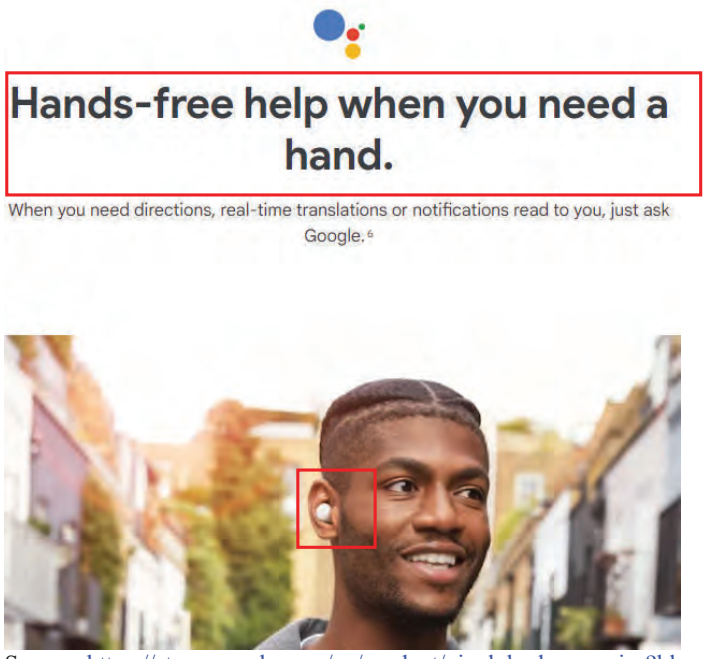
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| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

74



LifeScan, Inc. Ex. 1036
Page 708 of 2225
IPR2025-00102




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

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Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
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Source: https://blog.malcore.io/p/tiktok63

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

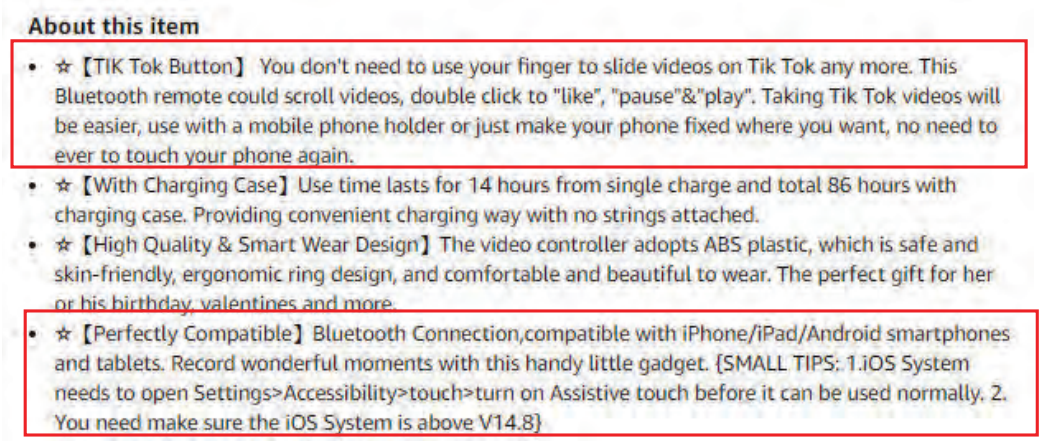




LifeScan, Inc. Ex. 1036
Page 711 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

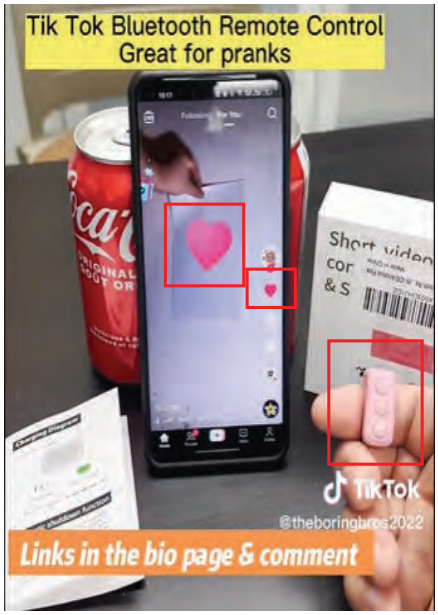
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**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

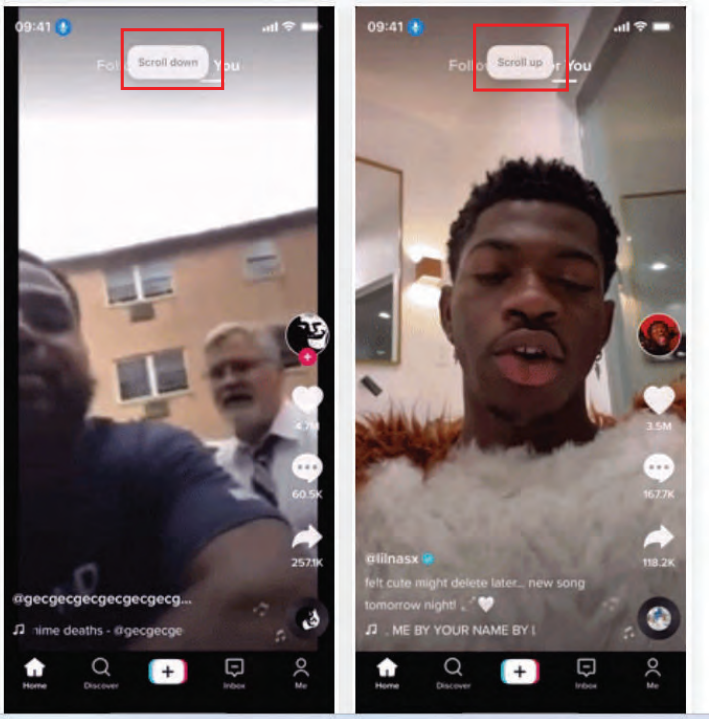
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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.7] associated new-data, wherein the associated new-data corresponds to data | Defendant provides processor configured to create a new-data object, wherein the new-data object comprises: associated new-data, wherein the associated new-data corresponds to data associated with the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| associated with the new-data; and | For example, while operating the TikTok app, the Bluetooth devices such as AirPods or Earphones capture the user's audio input which is sent to the mobile device as a signal notification along with the metadata (associated new-data") associated with the audio input, for example, size of the audio command.<br><br>When an Audio Stream contains content which is controlled by a content control service, it includes the CCID in a list of such services in the Audio Stream's metadata to tell both Acceptors and Commanders where they can find the correct service. We'll look at Commanders in a moment in Section 3.12.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2022/01/Introducing-Bluetooth-LE-Audio-book.pdf, Page 64<br><br>it to a remote Bluetooth device. The functions available for a conventional infrared remote controller can be realized in this profile. In addition to this, the profile uses Bluetooth specific extensions to support transfer of metadata related to content to be transferred between Bluetooth devices. Browsing features are provided to allow a remote controller to navigate the media and control specific media players on the remote target device. The remote control described in this profile is designed specific to A/V control. Other remote control solutions using Bluetooth wireless technology may be applied for general Bluetooth devices including A/V devices.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 10<br><br>The GetItemAttributes command is used to retrieve the metadata attributes for a particular media element item or folder item. The PDU format is similar to that of the GetElementAttributes command, however the GetItemAttributes is sent over the browsing channel to the Browsed Player and is not encapsulated within an AV/C frame.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 78<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |

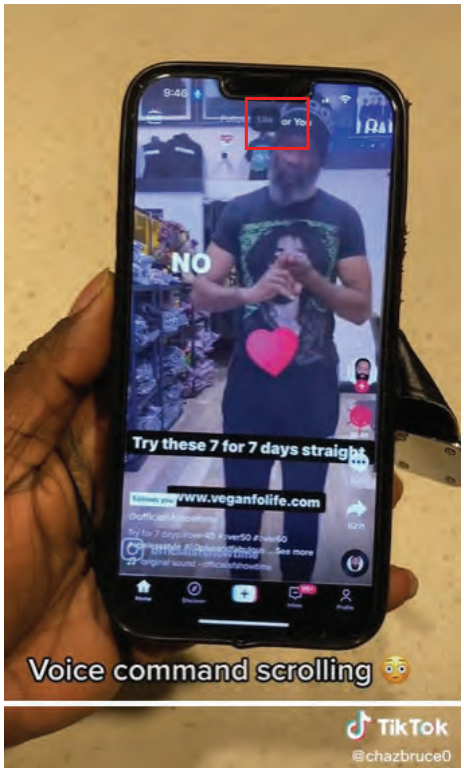
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| [1.8] said processor further configured to transfer automatically the new-data object to the cryptographically authenticated short-range wireless enabled cellular phone, over the established short-range paired wireless connection | Defendant provides processor configured to transfer automatically the new-data object to the cryptographically authenticated short-range wireless enabled cellular phone, over the established short-range paired wireless connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a secured Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device, the Bluetooth device captures the user's command ("new-data"), processes and automatically sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command and performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote, processes it and automatically transfers the data to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, after processing, the TikTok app automatically receives the user's command to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, after processing, the TikTok app automatically like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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| | Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br><br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br><br>  <br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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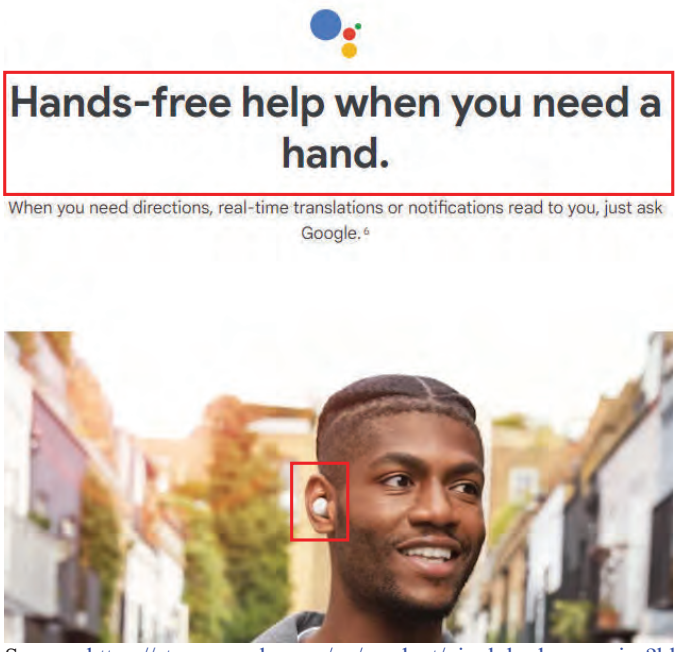

Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
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Source: https://blog.malcore.io/p/tiktok63





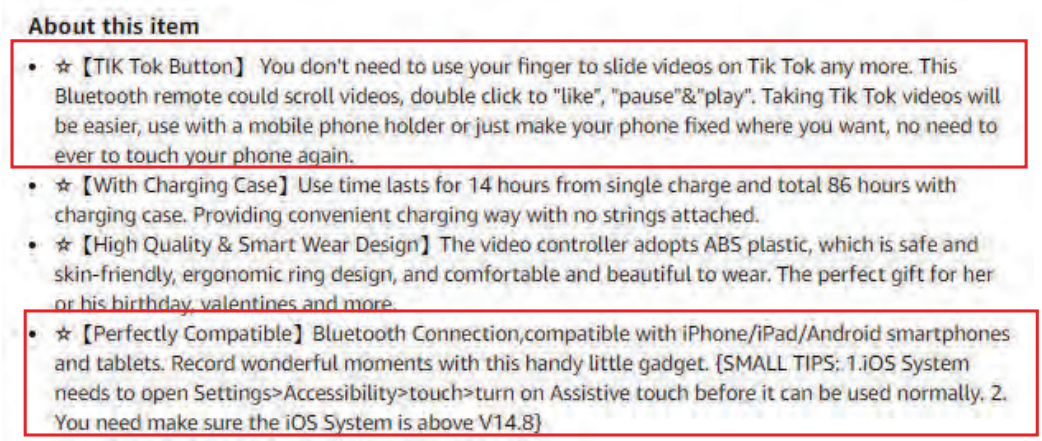
LifeScan, Inc. Ex. 1036
Page 723 of 2225
IPR2025-00102

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



**About this item**

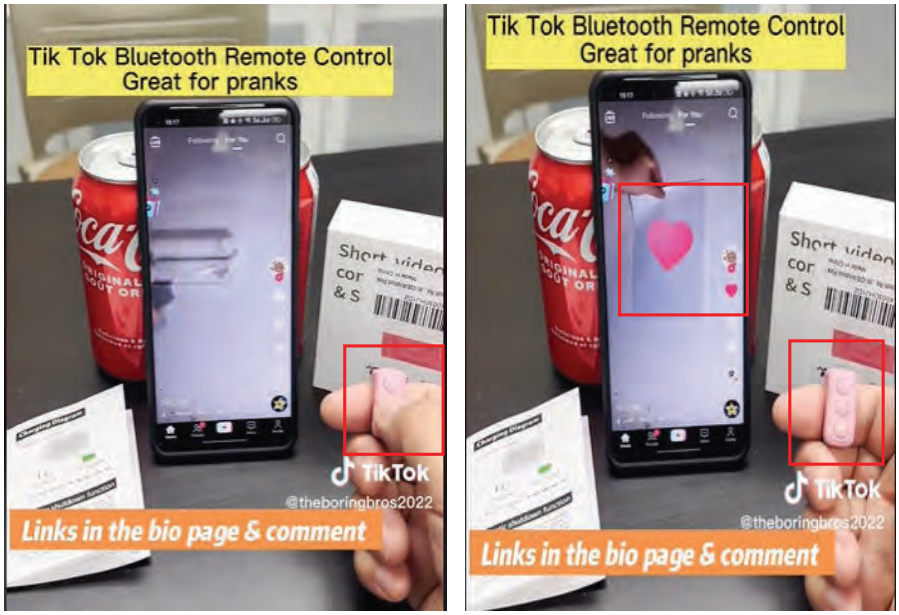
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- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

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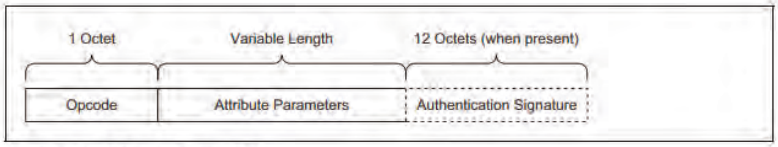




LifeScan, Inc. Ex. 1036
Page 727 of 2225
IPR2025-00102

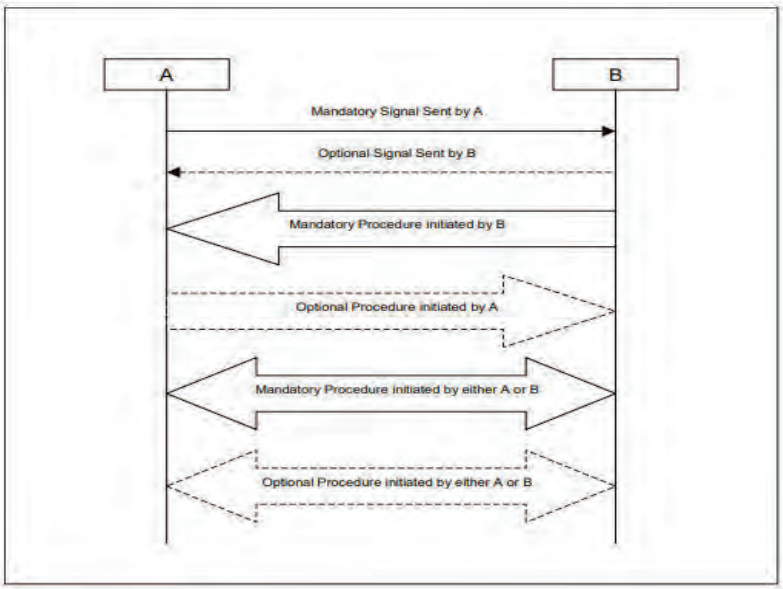
| | |
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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.9] wherein the cryptographically authenticated short-range wireless enabled cellular phone is configured to | Defendant provides cryptographically authenticated short-range wireless enabled cellular phone configured to listen to the signal to notify and receive the new-data object over the established short-range paired wireless connection, wherein a mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone is configured to process the signal to notify and store the received new-data in a memory device of the cryptographically authenticated short-range wireless enabled cellular phone. |

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| listen to the signal to notify and receive the new-data object over the established short-range paired wireless connection, wherein a mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone is configured to process the signal to notify and store the received new-data in a memory device of the cryptographically authenticated short-range wireless enabled cellular phone, | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app ("mobile client application") in the mobile device receives the user command (provided through the Bluetooth devices) in the form of signal notification ("signal to notify") that comprises the information related to the command. The TikTok app processes the received notification to perform the corresponding functionality. Further, the TikTok app stores the user's activity including the commands ("received new-data") at least temporarily in the cache memory of the mobile device.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command and processes it to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command and processes it to like or scroll the subsequent video. Further, the TikTok app stores the user's activity (liked and watched videos) including the commands ("received new-data") at least temporarily in the cache memory of the mobile device (in which the TikTok app is installed).<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client establishes a connection with a GATT server, it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/ |

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| | The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br>  <br><br>*Figure 2.3: Attribute Protocol PDU*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |

96

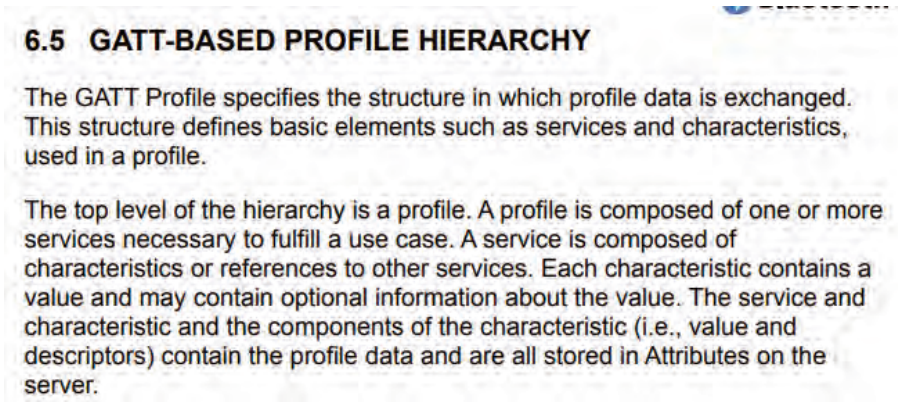
Exhibit 5

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| |  <br>*Figure 1.2: Signaling conventions*<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11 |

97



LifeScan, Inc. Ex. 1036
Page 731 of 2225
IPR2025-00102



## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

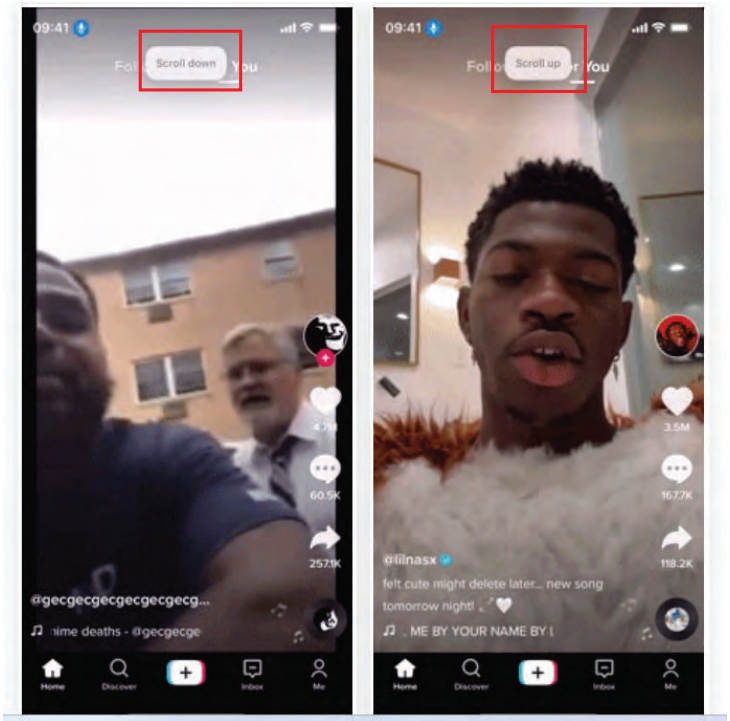
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You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

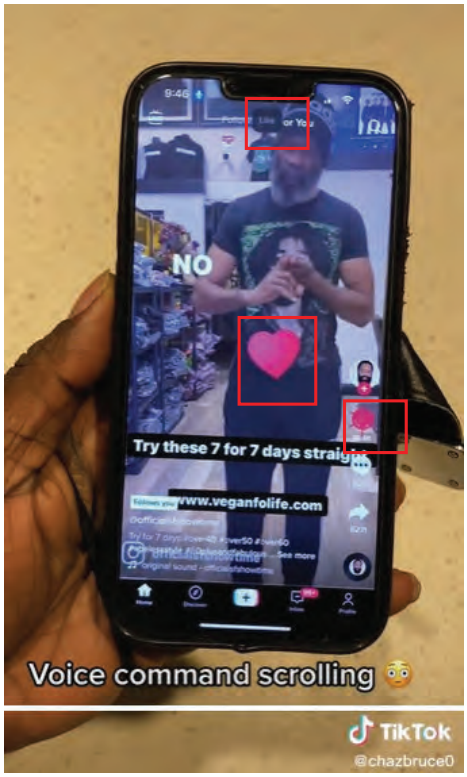
Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

98




Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

99

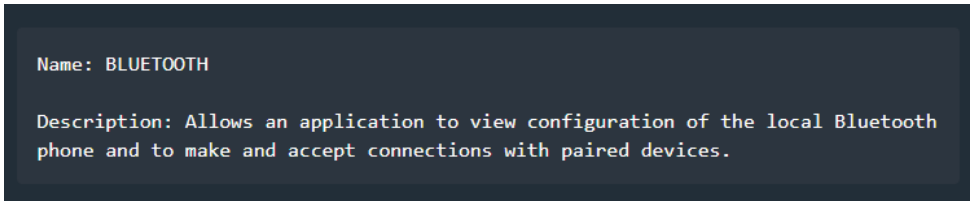



Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

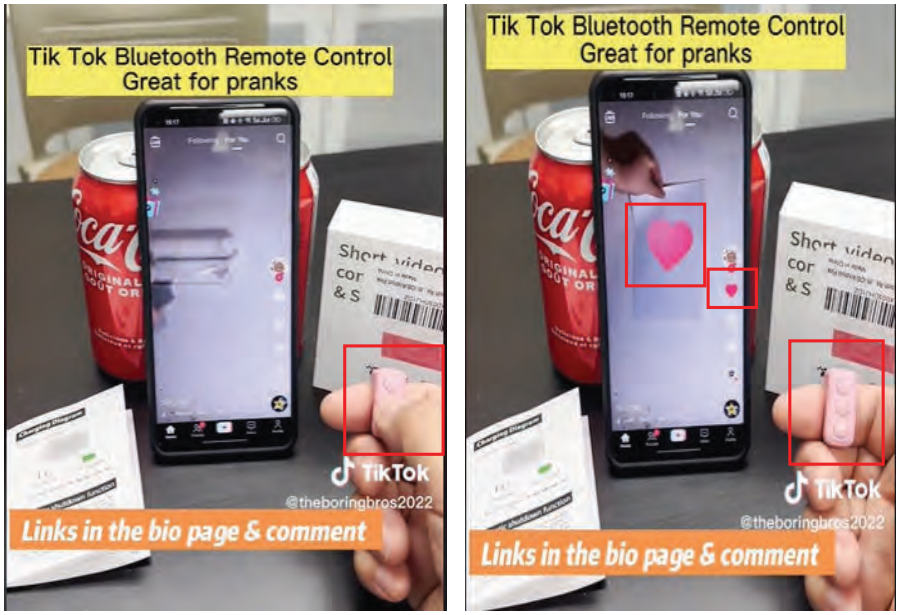
104



LifeScan, Inc. Ex. 1036
Page 738 of 2225
IPR2025-00102

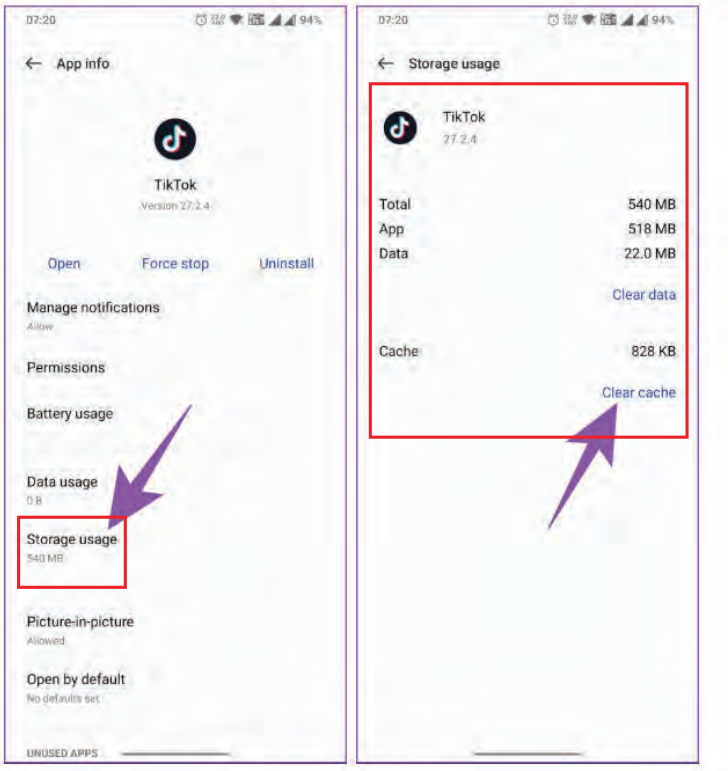
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09

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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |





LifeScan, Inc. Ex. 1036
Page 741 of 2225
IPR2025-00102

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |





LifeScan, Inc. Ex. 1036
Page 742 of 2225
IPR2025-00102

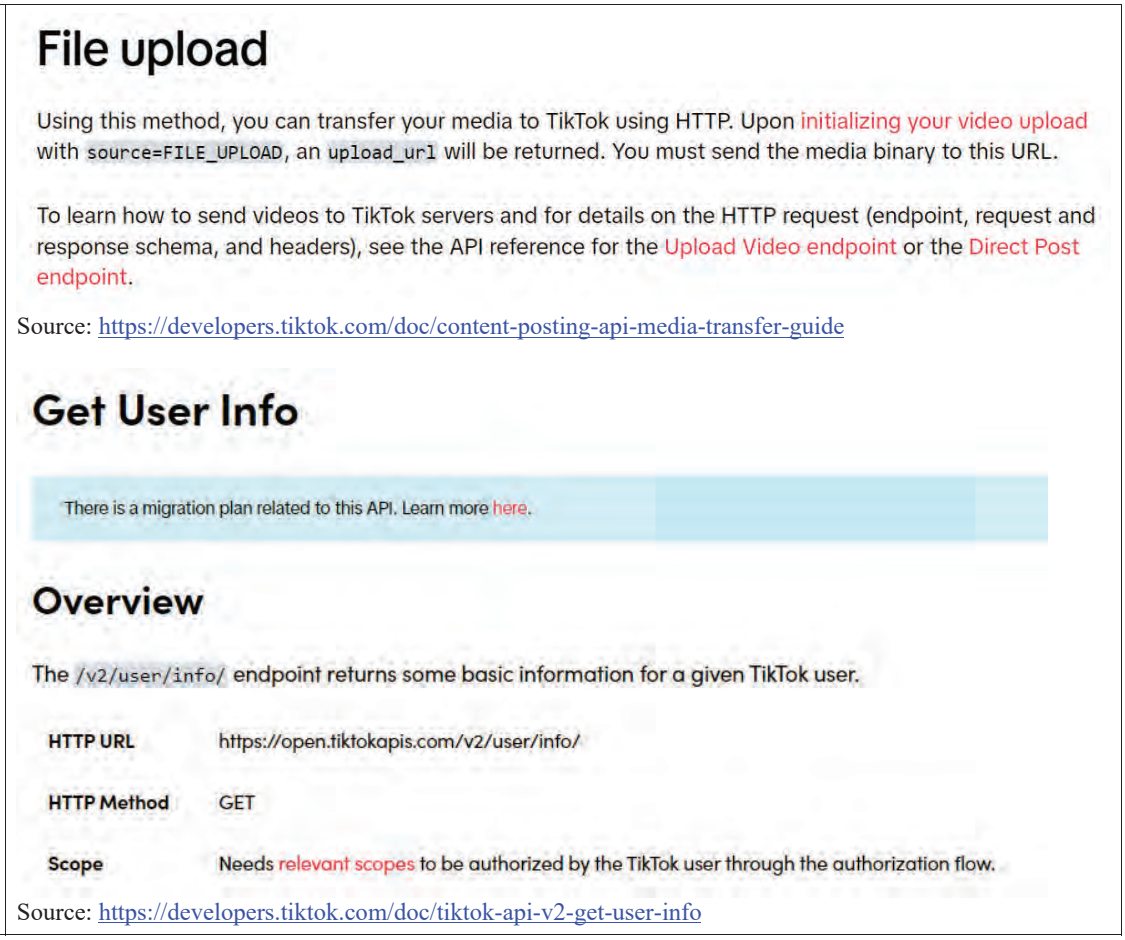
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| | **There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.10] wherein the mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone is configured to use | Defendant provides the mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone is configured to use HTTP to upload the received new-data along with user information to a user data publishing website over a cellular data network, and wherein the user information corresponds to a user identifier that uniquely identifies a particular user of the user data publishing website and is used by the user data publishing website to publish the new-data for private consumption. |

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| HTTP to upload the received new-data along with user information to a user data publishing website over a cellular data network, and wherein the user information corresponds to a user identifier that uniquely identifies a particular user of the user data publishing website and is used by the user data publishing website to publish the new-data for private consumption. | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok App for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app. Additionally, the TikTok app provides the functionality to the user to hide their liked videos from their profile ("publish the new-data for private consumption").<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |





LifeScan, Inc. Ex. 1036
Page 744 of 2225
IPR2025-00102



# File upload

Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.

To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.

Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide

# Get User Info

There is a migration plan related to this API. Learn more here.

## Overview

The `/v2/user/info/` endpoint returns some basic information for a given TikTok user.

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| **HTTP URL** | https://open.tiktokapis.com/v2/user/info/ |
| **HTTP Method** | GET |
| **Scope** | Needs relevant scopes to be authorized by the TikTok user through the authorization flow. |

Source: https://developers.tiktok.com/doc/tiktok-api-v2-get-user-info

## Information You Provide

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

Source: https://www.tiktok.com/legal/page/row/privacy-policy/en

You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.

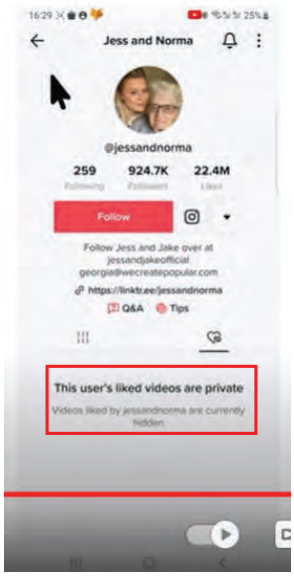
You can save your login information:
- Across all devices using the same iCloud account on iOS.
- On a single device on Android.

To save or delete your login information:
1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.
2. Enter the 6-digit code that was sent to the phone number associated with your account.
3. Once you're logged in, tap the **Menu** button at the top.
4. Tap **Settings and privacy**.
5. Tap **Security**.
6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.

If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.

Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information

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| | **How to manage who can view your liked videos**<br><br>You can choose to show or hide your liked videos on your profile. Your liked videos are hidden from your profile by default when you create an account.<br><br>To hide or show your liked videos on your profile:<br>1. In the TikTok app, tap **Profile** at the bottom.<br>2. Tap the **Menu** button at the top.<br>3. Tap **Settings and privacy**, then tap **Privacy**.<br>4. Tap **Liked videos** and select **Everyone** (public accounts only), **Followers** (private accounts only) or **Only me**.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking |




Source: https://www.youtube.com/watch?v=JzlTDsCIOQA&t=68s, at 1:10

If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**

As you watch videos, the app size increases and data is stored on your device and cached with other downloads.

Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/

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|---|---|
| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [2] The short-range wireless enabled data capture device of claim 1, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing. | Defendant provides the short-range wireless enabled data capture device of claim 1, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app installed in the mobile device using Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("short-range wireless enabled data capture device") which comprises Bluetooth ("short-range paired wireless connection"). Using Bluetooth ("Bluetooth paired wireless connection"), the Bluetooth devices pair with the mobile device. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video.<br><br>**Connectivity** Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

## Connectivity

Each earbud: Bluetooth 5.0

Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classll(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

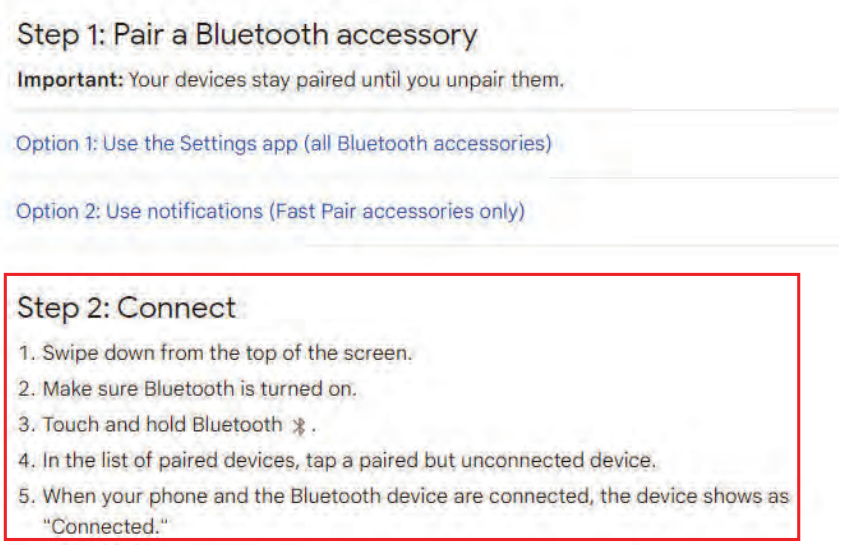
| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |



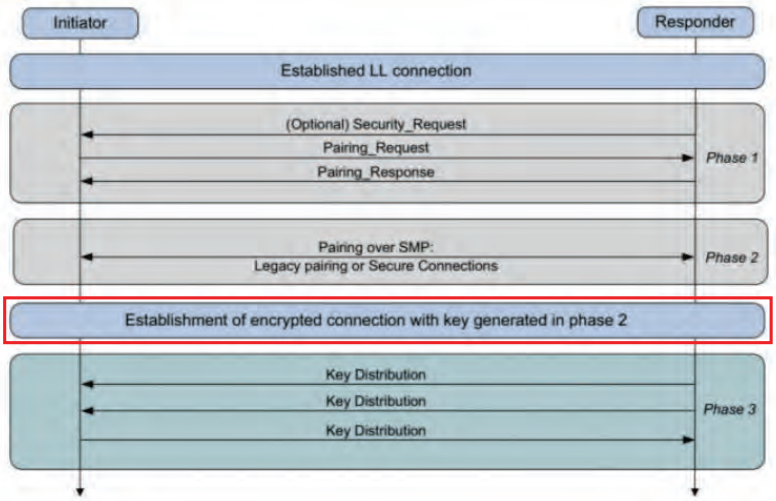

Source: https://support.google.com/android/answer/9075925?hl=en





LifeScan, Inc. Ex. 1036
Page 752 of 2225
IPR2025-00102

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device,* makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth<br><br>In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

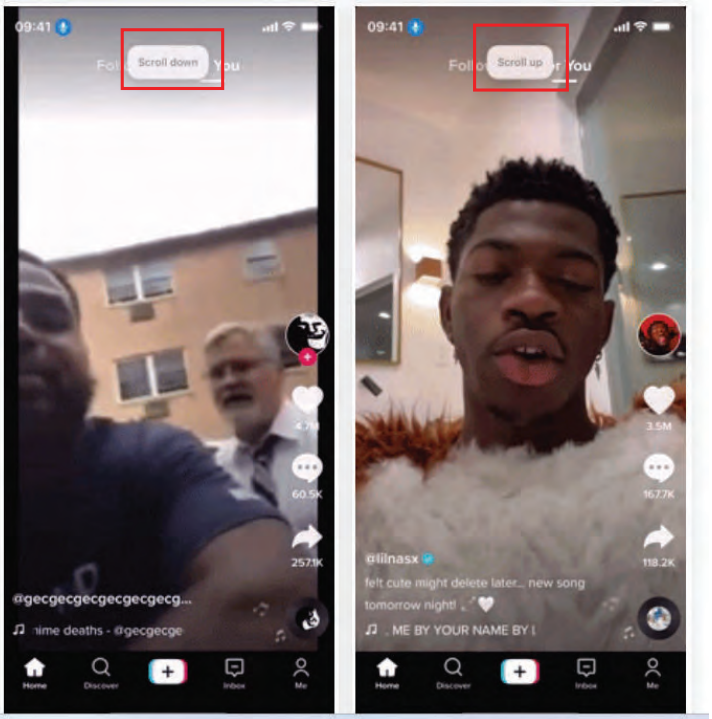
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

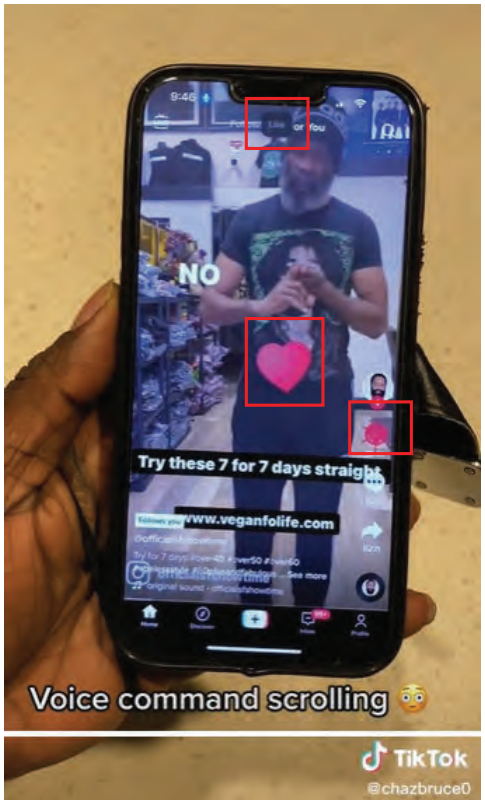
| | |
|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [3] The short-range wireless enabled data capture device of claim 1, wherein the new-data comprises one or more of audio data, video data, image data, text data, digital data, and data associated with the new-data. | Defendant provides the short-range wireless enabled data capture device of claim 1, wherein the new-data comprises one or more of audio data, video data, image data, text data, digital data, and data associated with the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. |

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| | For example, the Bluetooth devices such as AirPods or earphones capture the audio command ("audio data") provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("new-data") on AirPods or earphones, the TikTok app receives the user's command in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as a signal notification in order to like or scroll the subsequent video.<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

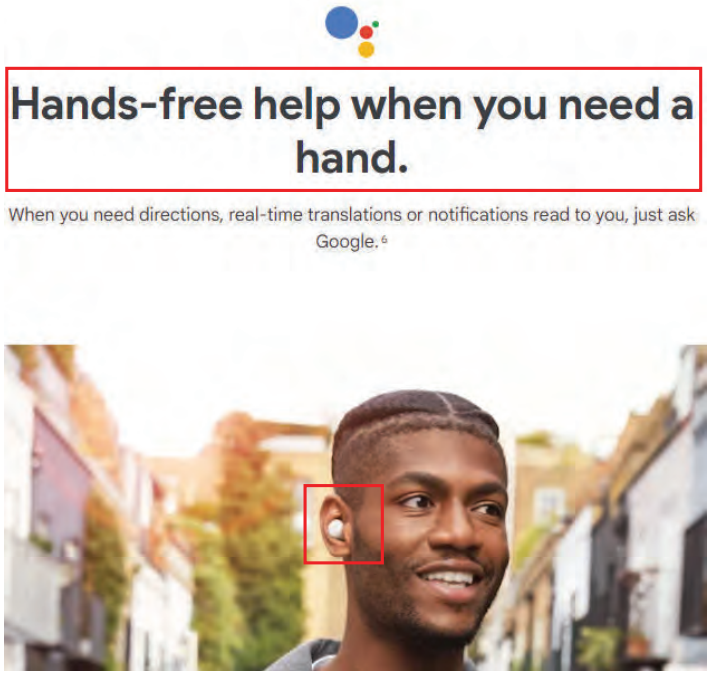
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

125

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

126

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





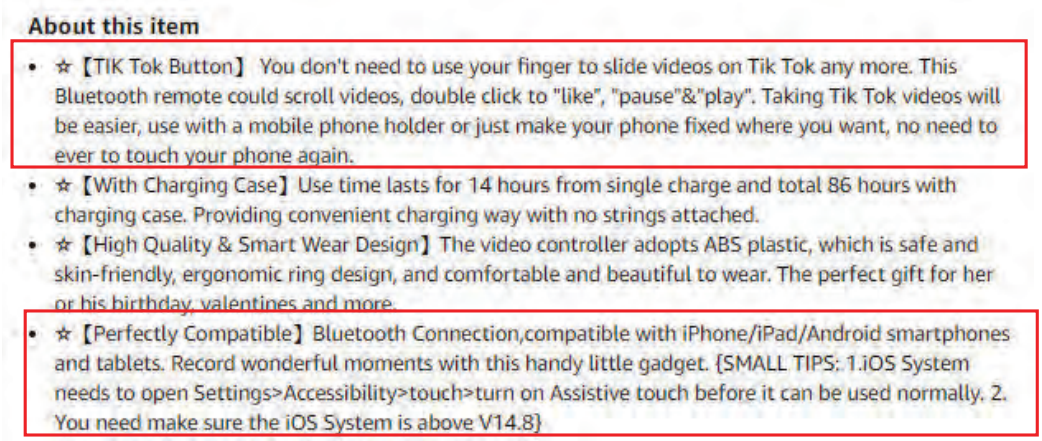
LifeScan, Inc. Ex. 1036
Page 763 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





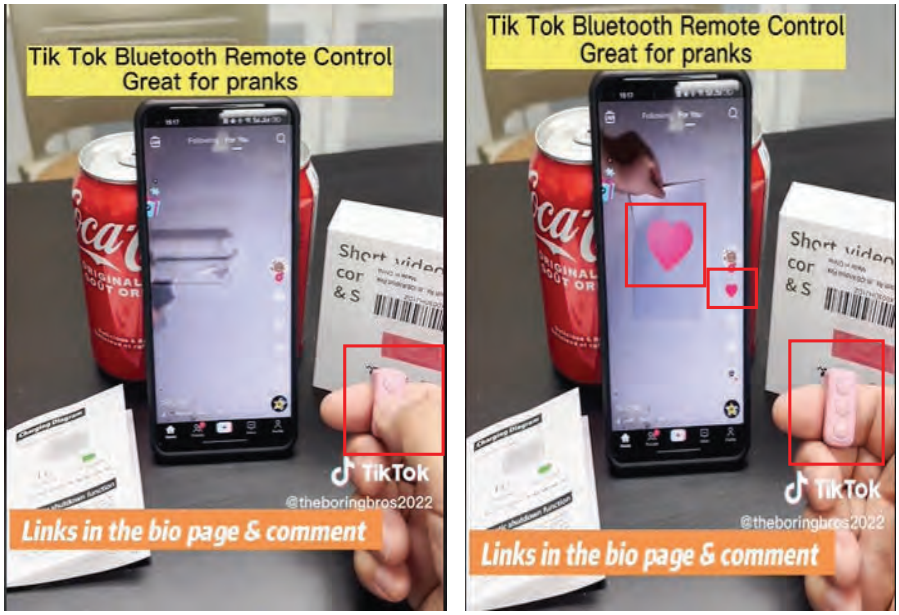
LifeScan, Inc. Ex. 1036
Page 764 of 2225
IPR2025-00102

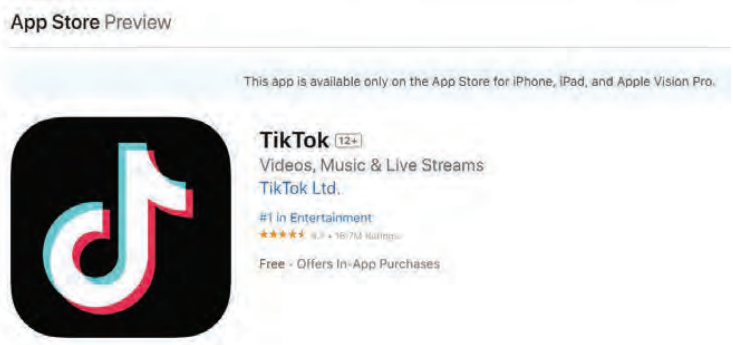


**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

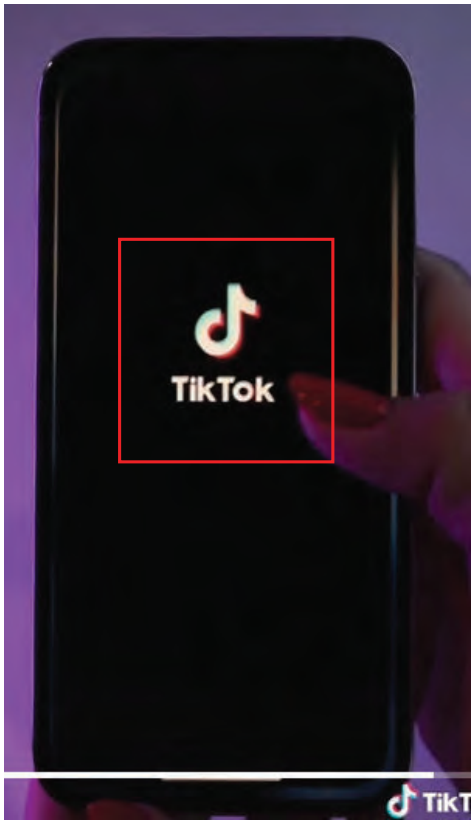
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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.P] A system, comprising:<br>a data capture device, comprising: | ByteDance ("Defendant") makes, uses, sells, and/or offers to sell a system, comprising: a data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, Defendant provides TikTok[3] app which includes the functionality of TikTok Shop that enables merchants to sell products and allows the users to buy products from the TikTok app. TikTok App enables merchants to sell their products including, but not limited to, Bluetooth-enabled earphones, AirPods, and Bluetooth remotes[4] ("a data capture device") to TikTok users.<br><br>For example, the TikTok app is installed in a mobile device such as an iPhone or an Android phone and can be remotely controlled through Bluetooth devices such as Bluetooth enabled earphones, AirPods and Bluetooth remotes. The TikTok app utilizes the Bluetooth technology of the Bluetooth devices and the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided to the Bluetooth devices.<br><br>  <br><br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

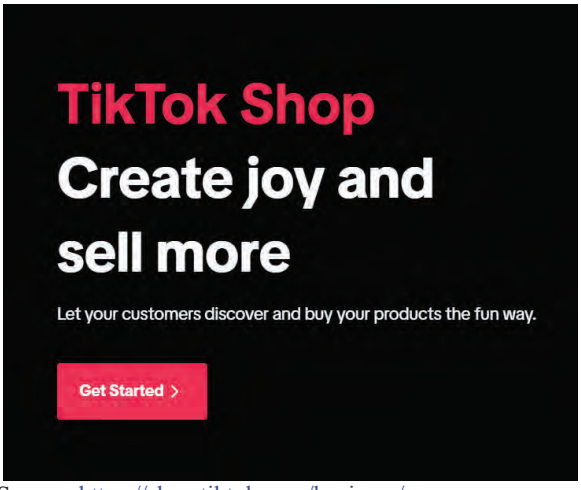
[3] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

[4] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

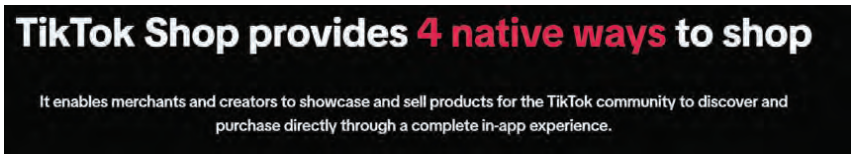
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| |  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

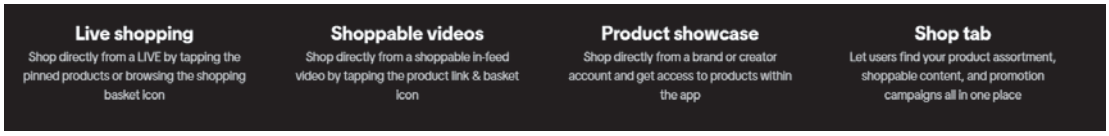
135




Source: https://shop.tiktok.com/business/en

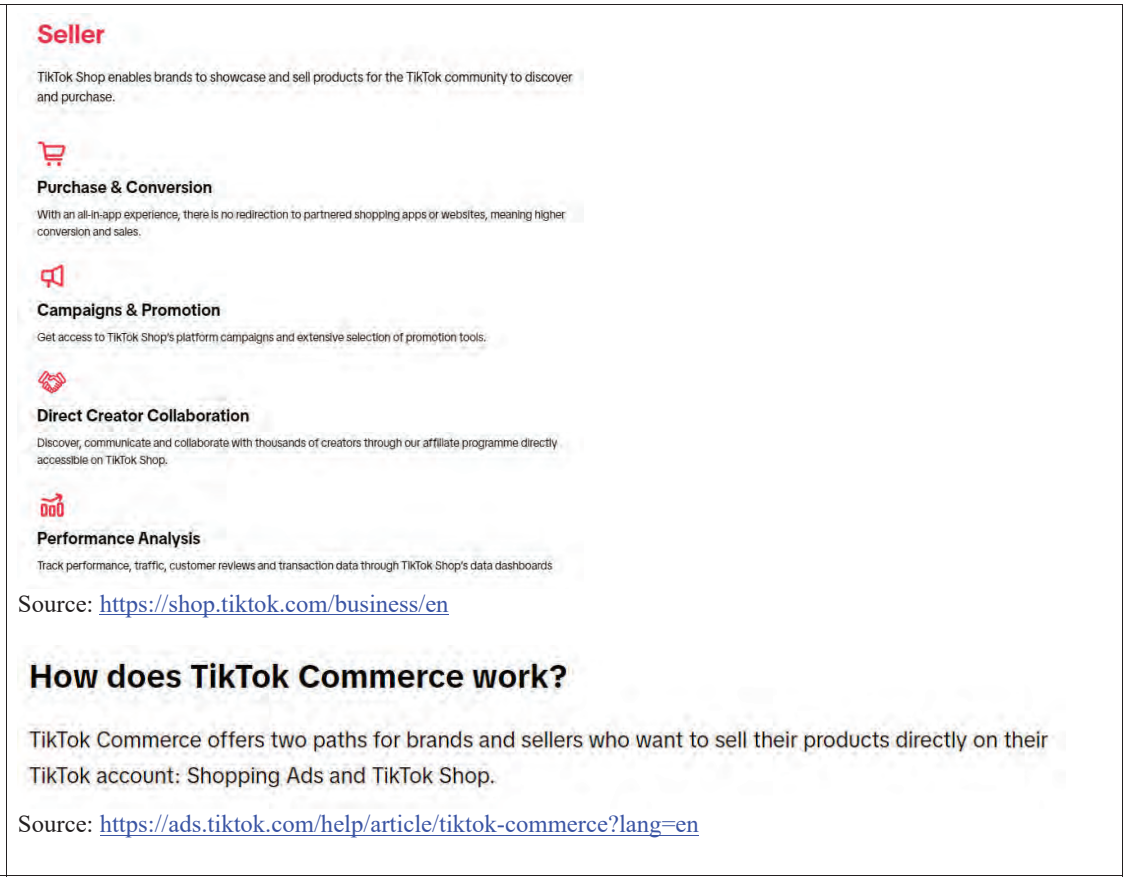



Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en

136




Source: https://shop.tiktok.com/business/en

## How does TikTok Commerce work?

TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.

Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en

137



LifeScan, Inc. Ex. 1036
Page 771 of 2225
IPR2025-00102

## About TikTok Shop

TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.

Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.

- See TikTok Shop and Showcase
- See How to Add Product Links to TikTok Videos

With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.

Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en

## Electrical Products and Electronics

Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.

Electrical and electronic products include but are not limited to:

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy

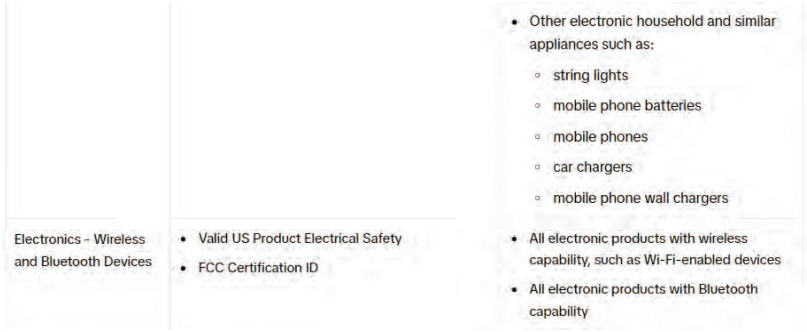
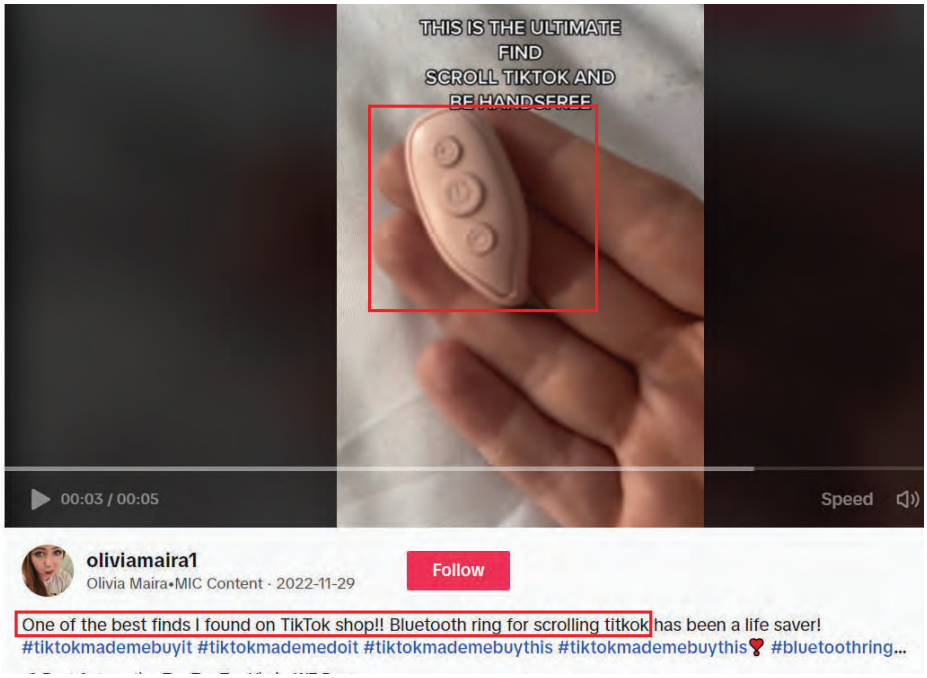
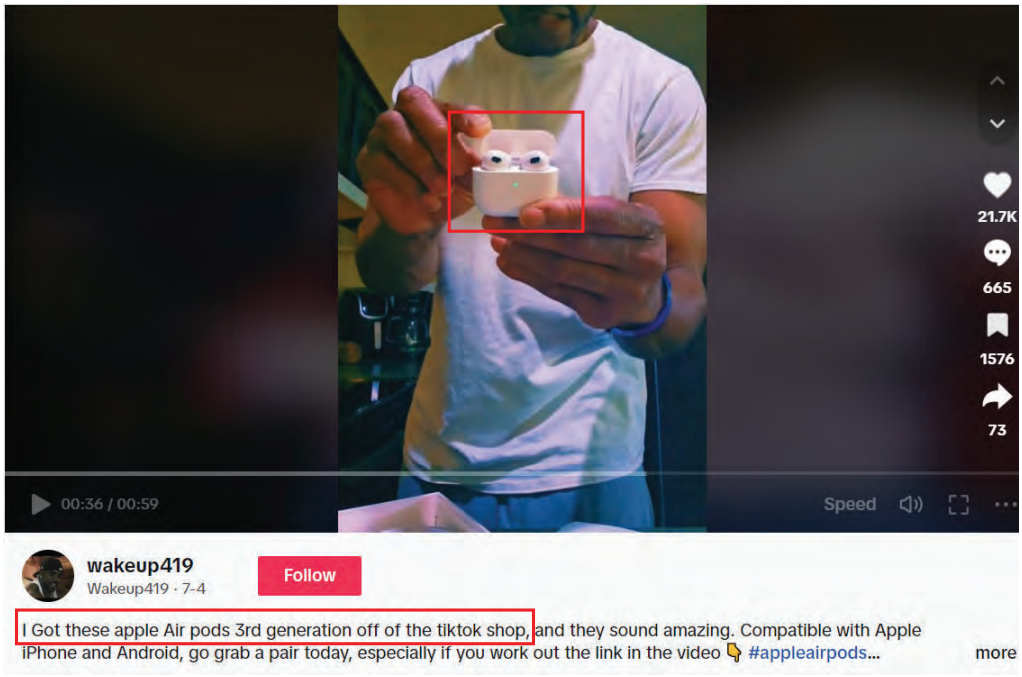
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| |  <br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

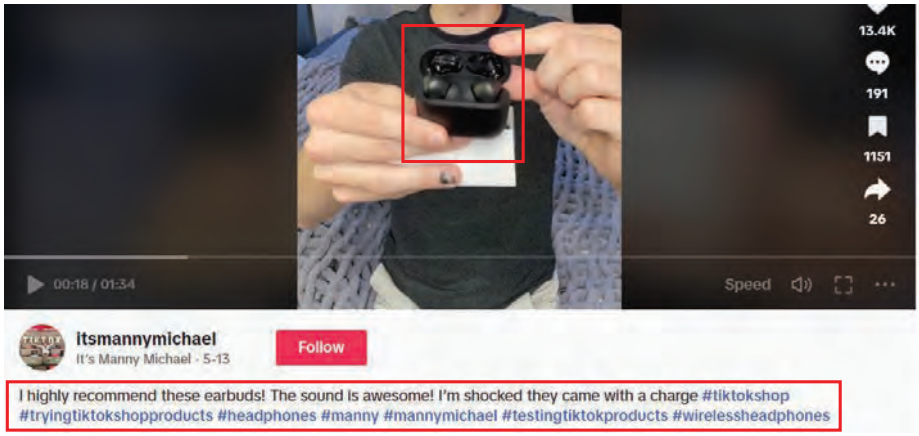
Exhibit 5

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| |  <br>Source: https://www.tiktok.com/@oliviamaira1/video/7171162583678946566, at 0:03 |

140

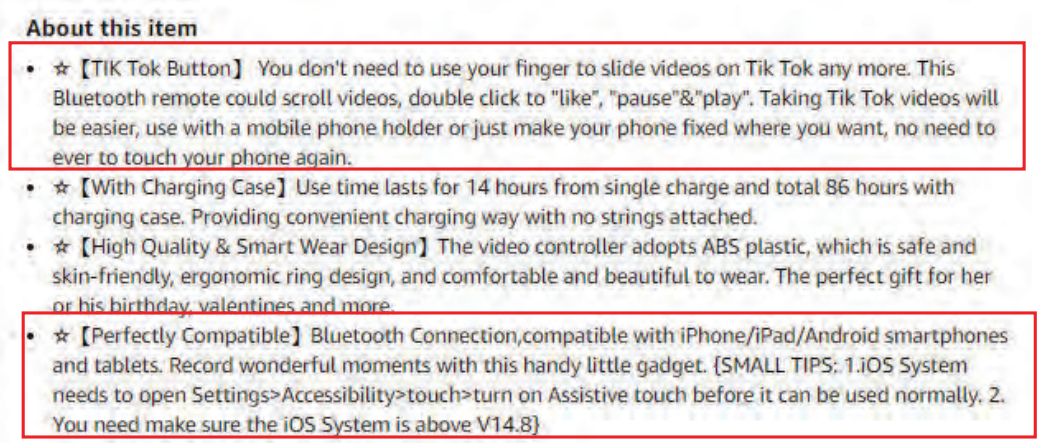


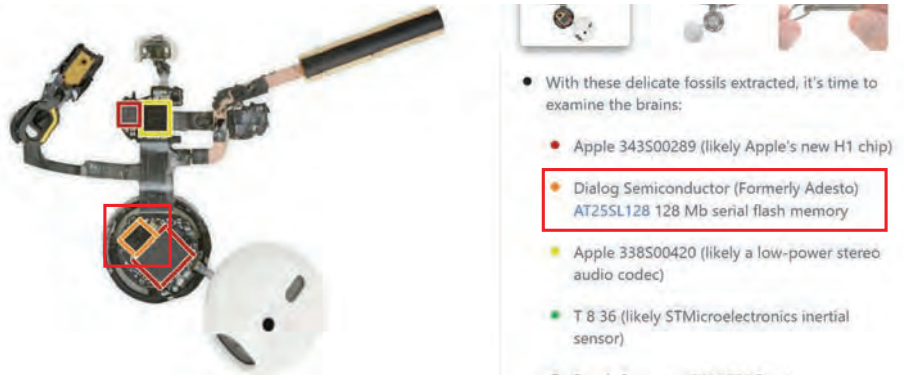

Source: https://www.tiktok.com/@wakeup419/video/7251981896937213226, at 0:36

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| |  <br>Source: https://www.tiktok.com/@itsmannymichael/video/7232432938531671342, at 0:18 |

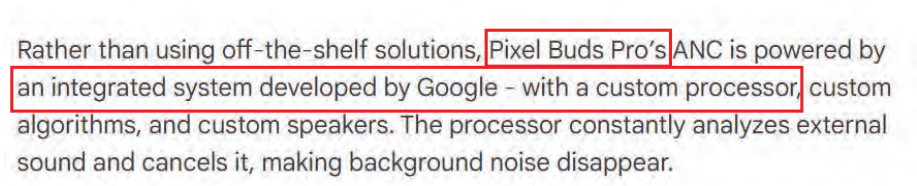
| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

143

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.1] a first memory device;<br>a first processor coupled to the first memory device; | Defendant provides a first memory device; a first processor coupled to the first memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, AirPods and Bluetooth enabled earphones that comprises a memory (“first memory device”) and a processor coupled to the memory (“first processor coupled to the first memory device”). The memory is used for temporary storage of audio data locally in the Bluetooth device such as AirPods and Bluetooth enabled earphones. The processor processes the user’s data and sends it for execution to the mobile device, where the TikTok app is installed. |

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| | For example, the users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, Bluetooth remote that upon information and belief comprises a memory ("first memory device") and a processor coupled to the memory ("first processor coupled to the first memory device"). The memory is used for temporary storing the user's selection of the clicked button locally. The processor processes the user's data and sends it for execution to the mobile device, where the TikTok app is installed.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>  <br>Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471 |

145

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| |  <br>Source: https://store.google.com/product/pixel_buds_pro<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.2] a first short-range wireless communication device configured to establish a short-range paired wireless connection with an internet connected cellular phone, wherein establishing the short-range paired wireless connection comprises, the data capture device cryptographically authenticating identity of the cellular phone, and wherein establishing the short-range paired wireless connection further comprises the data | Defendant provides a first short-range wireless communication device configured to establish a short-range paired wireless connection with an internet connected cellular phone, wherein establishing the short-range paired wireless connection comprises, the data capture device cryptographically authenticating identity of the cellular phone, and wherein establishing the short-range paired wireless connection further comprises the data capture device using an association protocol;<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app installed in the mobile device ("cellular phone") using Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("data capture device") which comprises Bluetooth ("first short-range wireless communication device"). Using Bluetooth, the Bluetooth devices pairs with the mobile device. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices. Further, the mobile device comprises built-in wireless connectivity features, such as Wi-Fi and cellular capabilities that enable access to the internet and allows the user to use TikTok app, that requires an internet connection to function.<br><br>For example, the Bluetooth device and the mobile device are connected through an encrypted connection ("association protocol") created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established |

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| capture device using an association protocol; | between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>**Connectivity** Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>**Connectivity**<br><br>Each earbud: Bluetooth 5.0<br><br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US<br><br>  <br><br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1 |

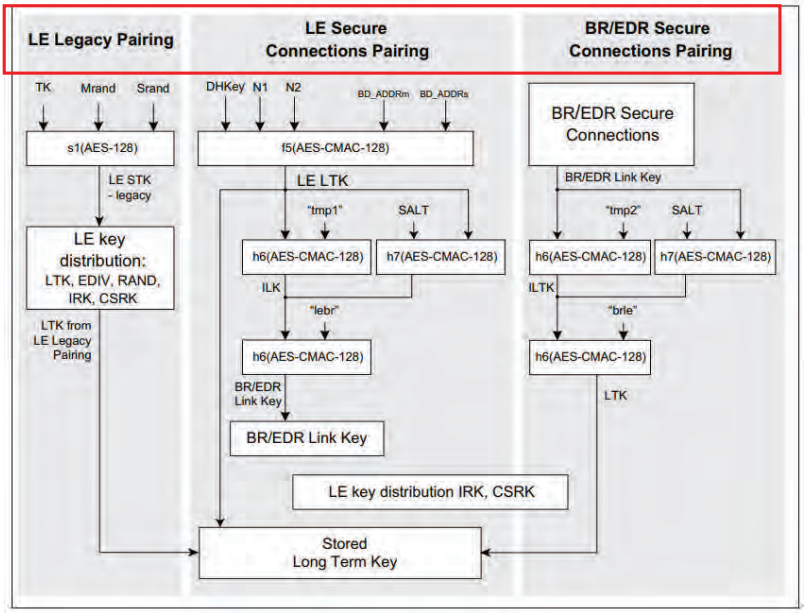
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| | **Check Internet connection**<br><br>Weak data or Wi-Fi signal can also impact your experience on TikTok. Try switching from Wi-Fi to mobile data to troubleshoot whether or not the issue is related to connectivity.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>If iPhone is connected to the internet using the cellular data network, an icon identifying the cellular network appears in the status bar.<br><br>5G, LTE, 4G, and 3G service on GSM cellular networks support simultaneous voice and data communications. For all other cellular connections, you can't use internet services while you're talking o the phone unless iPhone also has a Wi-Fi connection to the internet. Depending on your network connection, you may not be able to receive calls while iPhone transfers data over the cellular network—when downloading a webpage, for example.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Choose cellular data options for data usage, performance, battery life, and more**<br><br>To turn Cellular Data on or off, go to Settings > Cellular.<br><br>To set options when Cellular Data is on, go to Settings > Cellular > Cellular Data Options, then do any of the following:<br><br>• *Reduce cellular usage:* Turn on Low Data Mode, or tap Data Mode, then choose Low Data Mode. This mode pauses automatic updates and background tasks when iPhone isn't connected to Wi-Fi.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios |

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| |  **Cell signal.** The number of bars indicates the signal strength of your cellular service. If there's no signal, "No Service" appears.<br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0<br>  **LTE.** Your carrier's LTE network is available, and iPhone can connect to the internet over that network (not available in all countries or regions). See View or change cellular data settings on iPhone.<br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0 |

149

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| | **Network**[14]<br><br>**[5G Sub 6GHz]**[15] **Model GWKK3**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78<br>• eSIM<br>**[5G Sub 6GHz]**[15] **Model GHL1X**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/17/18/19/20/21/25/28/32/38/39/40/41/42/66<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/20/25/28/38/40/41/66/75/76/77/78/79<br>• eSIM<br>**[5G mmWave + Sub 6GHz]**[15] **Model G0DZQ**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78<br>• 5G mmWave[15]: Bands n260/n261<br>• eSIM<br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en |

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| | **Connect to mobile networks on a Pixel phone**<br>You can adjust how your phone uses data by changing your mobile network settings.<br>Depending on your carrier and service plan, your phone may connect automatically to your carrier's fastest available data network. Or you may need to add a SIM or pick settings for a specific carrier.<br>Pixel 4a (5G) and later phones work with 5G service. Learn about 5G on Pixel phones.<br>Source: https://support.google.com/pixelphone/answer/2926415?hl=en<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master trans-mits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

152

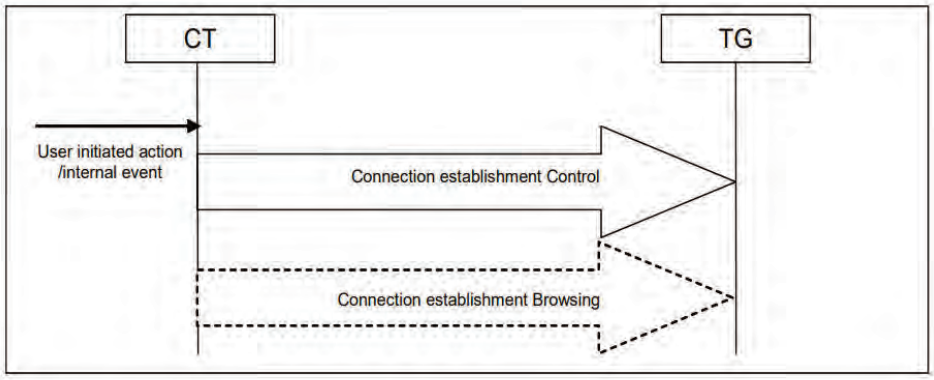



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

153

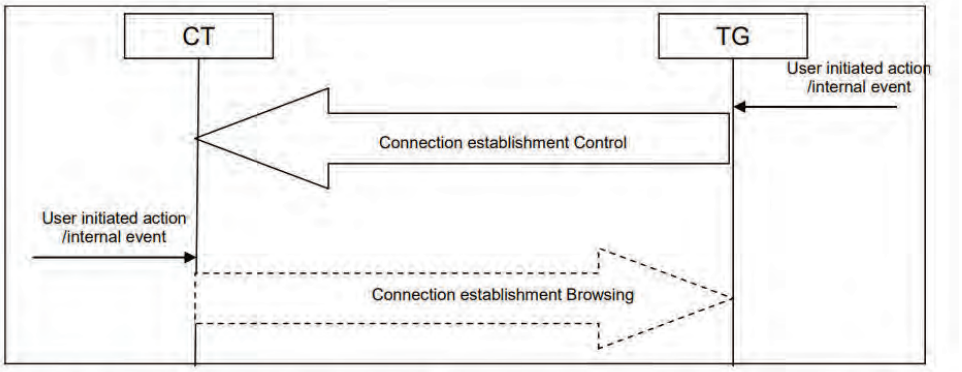



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

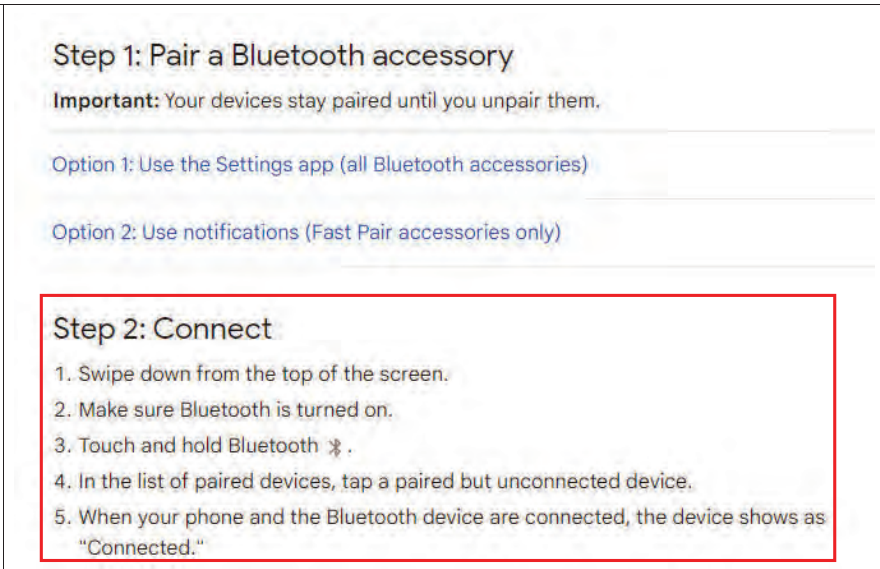
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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web |





LifeScan, Inc. Ex. 1036
Page 790 of 2225
IPR2025-00102



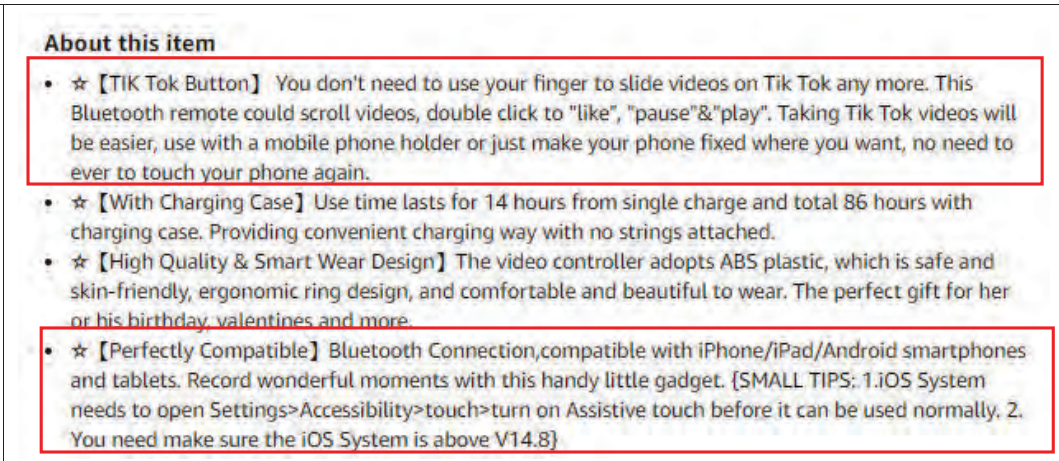

Source: https://support.google.com/android/answer/9075925?hl=en

157

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

159



**About this item**

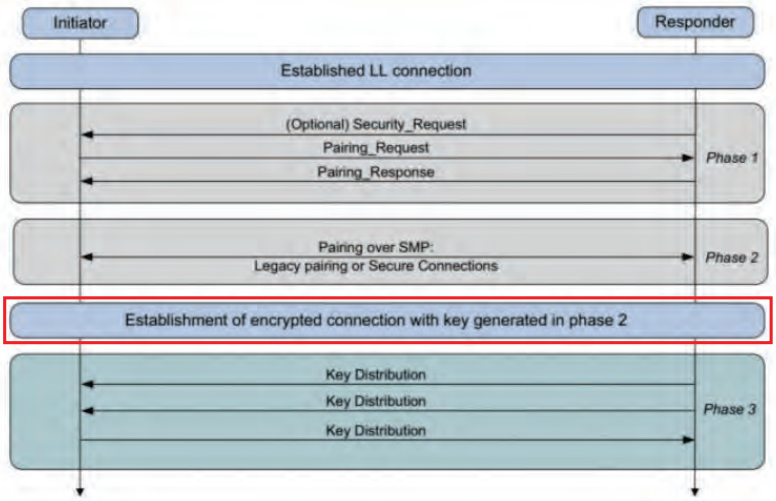
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

161

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| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

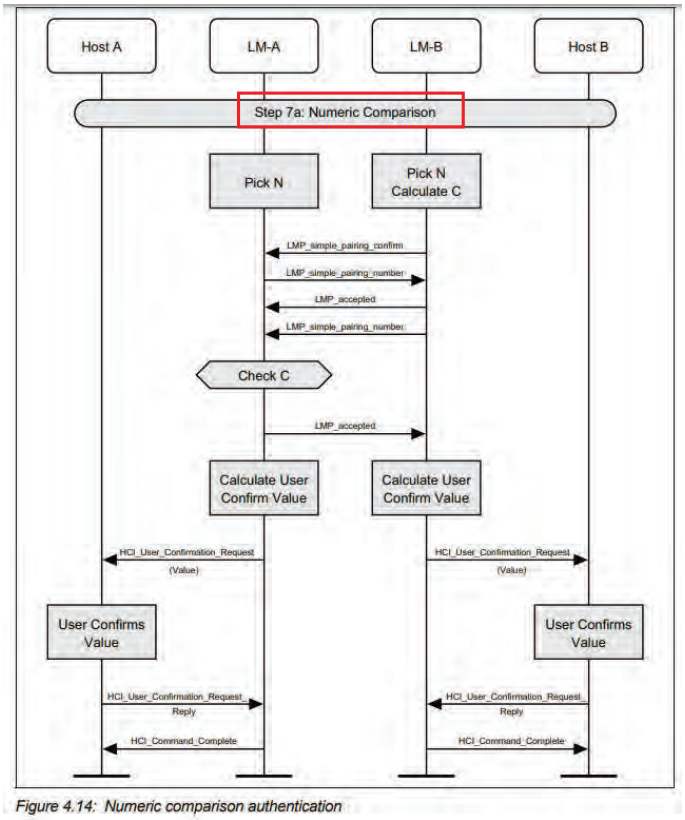



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

163

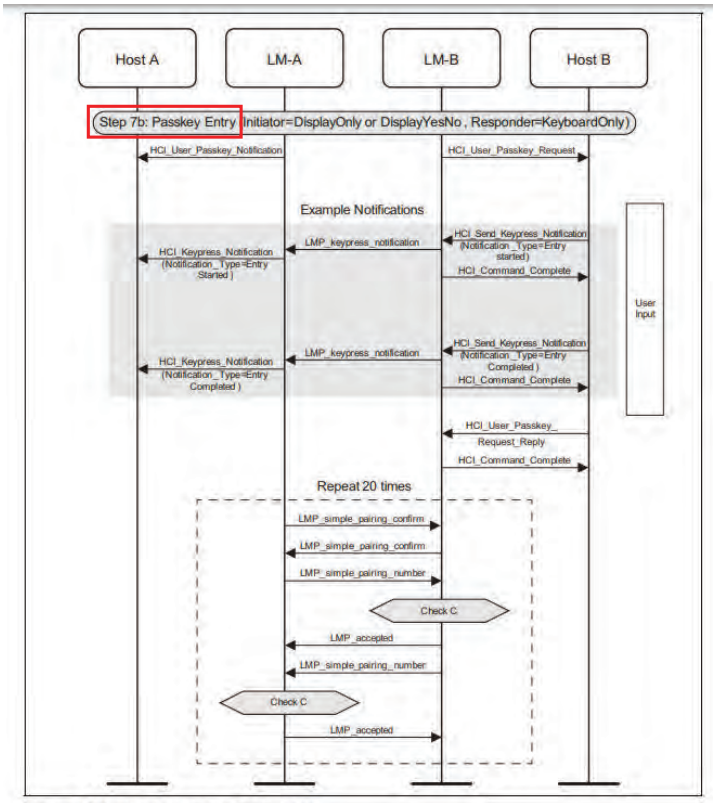



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

164

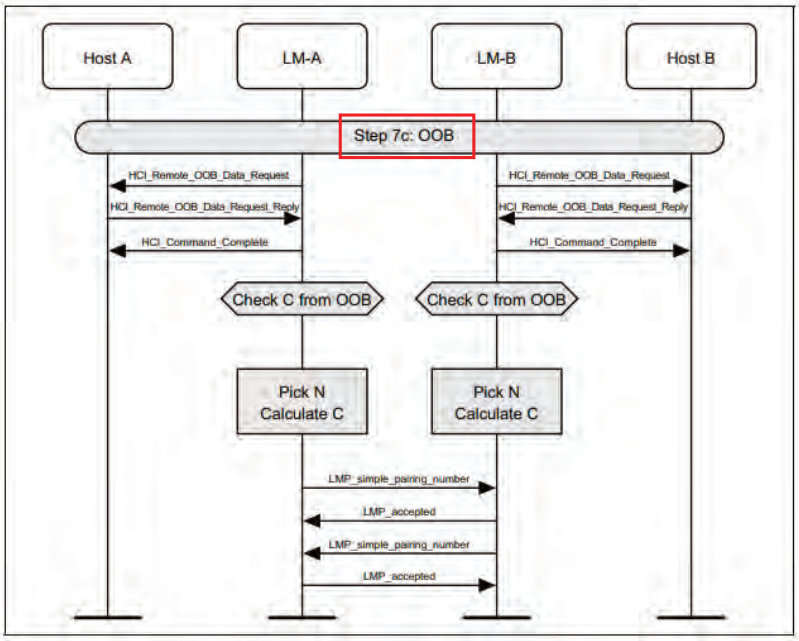



*Figure 4.20: OOB authentication (P-192)*

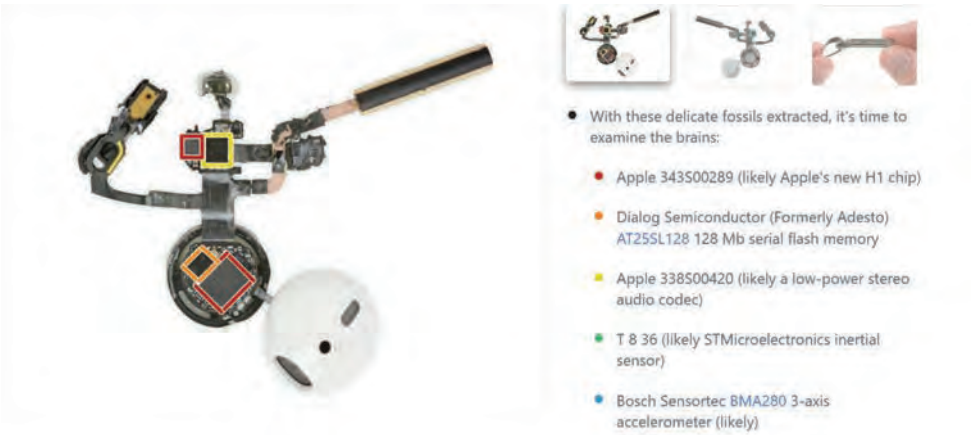
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

165



LifeScan, Inc. Ex. 1036
Page 799 of 2225
IPR2025-00102

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| | **Encryption Key Size Control Enhancements**<br>New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.<br>Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.<br>Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.3] a data capture circuitry; | Defendant provides a data capture circuitry.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as AirPods and Bluetooth-enabled earphones. The Bluetooth devices comprises microphone, sensors, chips, and controls among other components (“data capture circuitry”) to capture user’s audio commands.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as Bluetooth remote. The Bluetooth remote comprises buttons and sensors (“data capture circuitry”) to capture the user’s selection of the clicked button. |

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| |  <br>Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471 |

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| | **Audio Technology**<br>▪ Custom high-excursion Apple driver<br>▪ Custom high dynamic range amplifier<br>▪ Active Noise Cancellation<br>▪ Adaptive Transparency<br>▪ Vent system for pressure equalization<br>▪ Personalized Spatial Audio with dynamic head tracking[1]<br>▪ Adaptive EQ<br>**Sensors**<br>▪ Dual beamforming microphones<br>▪ Inward-facing microphone<br>▪ Skin-detect sensor<br>▪ Motion-detecting accelerometer<br>▪ Speech-detecting accelerometer<br>▪ Touch control<br>**Chip**<br>▪ Apple H2 headphone chip<br>▪ Apple U1 chip in MagSafe Charging Case<br>**Controls**<br>▪ Press once to play, pause, or answer a phone call<br>▪ Press twice to skip forward<br>▪ Press three times to skip back<br>▪ Press and hold to switch between Active Noise Cancellation and Adaptive Transparency<br>▪ Swipe up or down to adjust volume<br>▪ Say "Hey Siri" to do things like play a song, make a call, or get directions<br>Source: https://support.apple.com/kb/SP880?locale=en_US |

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| | **Set Microphone to left, right, or automatic**<br>There's a microphone in each AirPod, so you can make phone calls and use Siri. By default, Microphone is set to Automatic, so that either of your AirPods can act as the microphone. If you're using only one AirPod, that AirPod will be the microphone.<br>You can also set Microphone to Always Left or Always Right. You can also set Microphone to Always Left or Always Right to always have either the right or the left AirPod use the microphone even if you remove it from your ear or put it in the case.<br>Source: https://support.apple.com/en-us/HT207009<br>**Connectivity**<br>Each earbud: Bluetooth 5.0<br>**Audio**<br>Each earbud: Custom-designed 11 mm dynamic speaker driver · · Acti...<br>**Voice**<br>Each earbud: · · Three microphones · · Bluetooth Super Wideband · ...<br>**Sensors**<br>Each earbud: Capacitive touch (tap and swipe) sensors for music, call...<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US |





LifeScan, Inc. Ex. 1036
Page 803 of 2225
IPR2025-00102

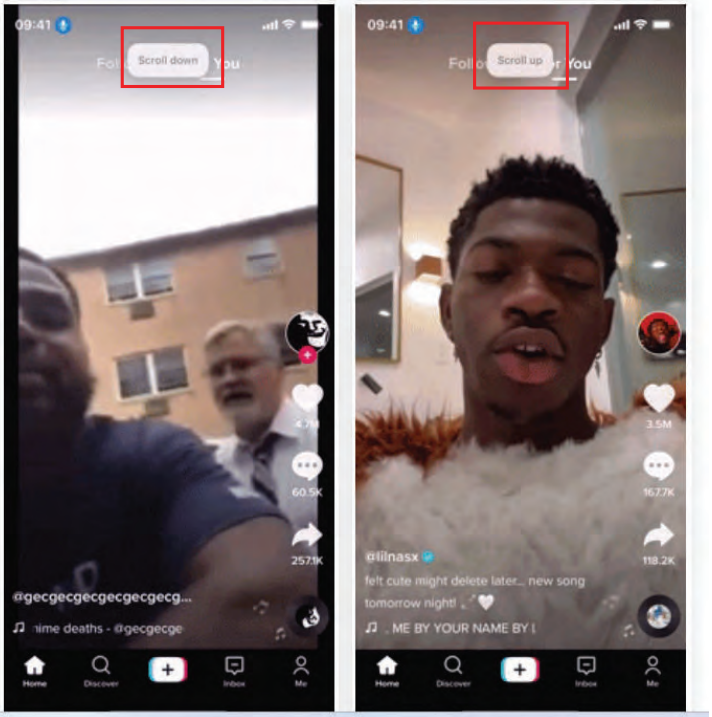
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |

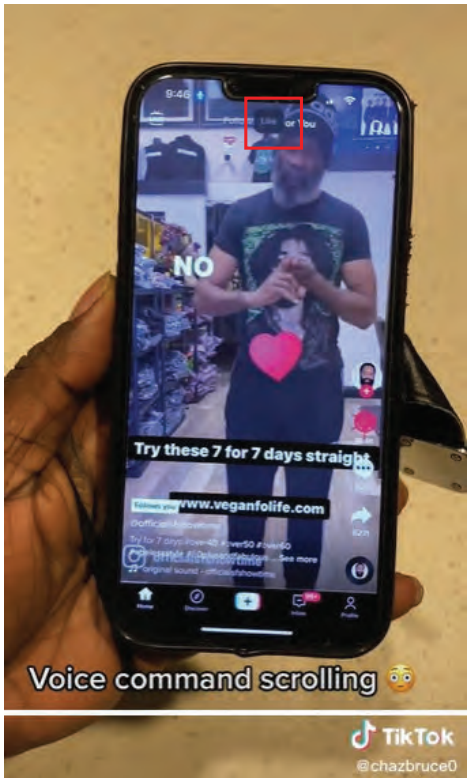
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| [4.4] said first processor configured to acquire new-data in the data capture device using the data capture circuitry, wherein the new-data is data acquired after establishing the short-range paired wireless connection with the cellular phone; | Defendant provides a first processor configured to acquire new-data in the data capture device using the data capture circuitry, wherein the new-data is data acquired after establishing the short-range paired wireless connection with the cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("cellular phone") and the Bluetooth device ("data capture device"), the Bluetooth device captures the user's command ("new-data") using its data capture circuitry, processes it and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is processed and transferred to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down", the Bluetooth devices such as AirPods or earphones capture the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button, the Bluetooth remote captures the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

171

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| | Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br><br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br><br>  <br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

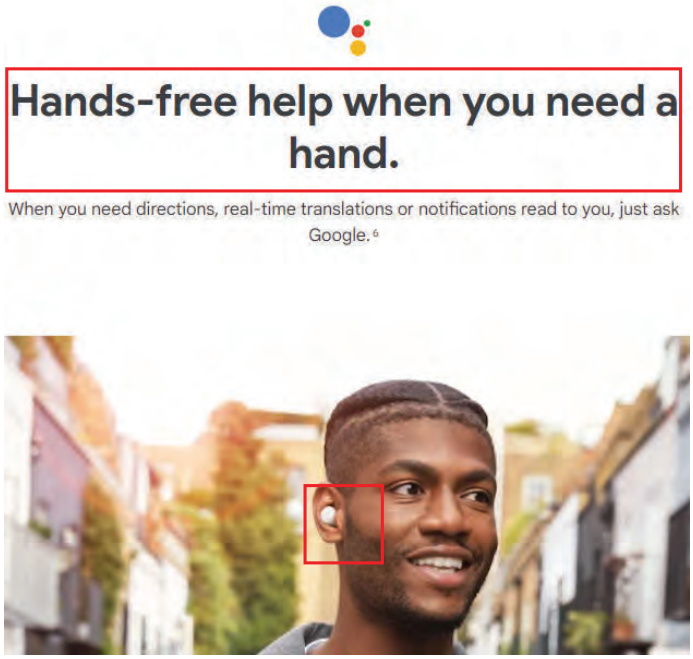
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

177




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
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Source: https://blog.malcore.io/p/tiktok63

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

179

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

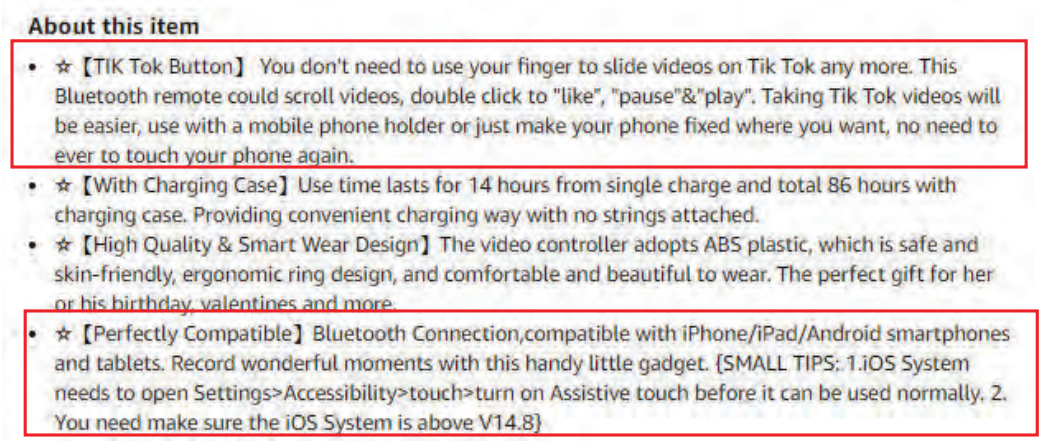
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





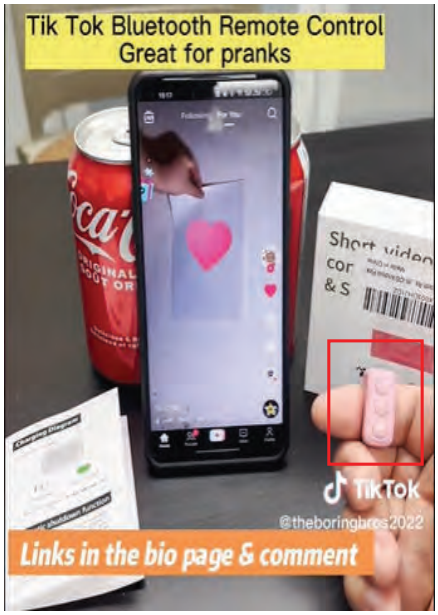
LifeScan, Inc. Ex. 1036
Page 815 of 2225
IPR2025-00102



**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.5] said first processor further configured to store the new-data in the first memory device; | Defendant provides a first processor further configured to store the new-data in the first memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device captures the user's command ("new-data"), processes it, temporarily stores it before buffering and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user, temporarily stores the audio data locally, processes, and transfers the command to the mobile device on which the TikTok app is installed. Similarly, the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote, upon information and belief, temporarily stores the user's selection of the clicked button locally prior to buffering purposes and transfer the command to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the audio command is stored, at least temporally, processed and sent for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, upon information and belief, the user's selection is stored locally prior to buffering, processed and sent for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

184



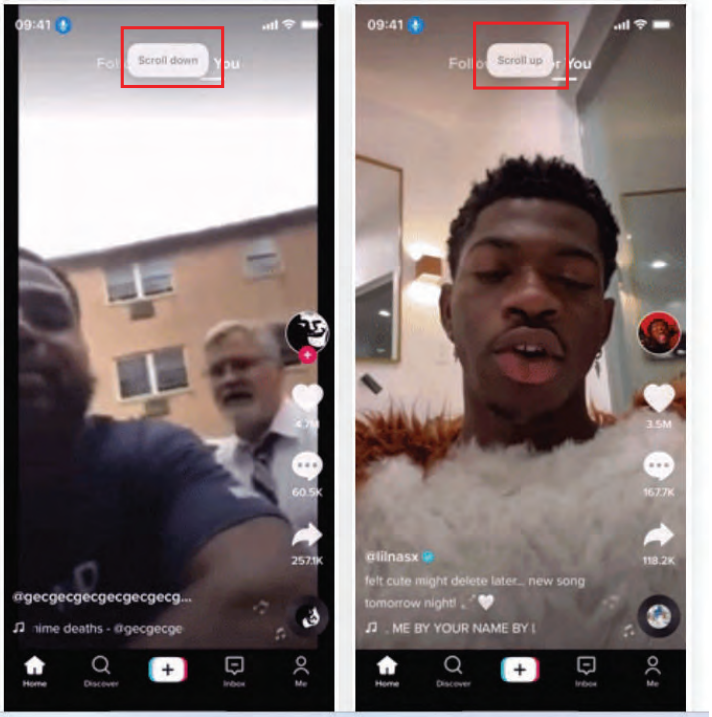

Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471

Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.

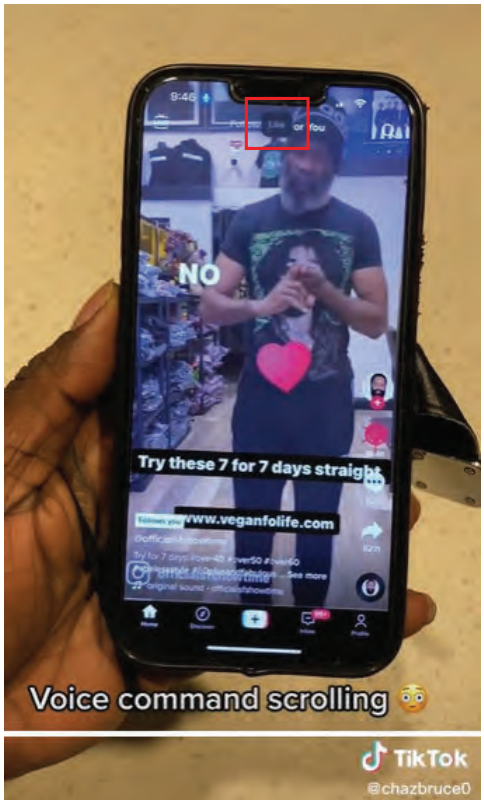
Source: https://store.google.com/product/pixel_buds_pro

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

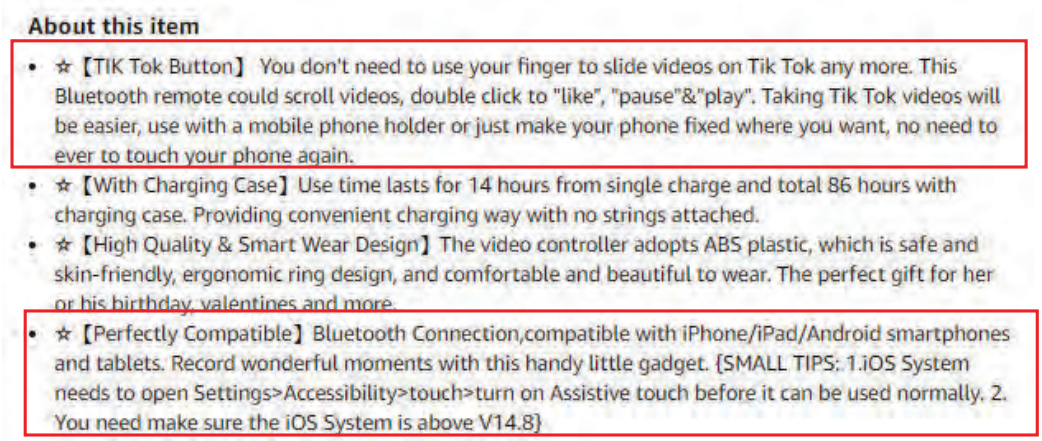
| | |
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

188

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



**About this item**

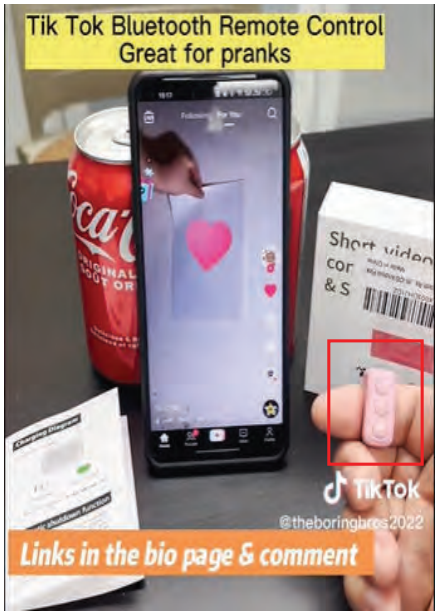
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

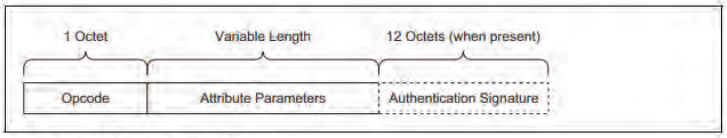
192



LifeScan, Inc. Ex. 1036
Page 826 of 2225
IPR2025-00102

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.6] said first processor further configured to create a new-data object, wherein the new-data object comprises: | Defendant provides a first processor further configured to create a new-data object, wherein the new-data object comprises: signal to notify, wherein the signal to notify corresponds to the acquiring of the new-data for transfer to the cryptographically authenticated cellular phone; the acquired new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| signal to notify, wherein the signal to notify corresponds to the acquiring of the new-data for transfer to the cryptographically authenticated cellular phone;<br>the acquired new-data; and | For example, after a Bluetooth connection is established between the mobile device ("cellular phone") and the Bluetooth device, the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command in the form of signal notification ("signal to notify") that comprises the information related to the command. Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command as a signal notification in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as a signal notification in order to like or scroll the subsequent video.<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT defines a framework for organizing and exchanging data between the BLE devices. When a GATT server (e.g., a Bluetooth device), has new data or an event to notify the GATT client (e.g., a mobile device), it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and |

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| | belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br><br>  <br>*Figure 2.3: Attribute Protocol PDU*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2225 |

195

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

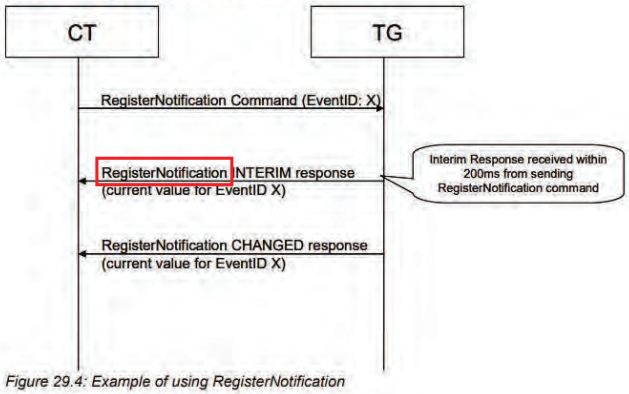



*Figure 29.4: Example of using RegisterNotification*

Source:https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139

196

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2267 |

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

198

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

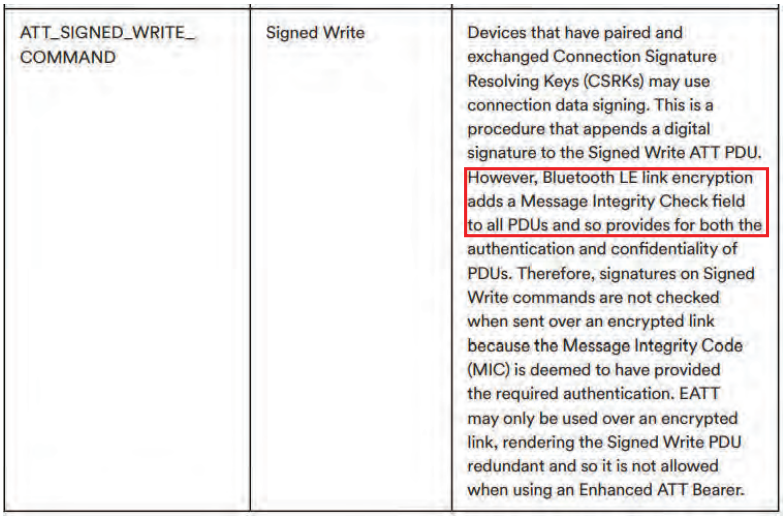
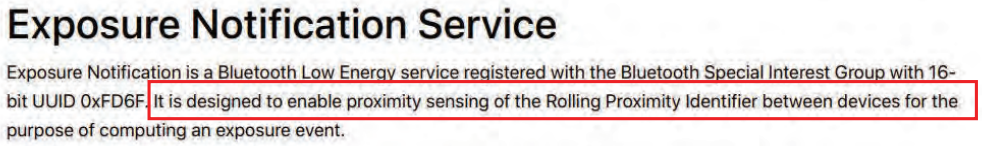
## 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

199

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| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

| | | |
|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

## Exposure Notification Service

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

| | |
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| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

201

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|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified. This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

### 5.13 Browsing

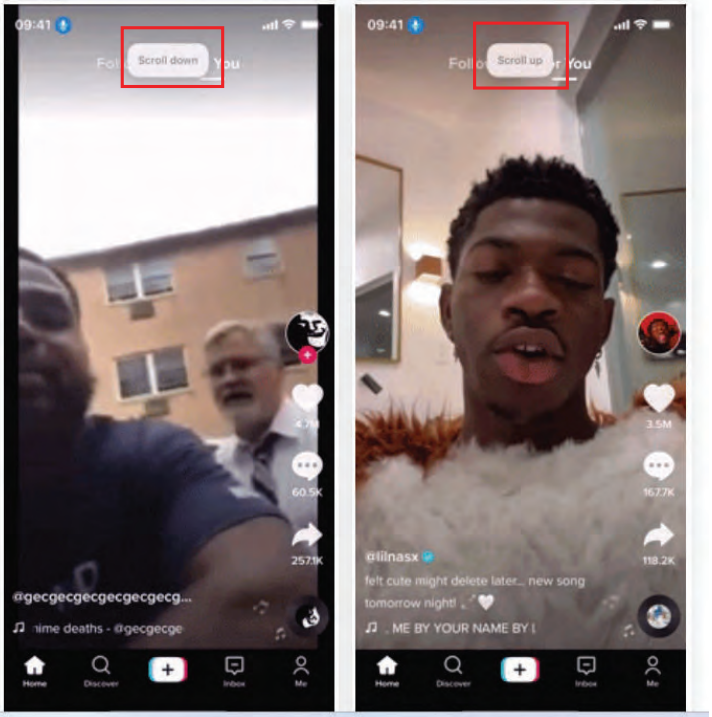
Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

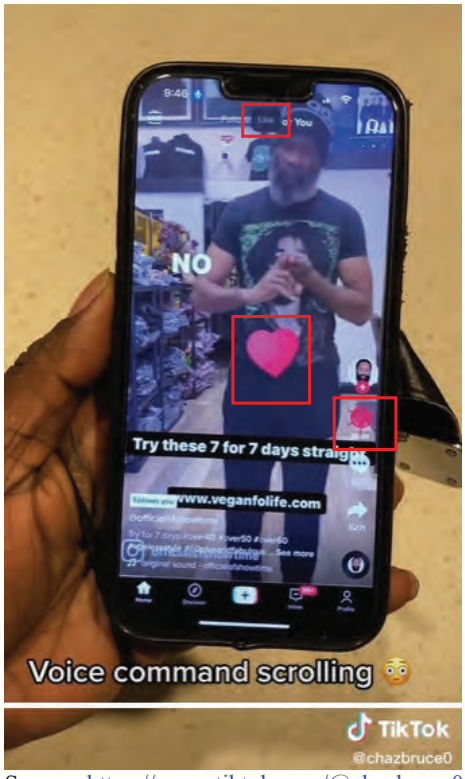
202

| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

205




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

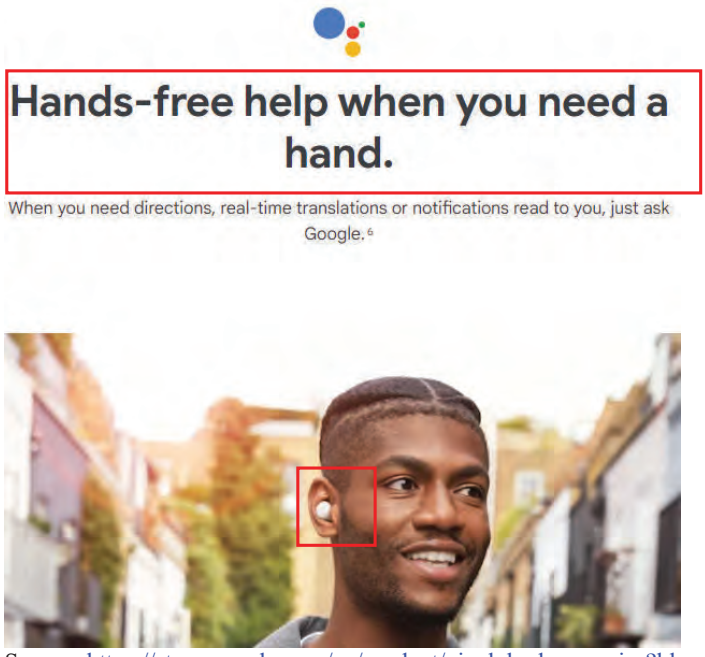
| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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|---|---|
| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

208




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





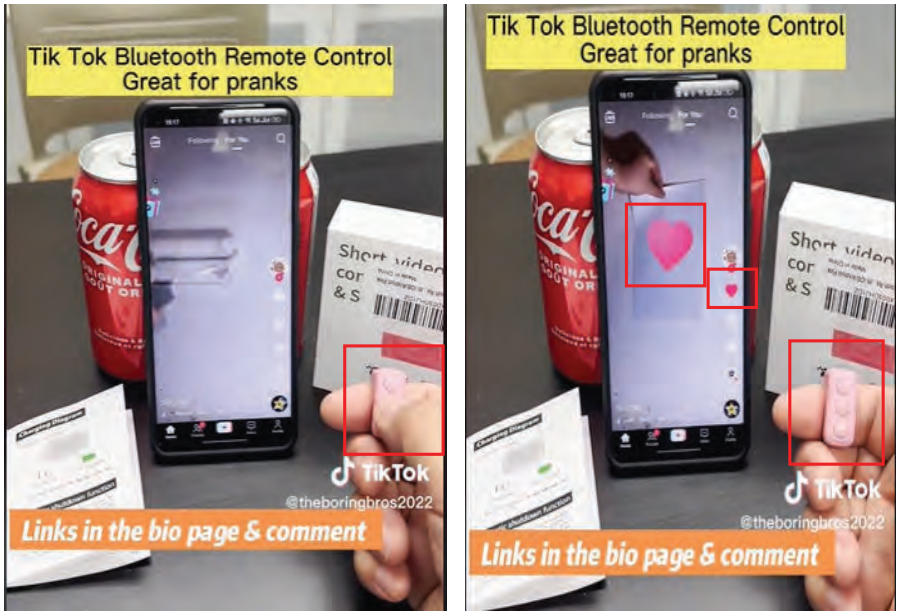
LifeScan, Inc. Ex. 1036
Page 846 of 2225
IPR2025-00102

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

213



LifeScan, Inc. Ex. 1036
Page 847 of 2225
IPR2025-00102

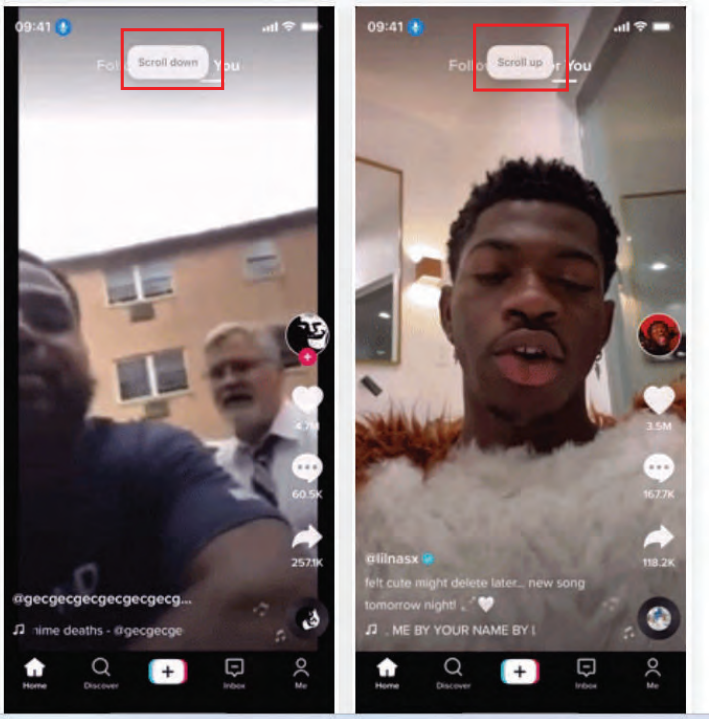
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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.7] associated new-data, wherein the associated new-data corresponds to data | Defendant provides processor configured to create a new-data object, wherein the new-data object comprises: associated new-data, wherein the associated new-data corresponds to data associated with the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

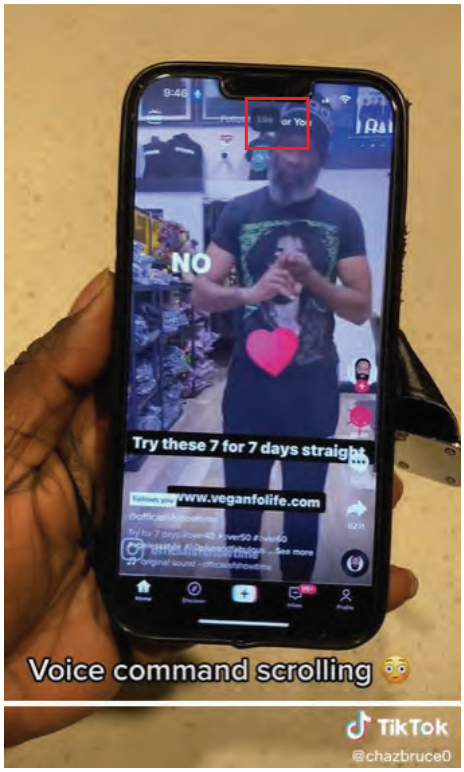
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| associated with the new-data; and | For example, while operating the TikTok app, the Bluetooth devices such as AirPods or Earphones capture the user's audio input which is sent to the mobile device as a signal notification along the metadata (associated new-data") associated with the audio input, for example, size of the audio command.<br><br>When an Audio Stream contains content which is controlled by a content control service, it includes the CCID in a list of such services in the Audio Stream's metadata to tell both Acceptors and Commanders where they can find the correct service. We'll look at Commanders in a moment in Section 3.12.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2022/01/Introducing-Bluetooth-LE-Audio-book.pdf, Page 64<br><br>it to a remote Bluetooth device. The functions available for a conventional infrared remote controller can be realized in this profile. In addition to this, the profile uses Bluetooth specific extensions to support transfer of metadata related to content to be transferred between Bluetooth devices. Browsing features are provided to allow a remote controller to navigate the media and control specific media players on the remote target device. The remote control described in this profile is designed specific to A/V control. Other remote control solutions using Bluetooth wireless technology may be applied for general Bluetooth devices including A/V devices.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 10<br><br>The GetItemAttributes command is used to retrieve the metadata attributes for a particular media element item or folder item. The PDU format is similar to that of the GetElementAttributes command, however the GetItemAttributes is sent over the browsing channel to the Browsed Player and is not encapsulated within an AV/C frame.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 78<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.8] said first processor further configured to | Defendant provides a first processor further configured to transfer automatically the new-data object to the cryptographically authenticated cellular phone, over the established short-range paired wireless connection. |

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| transfer automatically the new-data object to the cryptographically authenticated cellular phone, over the established short-range paired wireless connection; | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a secured Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("cellular phone") and the Bluetooth device, the Bluetooth device captures the user's command ("new-data"), processes and automatically sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command and performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote, processes it and automatically transfers the data to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, after processing, the TikTok app automatically receives the user's command to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, after processing, the TikTok app automatically like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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| | Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br><br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br><br>  <br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

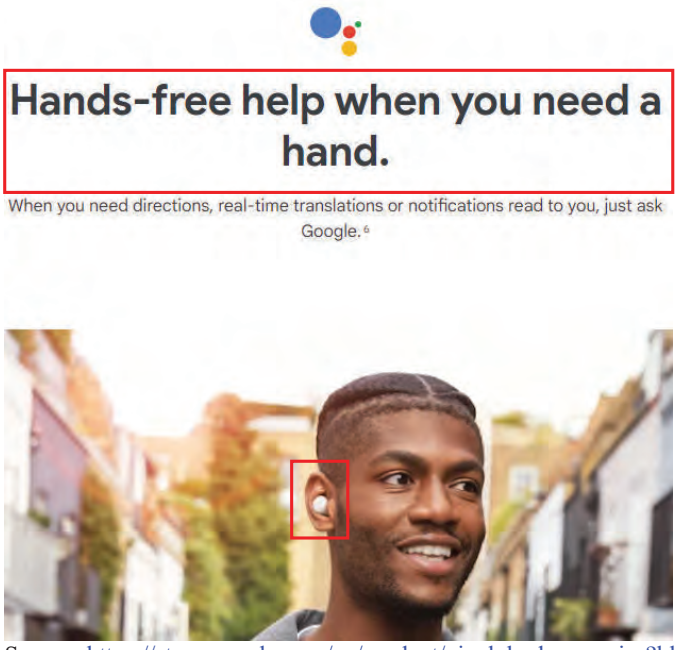
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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
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Source: https://blog.malcore.io/p/tiktok63

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

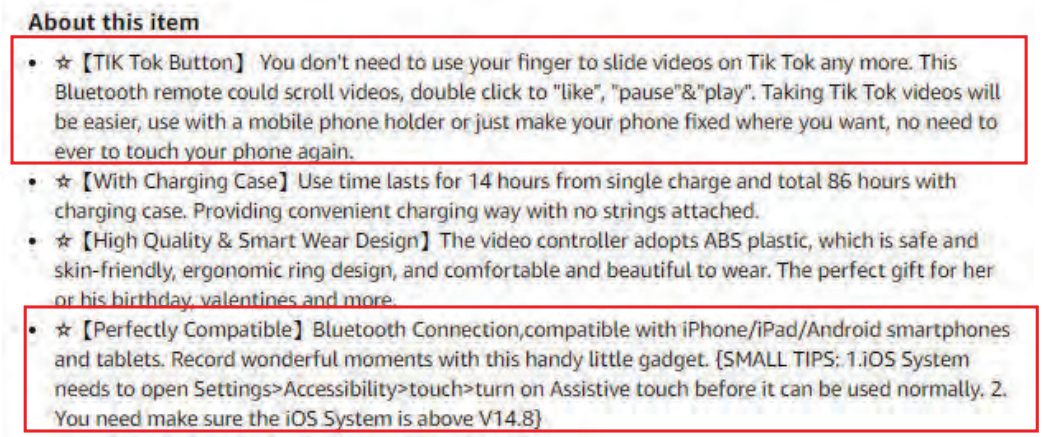
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





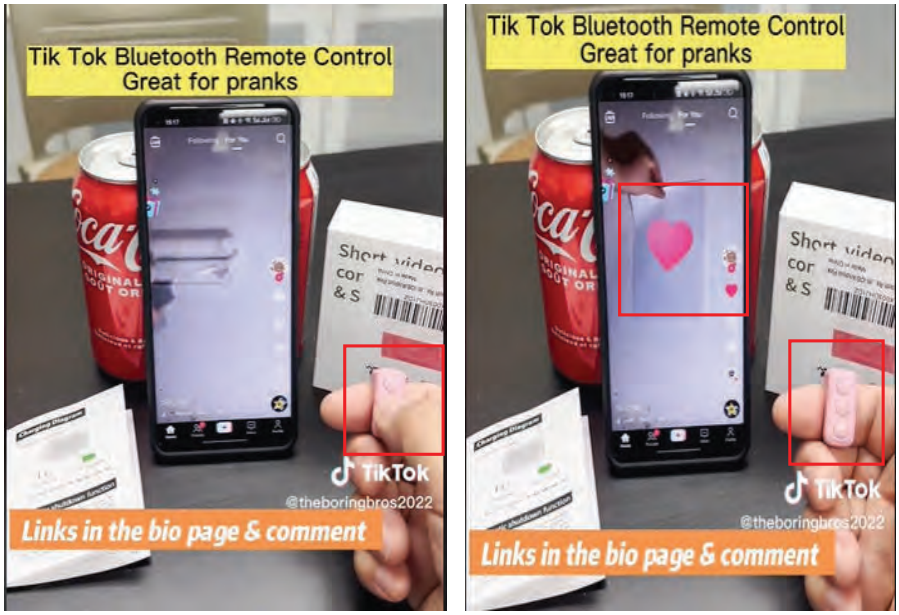
LifeScan, Inc. Ex. 1036
Page 860 of 2225
IPR2025-00102



**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
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- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

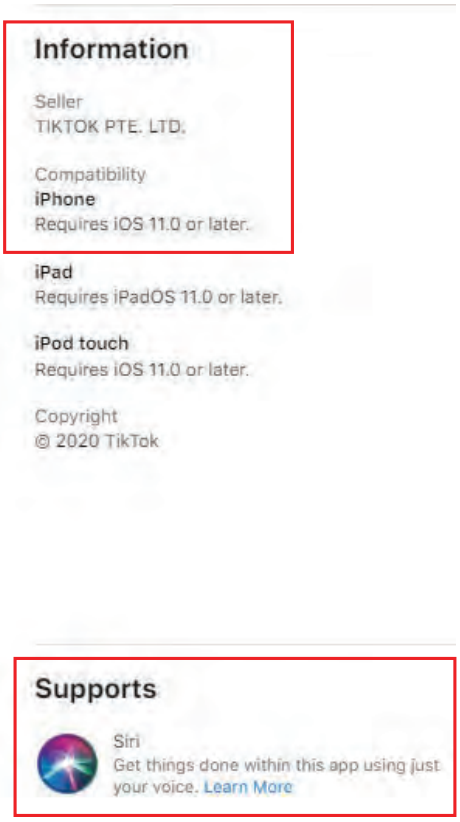
Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.9] said cellular phone, comprising: | Defendant provides a cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, Defendant provides TikTok app which includes the functionality of TikTok Shop that enables merchants to sell products and allows the users to buy products from the TikTok app. TikTok App enables merchants to sell their products including, but not limited to, iPhones and Android phones (“a cellular phone”) to TikTok app users. Further, TikTok app is installed in a mobile device such as an iPhone or an Android phone. The users of the TikTok app use the mobile device while operating the TikTok app. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to perform functions such as ‘scrolling’/‘liking’ the video based on inputs provided to the Bluetooth devices. |

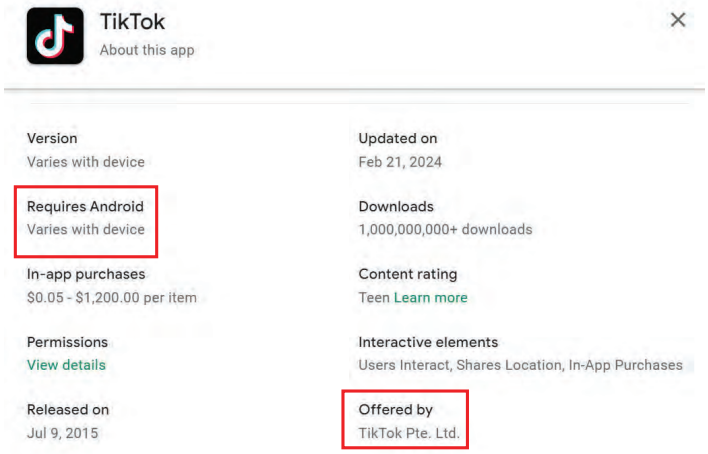


LifeScan, Inc. Ex. 1036
Page 863 of 2225
IPR2025-00102




Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

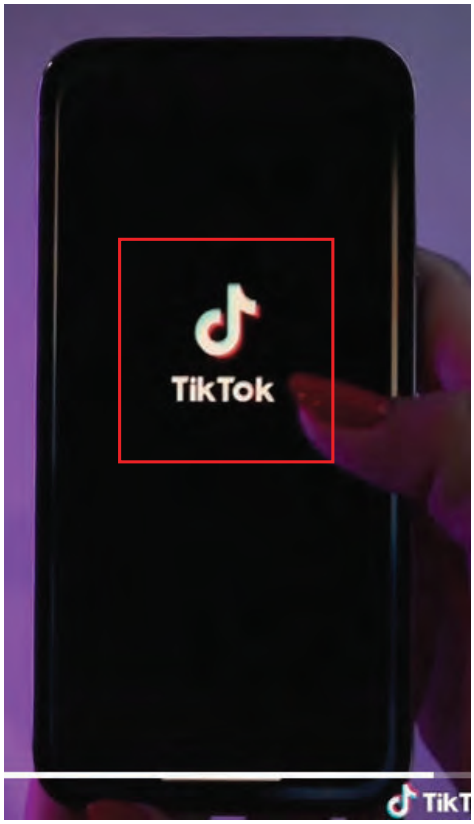
Exhibit 5

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| |  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

231



LifeScan, Inc. Ex. 1036
Page 865 of 2225
IPR2025-00102

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

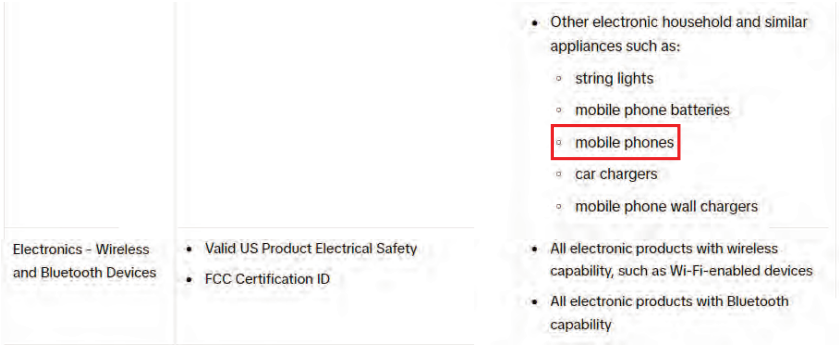
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| | **How does TikTok Commerce work?**<br><br>TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en<br><br>**About TikTok Shop**<br><br>TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.<br><br>Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.<br><br>• See TikTok Shop and Showcase<br>• See How to Add Product Links to TikTok Videos<br><br>With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en |

## Electrical Products and Electronics

Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.

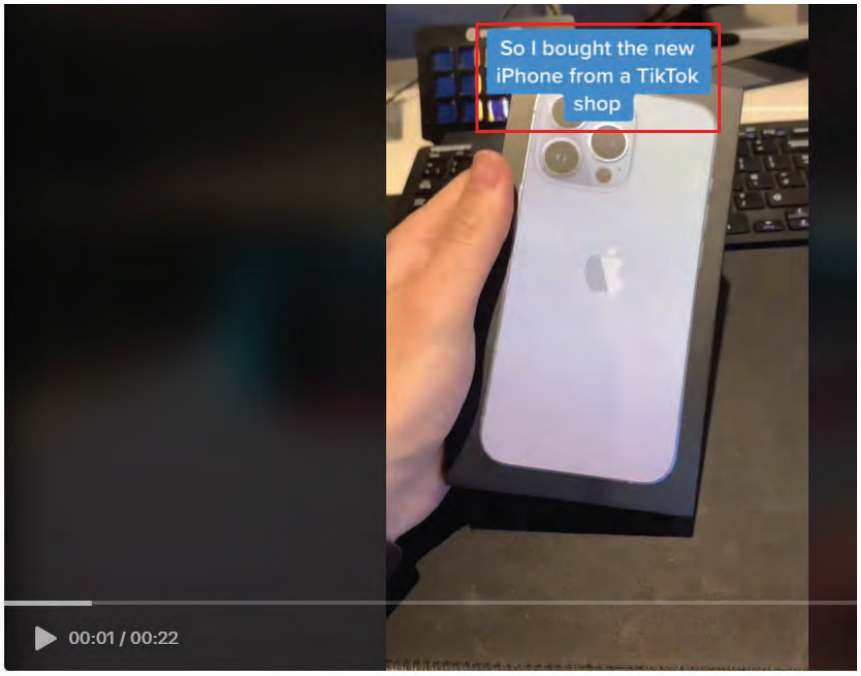
Electrical and electronic products include but are not limited to:

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy




Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy

234

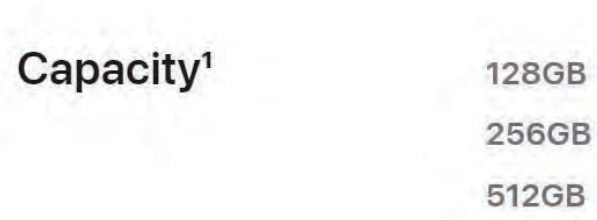
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| |  <br>So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime<br>Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502, at 0:01 |

| | |
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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.10] a second memory device;<br>a second processor coupled to said second memory device; | Defendant provides a second memory device; a second processor coupled to said second memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the users of the TikTok app, while operating the TikTok app, utilize a mobile device that comprises a memory (“second memory device”) and a processor coupled to the memory (“second processor coupled to said second memory device”). The memory is utilized to store the TikTok app and the information related to it and the processor is utilized to execute the computer-readable instructions related to the TikTok app. |



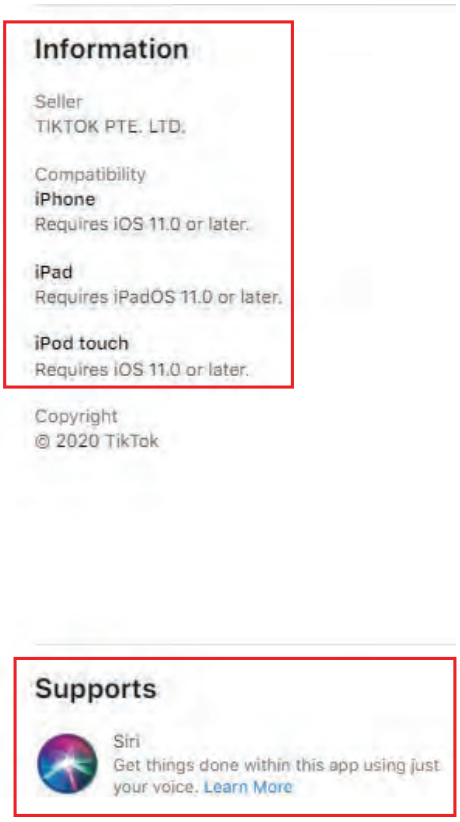
LifeScan, Inc. Ex. 1036
Page 871 of 2225
IPR2025-00102

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| |  <br>Source: https://www.apple.com/iphone-13/specs/<br>  <br>Source: https://www.apple.com/iphone-13/specs/ |



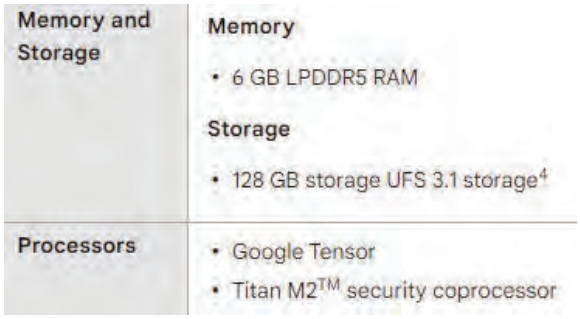
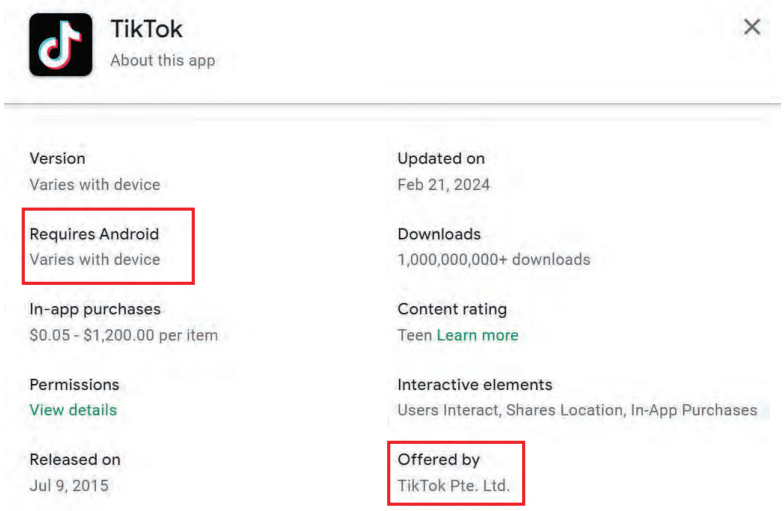


LifeScan, Inc. Ex. 1036
Page 872 of 2225
IPR2025-00102




Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

239

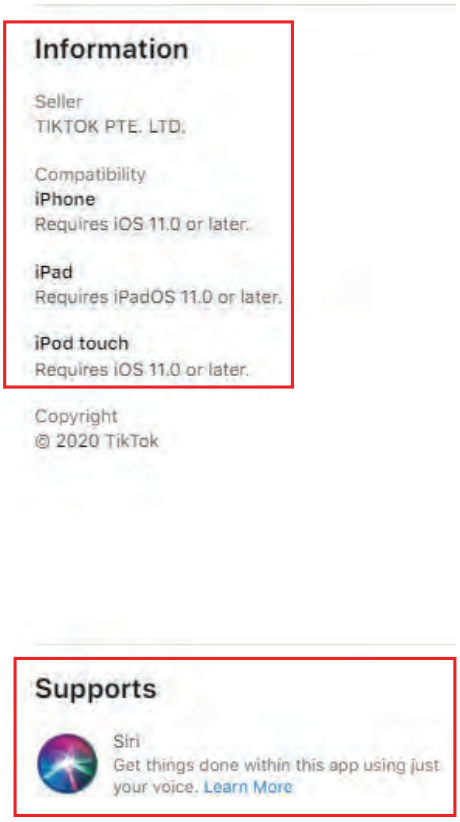
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| |  <br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en<br>  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

240



LifeScan, Inc. Ex. 1036
Page 874 of 2225
IPR2025-00102

| | |
|---|---|
| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.11] a cellular network communication device configured to connect to the internet via the cellular data network; | Defendant provides a cellular network communication device configured to connect to the internet via the cellular data network.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes mobile device which comprises a cellular network communication device designed to establish an internet connection through Wi-Fi or a cellular data network. The user of the TikTok app uses the established internet connection to access the TikTok app and perform functions such as 'scrolling'/'liking' the video. |

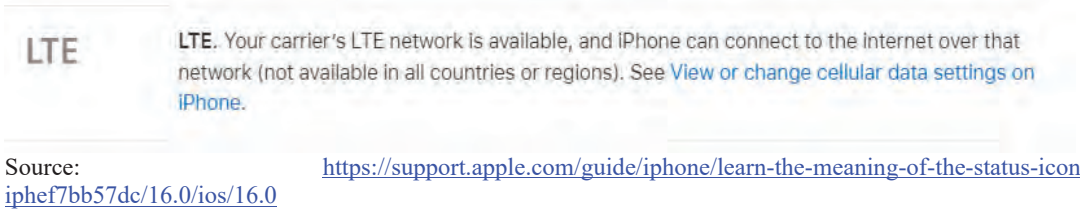



Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

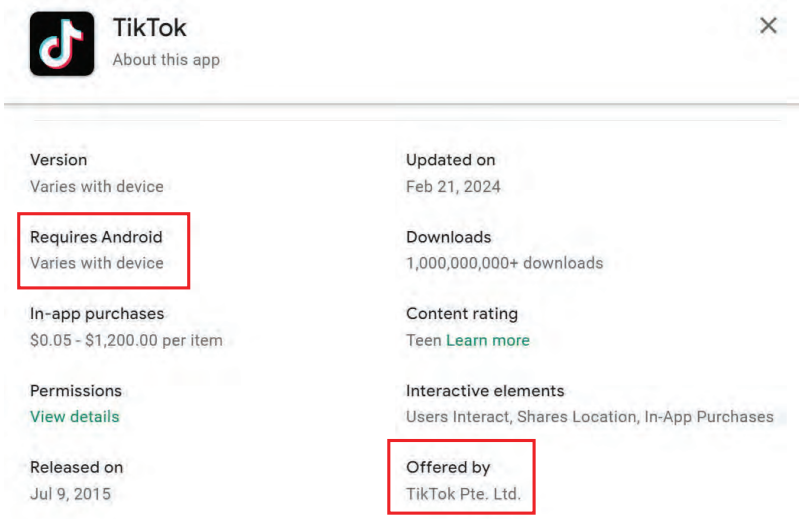
242

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| | If iPhone is connected to the internet using the cellular data network, an icon identifying the cellular network appears in the status bar.<br><br>5G, LTE, 4G, and 3G service on GSM cellular networks support simultaneous voice and data communications. For all other cellular connections, you can't use internet services while you're talking o the phone unless iPhone also has a Wi-Fi connection to the internet. Depending on your network connection, you may not be able to receive calls while iPhone transfers data over the cellular network—when downloading a webpage, for example.<br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Choose cellular data options for data usage, performance, battery life, and more**<br><br>To turn Cellular Data on or off, go to Settings > Cellular.<br><br>To set options when Cellular Data is on, go to Settings > Cellular > Cellular Data Options, then do any of the following:<br><br>• *Reduce cellular usage:* Turn on Low Data Mode, or tap Data Mode, then choose Low Data Mode. This mode pauses automatic updates and background tasks when iPhone isn't connected to Wi-Fi.<br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Cell signal.** The number of bars indicates the signal strength of your cellular service. If there's no signal, "No Service" appears.<br><br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0 |

243

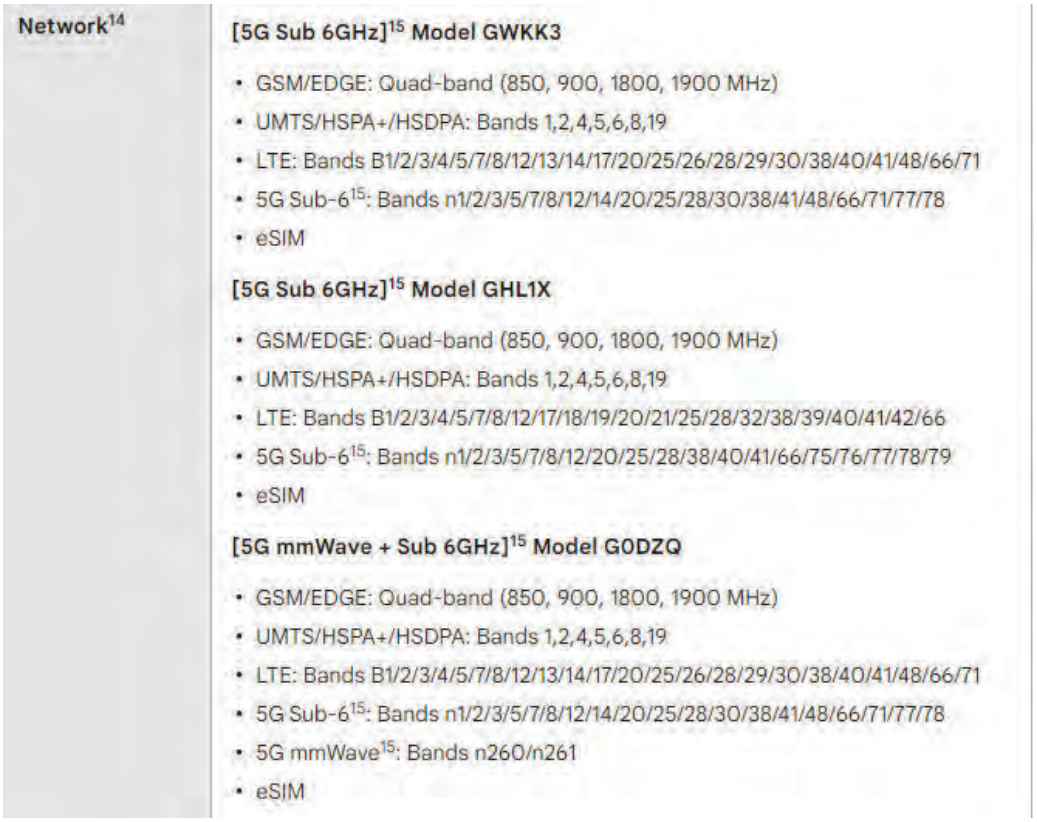



Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

244



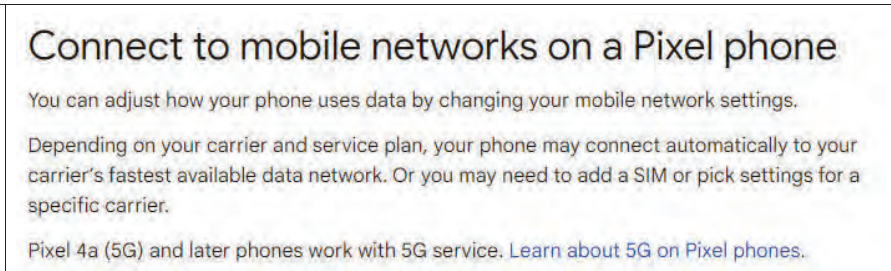
| Network[14] | |
|---|---|
| | **[5G Sub 6GHz][15] Model GWKK3** |
| | • GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz) |
| | • UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19 |
| | • LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71 |
| | • 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78 |
| | • eSIM |
| | **[5G Sub 6GHz][15] Model GHL1X** |
| | • GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz) |
| | • UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19 |
| | • LTE: Bands B1/2/3/4/5/7/8/12/17/18/19/20/21/25/28/32/38/39/40/41/42/66 |
| | • 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/20/25/28/38/40/41/66/75/76/77/78/79 |
| | • eSIM |
| | **[5G mmWave + Sub 6GHz][15] Model G0DZQ** |
| | • GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz) |
| | • UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19 |
| | • LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71 |
| | • 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78 |
| | • 5G mmWave[15]: Bands n260/n261 |
| | • eSIM |

Source: https://support.google.com/pixelphone/answer/7158570?hl=en

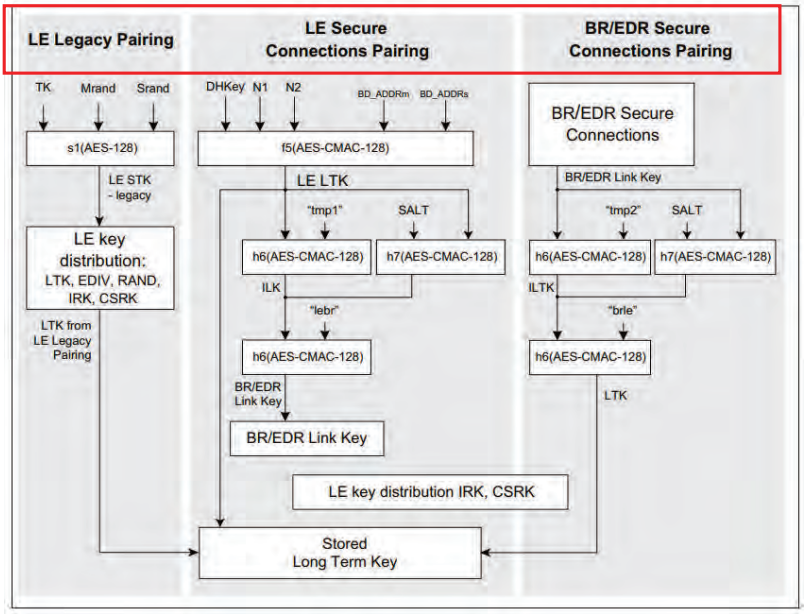
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LifeScan, Inc. Ex. 1036
Page 879 of 2225
IPR2025-00102

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|---|---|
| |  <br>Source: https://support.google.com/pixelphone/answer/2926415?hl=en<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.12] a second short-range wireless communication device configured to establish the short-range paired wireless connection between the cellular phone and the data capture device; | Defendant provides a second short-range wireless communication device configured to establish the short-range paired wireless connection between the cellular phone and the data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device ("cellular phone") which comprises Bluetooth ("second short-range wireless communication device"). Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("data capture device"). The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices. |

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| | The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

| | | |
|---|---|---|
| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master trans-mits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

248

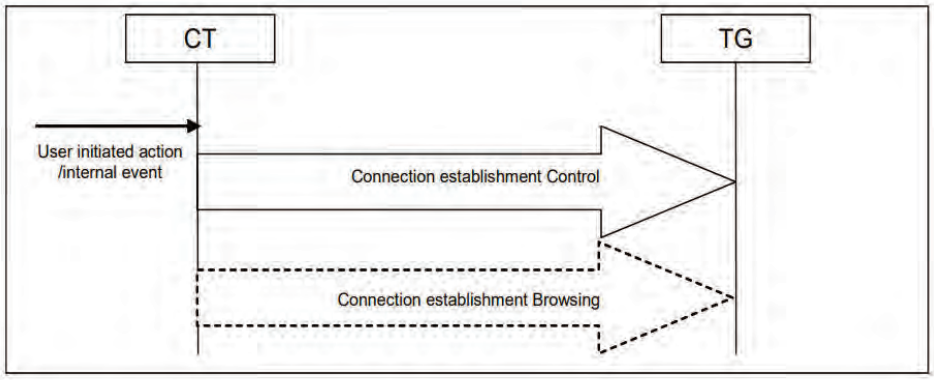



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

249

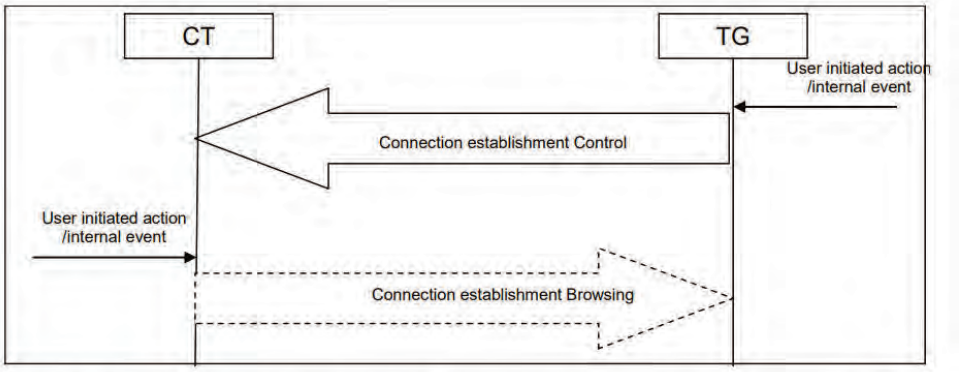



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

250

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| | Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br><br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

## Bluetooth security

There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:

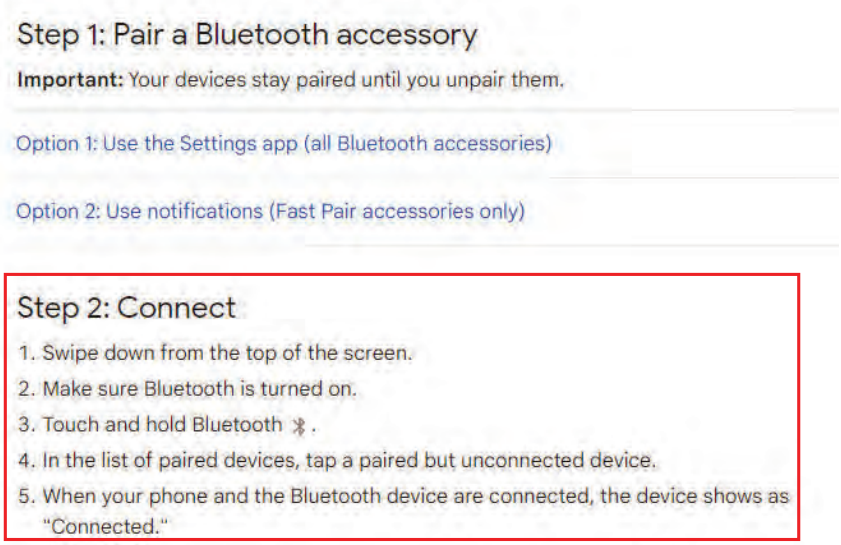
- *Pairing:* The process for creating one or more shared secret keys
- *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair
- *Authentication:* Verifying that the two devices have the same keys
- *Encryption:* Message confidentiality
- *Message integrity:* Protection against message forgeries
- *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks

Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web

## Connectivity

Each earbud: Bluetooth 5.0

Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US




Source: https://support.google.com/android/answer/9075925?hl=en

253



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

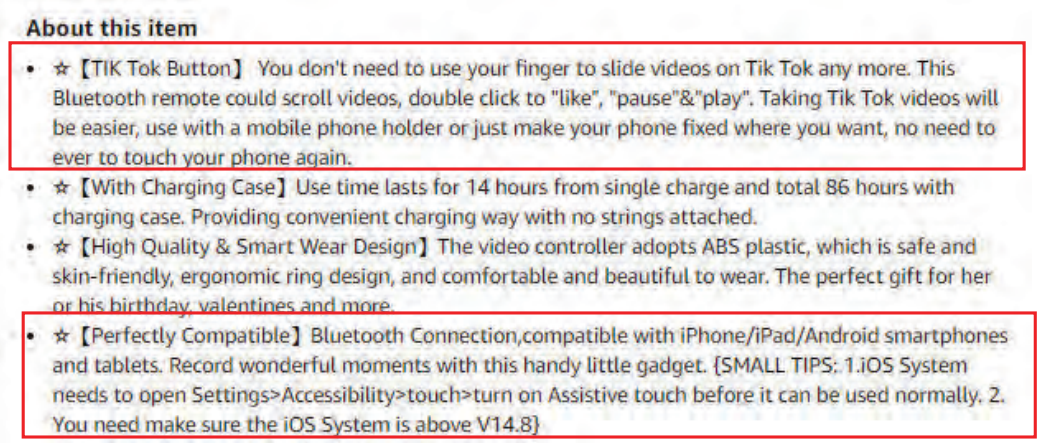
**Bluetooth permissions**

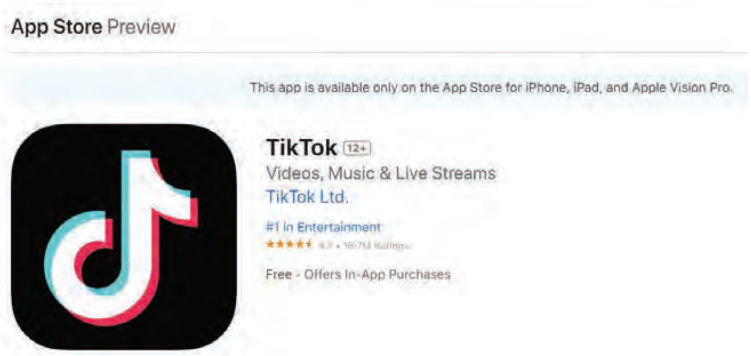
In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

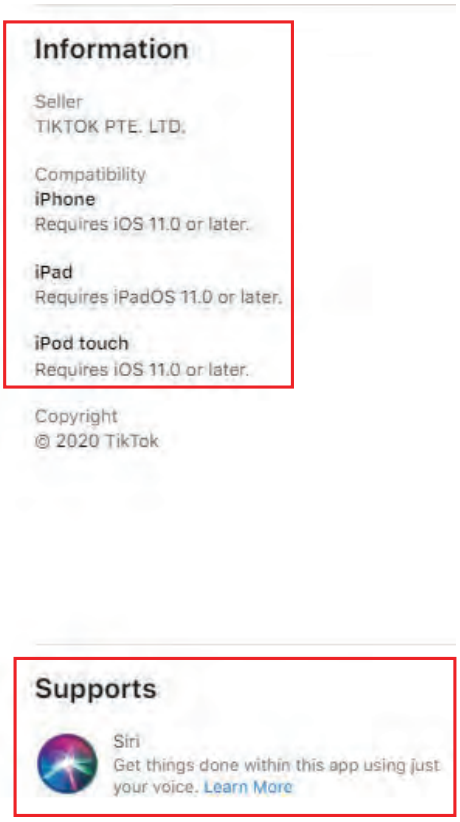
Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.13] a mobile client application for the cellular phone comprising executable instructions that, when executed by the second processor controls the second processor to: | Defendant provides a mobile client application for the cellular phone comprising executable instructions.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app (“mobile client application”) is installed in the mobile device (“cellular phone”) and can be remotely controlled through Bluetooth devices such as AirPods, earphones, or Bluetooth remotes. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to receive and execute the inputs (using executable instructions) provided by the user through the Bluetooth devices and perform corresponding functions such as ‘scrolling’/‘liking’ the video. |

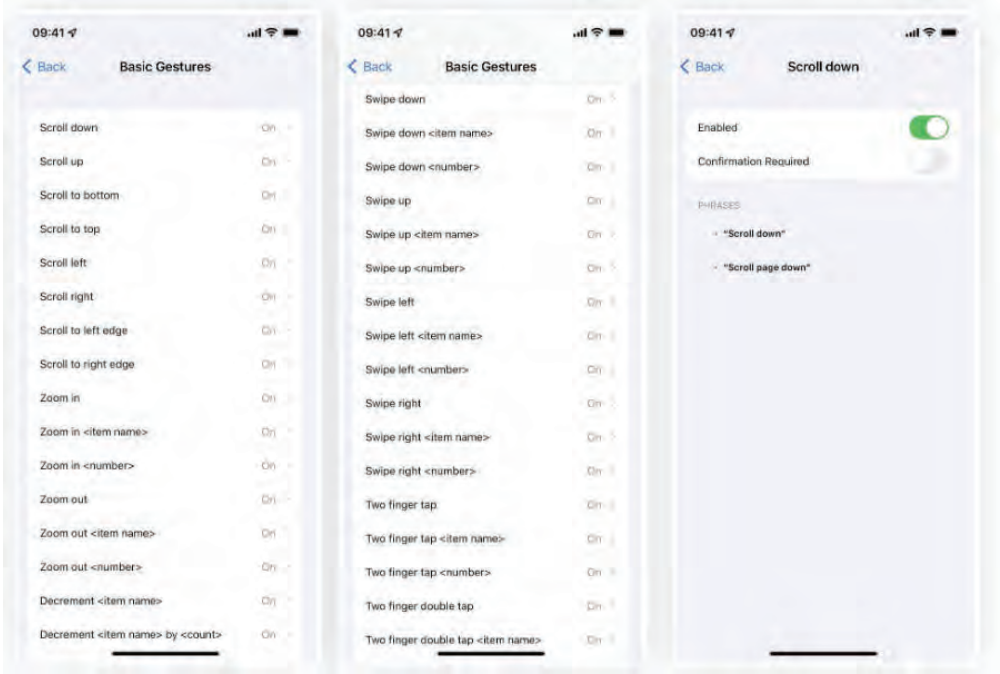
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|---|---|
| | For example, the TikTok app for iOS allows a user to configure gestures for phrases such that when the user provides an audio command corresponding to the phrase, a gesture is automatically performed on the user interface of the TikTok app causing a functionality such as 'liking' or 'scrolling' of a video in the app. The custom phrases and corresponding gestures for the TikTok app are set in the Voice Control settings of iOS. For example, when the phrase "double tap" and a custom gesture causing a double tap on the screen is configured for the TikTok app, then the audio command "double tap" provided by the user on the Bluetooth device (such as AirPods) causes the double tapping gesture to be performed in the TikTok app leading to 'liking' of the video.<br>  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

257



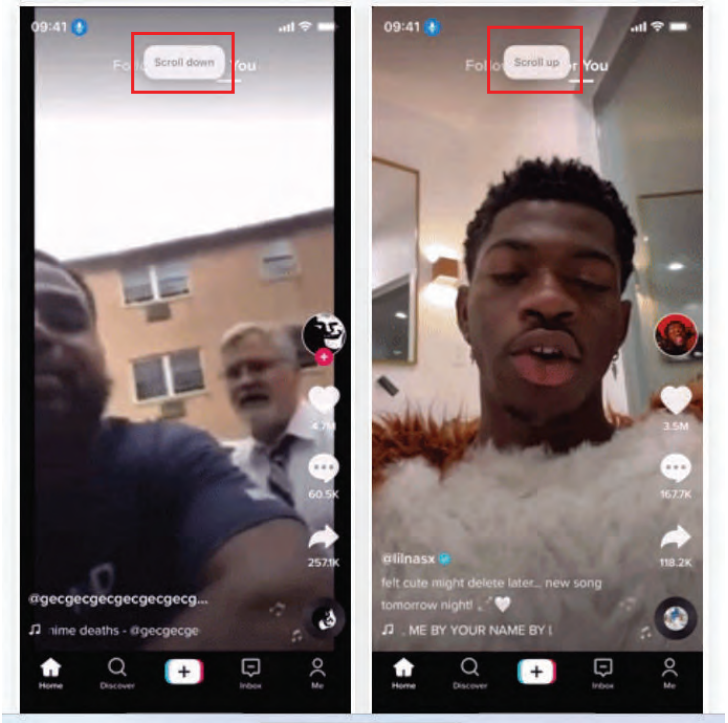

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

258




Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/#

| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| | **If an app would like to use Bluetooth on your device**<br>Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.<br><br>**About Bluetooth privacy settings**<br>Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.<br>Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.<br>Source: https://support.apple.com/en-us/HT210578 |

**How to control your AirPods using Siri-like commands without internet access**

Greg Barbosa | Jan 30 2017 - 10:34 am PT | 0 Comments



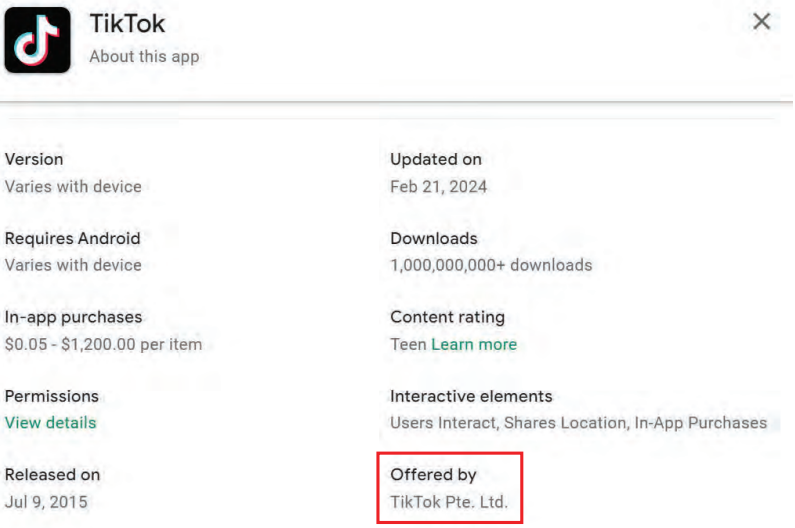
Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/

Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.

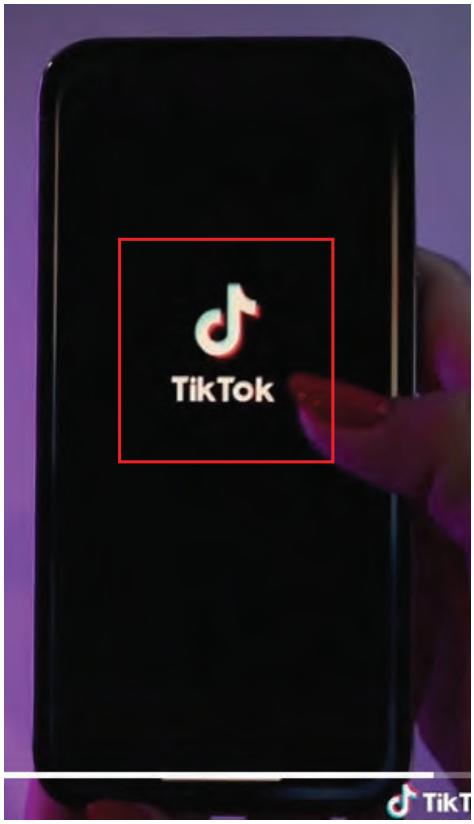
Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/

For example, the TikTok app when installed on an Android phone such as Pixel 6a (used herein as an exemplary Android-based device), allows the user to turn on Voice Access feature in the Android phone's Accessibility settings to perform multiple functionalities such as 'liking' the content and 'scrolling' the videos while accessing the TikTok app. When an audio command corresponding to the desired functionality is provided

| | |
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| | through the Bluetooth device, Pixel 6a receives the command and the TikTok app processes the executed command and performs the corresponding functionality such as scrolling/liking the video. For example, when Voice Access is enabled while surfing the TikTok app and the user provides an audio input "Scroll down" on the Bluetooth device such as an earphone, the TikTok app scrolls down to load the next video.<br>  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

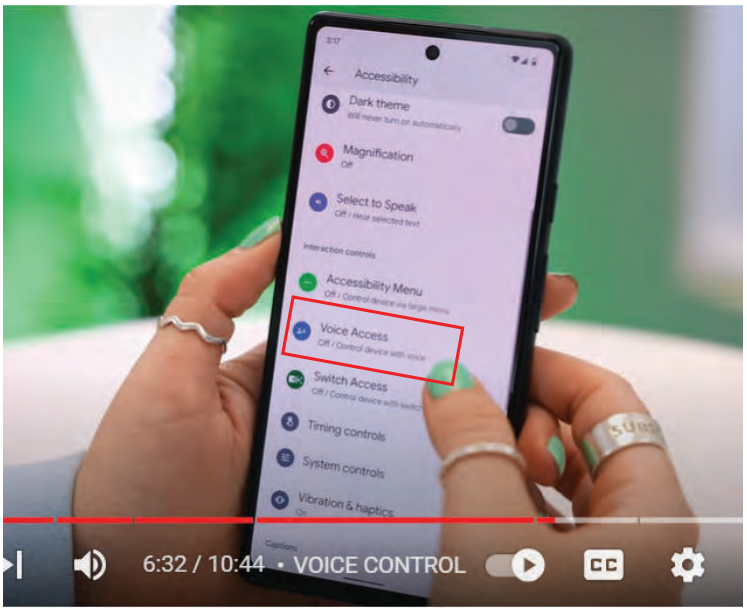



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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|---|---|
| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

266

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| | **Step 3: Start using Voice Access**<br>To turn on Voice Access, follow these steps:<br>1. Open your device's Settings app.<br>2. Tap **Accessibility**, then tap **Voice Access.**<br>3. Tap **Use Voice Access**.<br>4. Start Voice Access in one of these ways:<br>• If "Hey Google" detection is on, you can say "Hey Google, Voice Access."<br>• Open your notification shade and tap **Touch to start**.<br>• On your Home screen, tap the Voice Access app.<br>• Tap the Voice Access activation button. (You can set up the activation button in Settings > **Accessibility** > **Voice Access** > **Settings** > **Activation button**.)<br>5. Say a command, such as "Open Gmail." Learn more Voice Access commands.<br>The first time you turn on Voice Access, two extra steps help you get started:<br>• A guide to "Hey Google" settings helps set you up for a good hands-free experience.<br>• An interactive tutorial teaches you how Voice Access works.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://www.youtube.com/watch?v=Ec52kzzqVRM, at 6:32

Here is how to scroll through TikTok hands-free on Android:

- Install Google's Voice Access app from Play Store.
- Go to **Settings** › **Accessibility**; find and select the Voice Access app.
- Tap on **Use service** to enable Voice Access.
- When prompted, grant permissions to the Voice Access app.
- Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.
- Once done, you will see a blue floating icon on your screen.
- Tap on the floating icon to activate Voice Access. You are all set!
- Now, open TikTok and say "**scroll down**" to see the magic.

Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/

- **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:
  1. Connect your keyboard or switch to your device:
     - Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices.

Source: https://support.google.com/accessibility/android/answer/6151848?hl=en

| | |
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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

269

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| | Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>For example, TikTok app is also configured to receive data from third-party Bluetooth remotes. These Bluetooth remotes connect to the mobile device via Bluetooth and allow the user to scroll through videos or 'like' a video using designated buttons on the remote (for example, a user can "like" a particular video on the TikTok app by double clicking a designated button). |

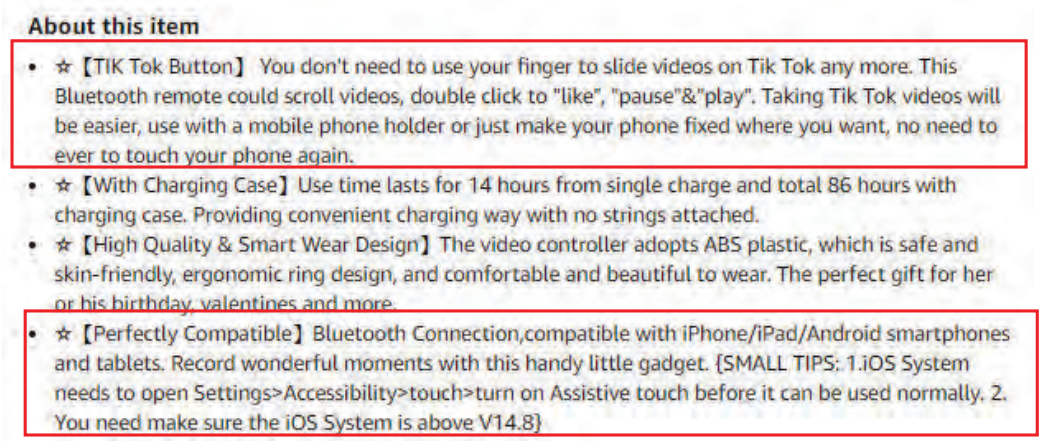
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

274



LifeScan, Inc. Ex. 1036
Page 908 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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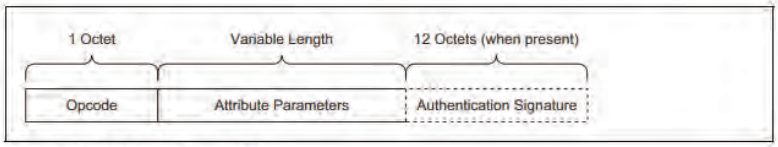
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| |  <br>Source: https://www.youtube.com/shorts/rz7SWRCzdMg<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br><br>Source: https://blog.malcore.io/p/tiktok63 |





LifeScan, Inc. Ex. 1036
Page 910 of 2225
IPR2025-00102

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| | BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>**Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.14] listen for the signal to notify; | Defendant provides mobile client application that listen for the signal to notify.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app in the mobile device receives the user command (provided through the Bluetooth devices) in the form of signal notification ("signal to notify") that comprises the information related to the command. |

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| | Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client establishes a connection with a GATT server, it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br><br>  <br>*Figure 2.3: Attribute Protocol PDU*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |

278

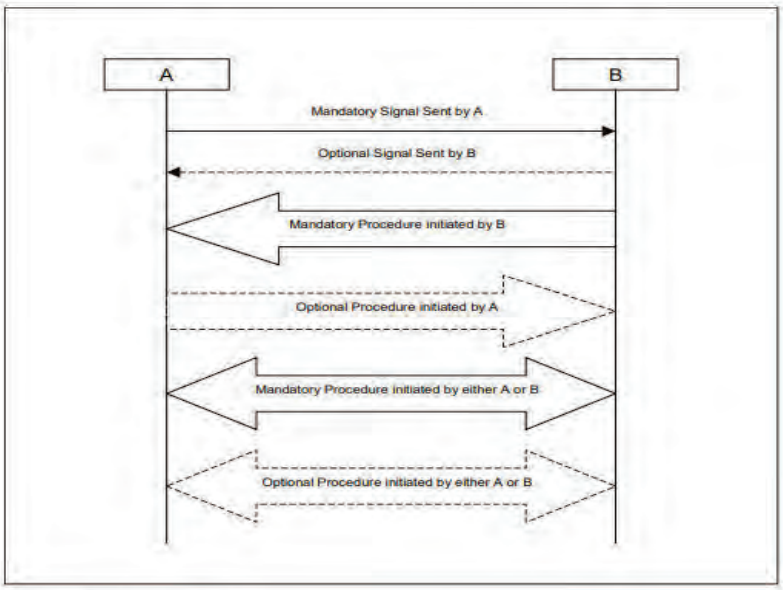



*Figure 1.2: Signaling conventions*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11

279

### 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

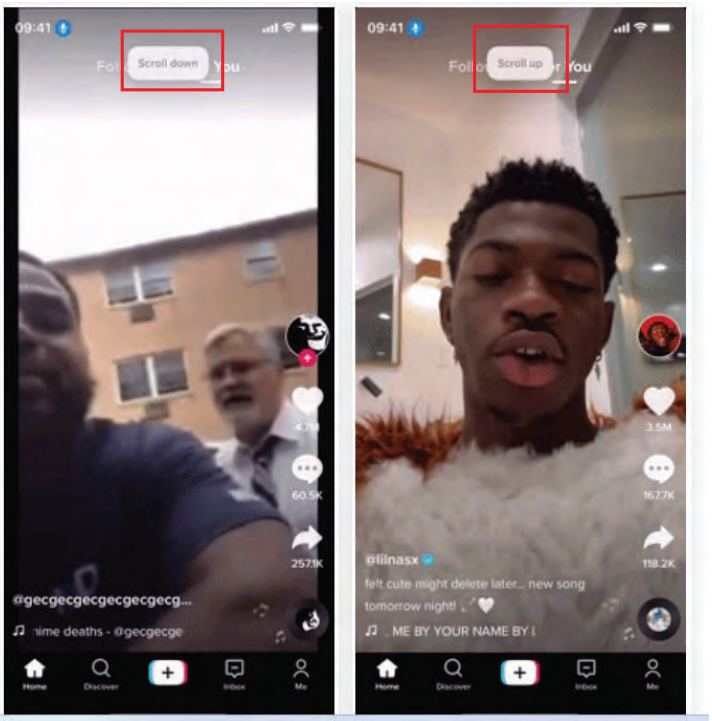
The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

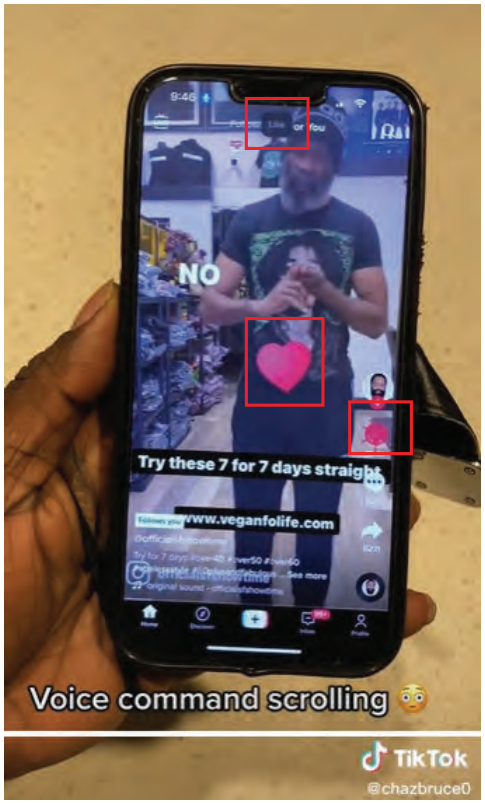
### Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

| | |
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| | Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br>  <br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

281




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

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Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

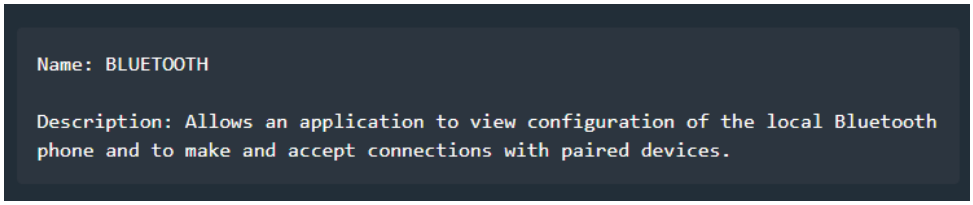
android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

Here is how to scroll through TikTok hands-free on Android:

- Install Google's **Voice Access** app from Play Store.
- Go to **Settings › Accessibility**; find and select the Voice Access app.
- Tap on **Use service** to enable Voice Access.
- When prompted, grant permissions to the Voice Access app.
- Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.
- Once done, you will see a blue floating icon on your screen.
- Tap on the floating icon to activate Voice Access. You are all set!
- Now, open TikTok and say "**scroll down**" to see the magic.

Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/

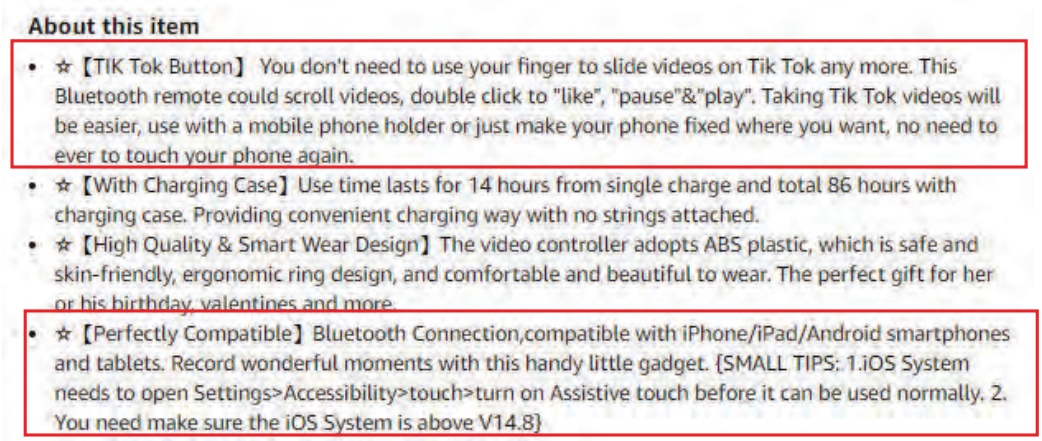
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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 919 of 2225
IPR2025-00102



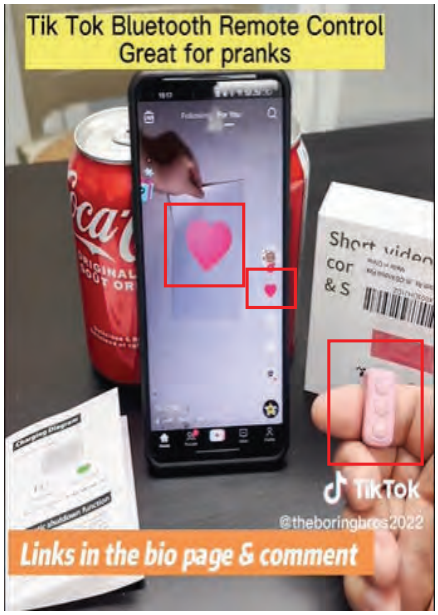
**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

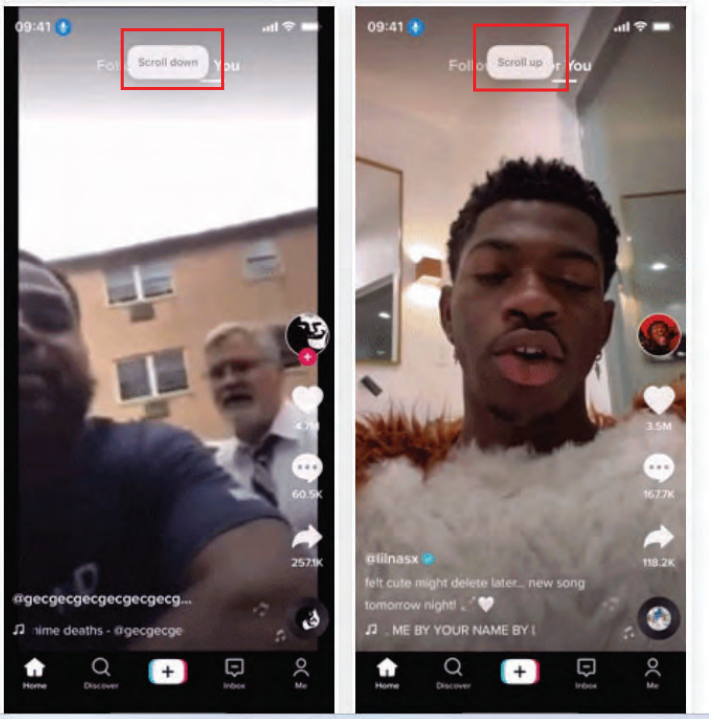
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

287

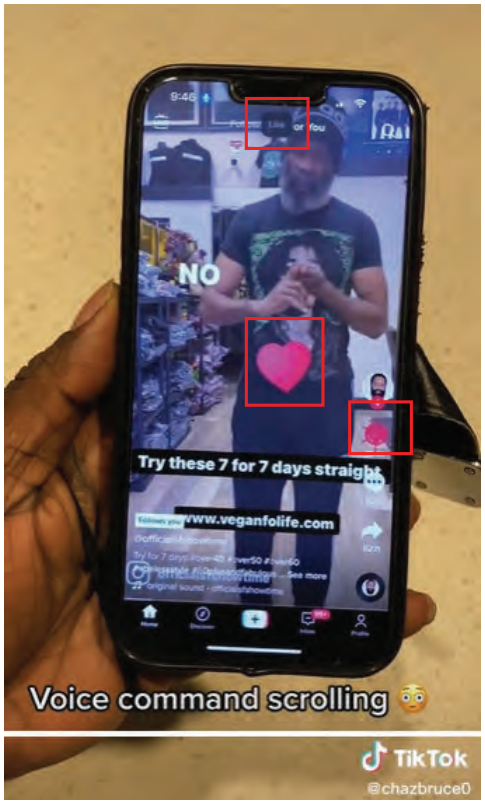
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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.15] receive the new-data object from the data capture device; | Defendant provides mobile client application that receive the new-data object from the data capture device; store the received new-data in the second memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| store the received new-data in the second memory device; and | For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device ("data capture device"), the Bluetooth device captures the user's command and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device, from the Bluetooth device, receives the user command in the form of signal notification that comprises the information related to the command ("receive the new-data object"). Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" (signal to notify and acquired new-data) on AirPods or earphones, the TikTok app receives the user's command in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command in order to like or scroll the subsequent video.<br><br>For example, the TikTok app stores the user's activity (liked and watched videos) including the commands ("received new-data") at least temporarily in the cache memory of the mobile device (in which the TikTok app is installed). |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

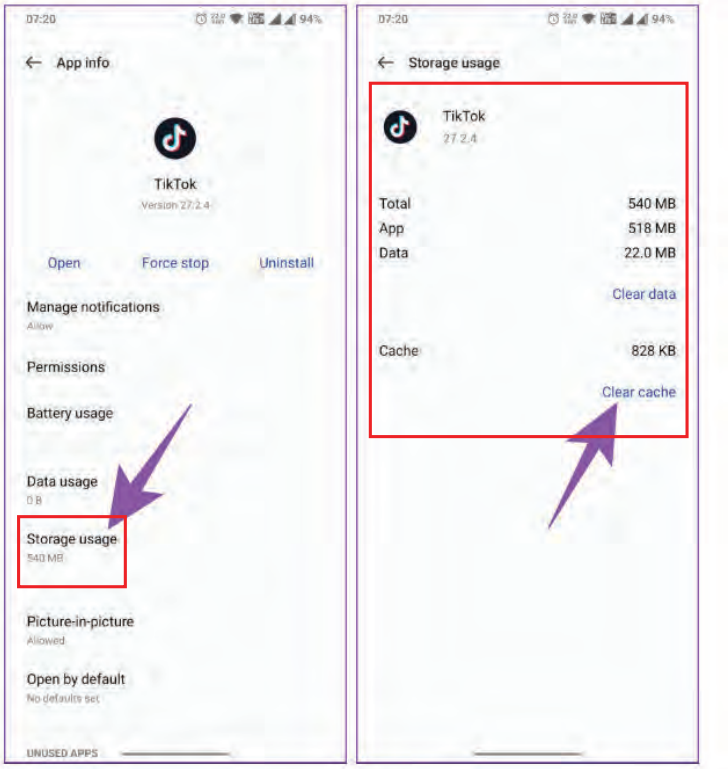
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings › Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br><br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

293

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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

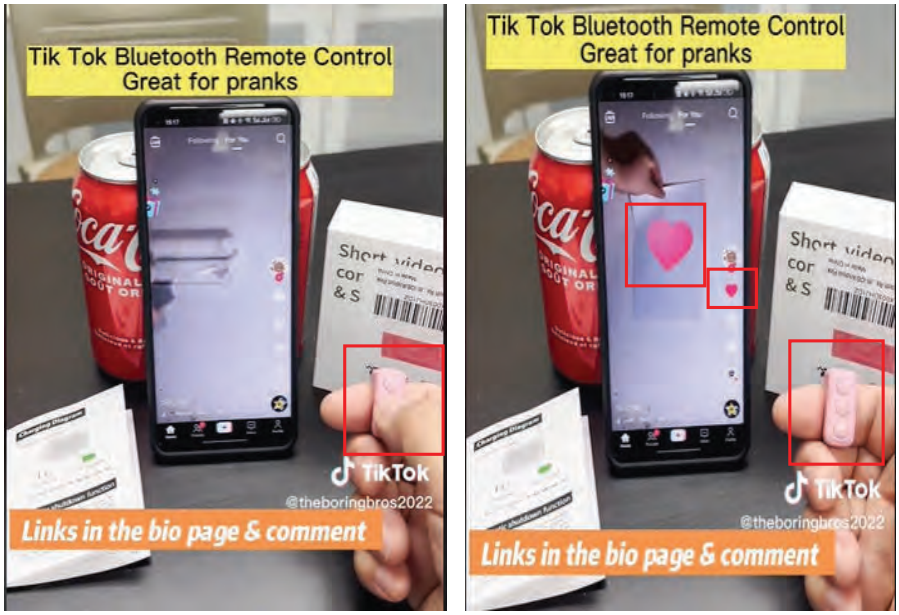
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

295



LifeScan, Inc. Ex. 1036
Page 929 of 2225
IPR2025-00102

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09 |

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>However, some have been noticing that the app is taking up a huge amount of space on their devices, sometimes gigabytes worth of storage. If you're looking to make more space on your device, here's how to reduce the amount of room TikTok is using on your phone.<br><br>Source: https://www.dexerto.com/entertainment/tiktok-storage-free-up-space-1775839/<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/ |

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| | **There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.16] use HTTP to transfer the new-data along with user information to a user data publishing website over the cellular data network, | Defendant provides mobile client application that uses HTTP to transfer the new-data along with user information to a user data publishing website over the cellular data network, wherein the user information corresponds to a user identifier that uniquely identifies a particular user of the user data publishing website and is used by the user data publishing website to publish the new-data for private consumption.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| wherein the user information corresponds to a user identifier that uniquely identifies a particular user of the user data publishing website and is used by the user data publishing website to publish the new-data for private consumption. | For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok App for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app. Additionally, the TikTok app provides the functionality to the user to hide their liked videos from their profile ("publish the new-data for private consumption").<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |

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| | **File upload**<br><br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br><br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide<br><br>**Get User Info**<br><br>There is a migration plan related to this API. Learn more here.<br><br>**Overview**<br><br>The `/v2/user/info/` endpoint returns some basic information for a given TikTok user.<br><br>**HTTP URL** https://open.tiktokapis.com/v2/user/info/<br>**HTTP Method** GET<br>**Scope** Needs relevant scopes to be authorized by the TikTok user through the authorization flow.<br><br>Source: https://developers.tiktok.com/doc/tiktok-api-v2-get-user-info |

## Information You Provide

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

Source: https://www.tiktok.com/legal/page/row/privacy-policy/en

You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.

You can save your login information:
- Across all devices using the same iCloud account on iOS.
- On a single device on Android.

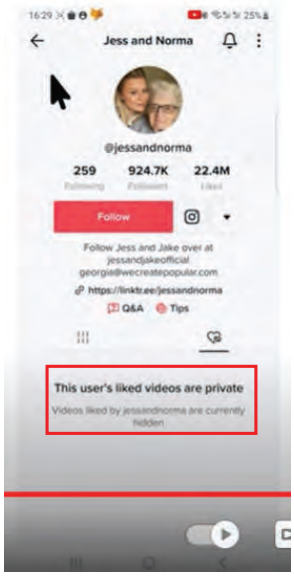
To save or delete your login information:
1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.
2. Enter the 6-digit code that was sent to the phone number associated with your account.
3. Once you're logged in, tap the **Menu** button at the top.
4. Tap **Settings and privacy**.
5. Tap **Security**.
6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.

If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.

Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information

302

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| | **How to manage who can view your liked videos**<br><br>You can choose to show or hide your liked videos on your profile. Your liked videos are hidden from your profile by default when you create an account.<br><br>To hide or show your liked videos on your profile:<br>1. In the TikTok app, tap **Profile** at the bottom.<br>2. Tap the **Menu** button at the top.<br>3. Tap **Settings and privacy**, then tap **Privacy**.<br>4. Tap **Liked videos** and select **Everyone** (public accounts only), **Followers** (private accounts only) or **Only me**.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking |




Source: https://www.youtube.com/watch?v=JzlTDsCIOQA&t=68s, at 1:10

If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**

As you watch videos, the app size increases and data is stored on your device and cached with other downloads.

Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/

304

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [5] The system of claim 4, wherein establishing the short-range paired wireless connection comprises the data capture device using an association protocol. | Defendant provides the system of claim 4, wherein establishing the short-range paired wireless connection comprises the data capture device using an association protocol.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the Bluetooth device and the mobile device are connected through an encrypted connection ("association protocol") created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>**Connectivity** Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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| | **Connectivity**<br><br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US<br><br>  <br>**SPECIFICATION**<br>• Bluetooth version:Bluetooth Ver.5.0<br>• Bluetooth name: D01<br>• Control Distance: 10 meters<br>• Transmit power: classll(- 6dBm~ + 4dBm)<br>• Battery Capacity: 200+25mAh<br><br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1 |

306

The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.

- Pairing: the process for creating one or more shared secret keys
- Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair
- Device authentication: verification that the two devices have the same keys
- Encryption: message confidentiality
- Message integrity: protects against message forgeries

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

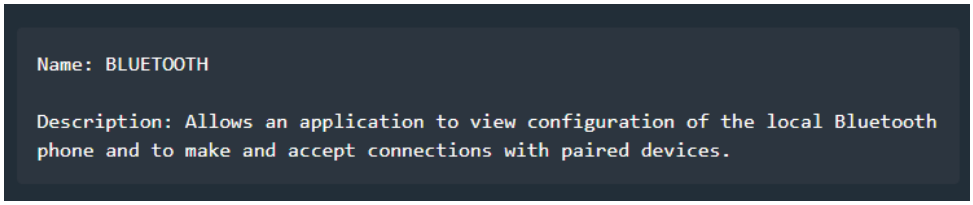
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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

307

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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

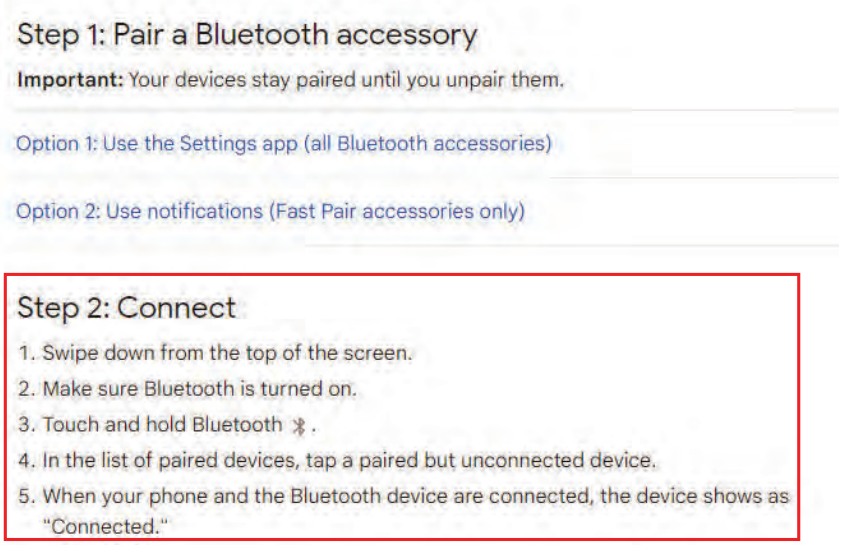
308

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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web |





LifeScan, Inc. Ex. 1036
Page 943 of 2225
IPR2025-00102




Source: https://support.google.com/android/answer/9075925?hl=en

310

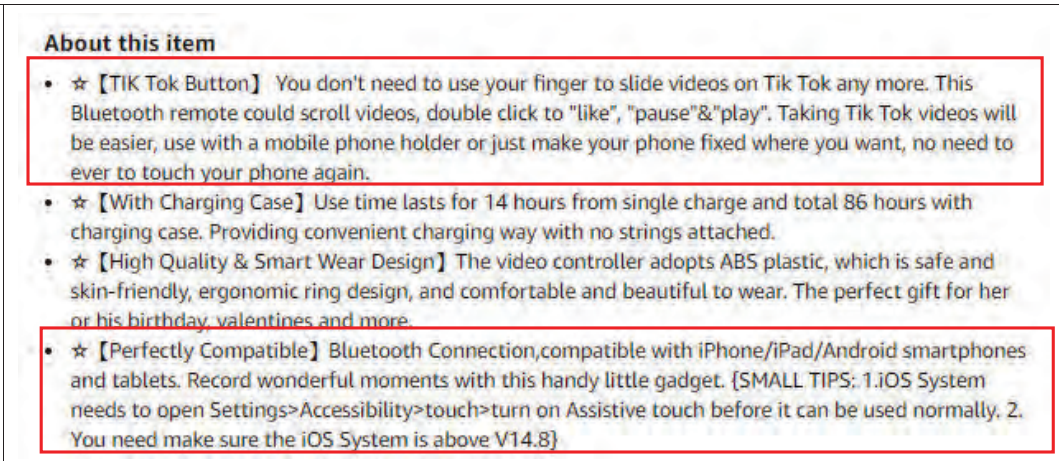


LifeScan, Inc. Ex. 1036
Page 944 of 2225
IPR2025-00102

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

311

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

313

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

### 4.2.9 Authentication

A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437

314

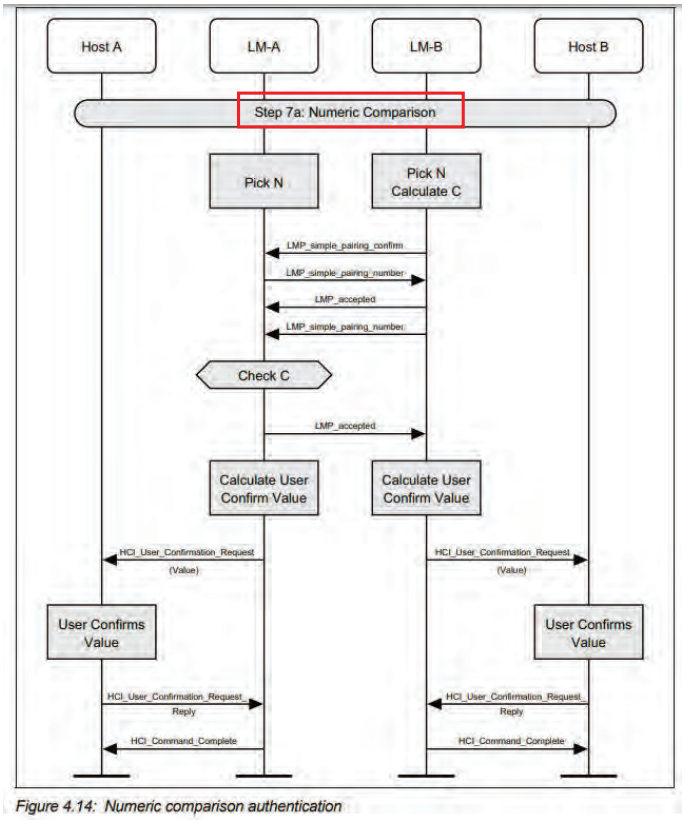



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

315



LifeScan, Inc. Ex. 1036
Page 949 of 2225
IPR2025-00102

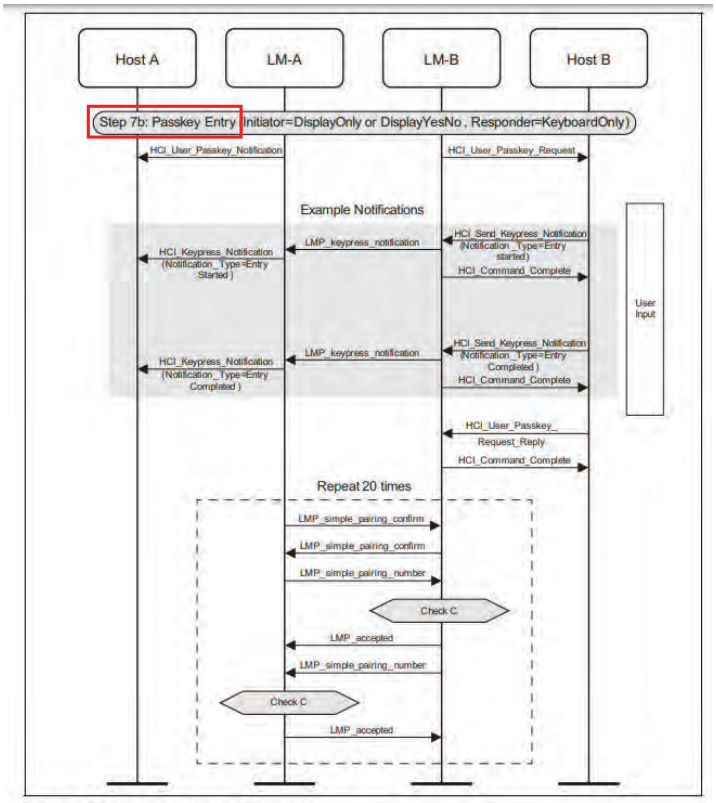



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

316

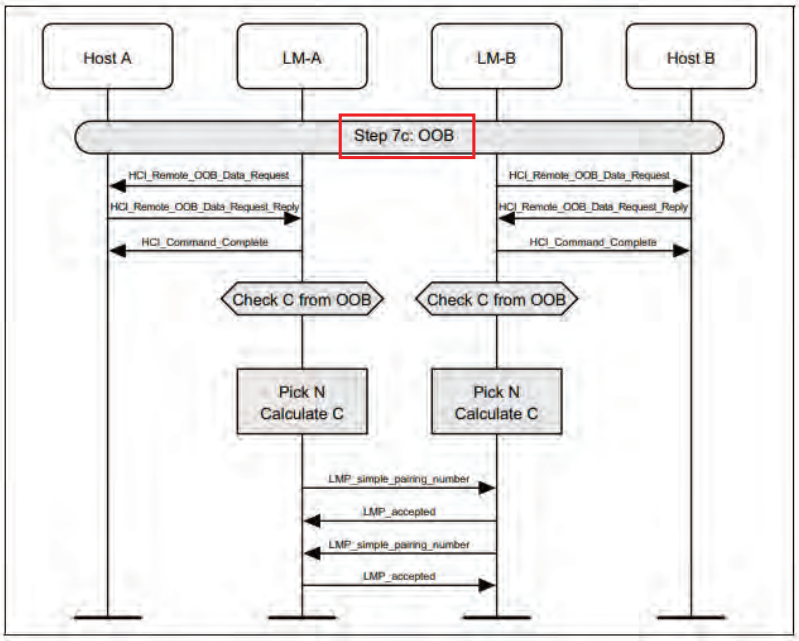



*Figure 4.20: OOB authentication (P-192)*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

317

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| | **Encryption Key Size Control Enhancements**<br>New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.<br>Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.<br>Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6] The system of claim 4, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing. | Defendant provides the system of claim 4, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device which comprises Bluetooth ("short-range paired wireless connection"). Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices. |

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| | Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>**Bluetooth** — Allows to to connect to paired bluetooth devices.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63 |

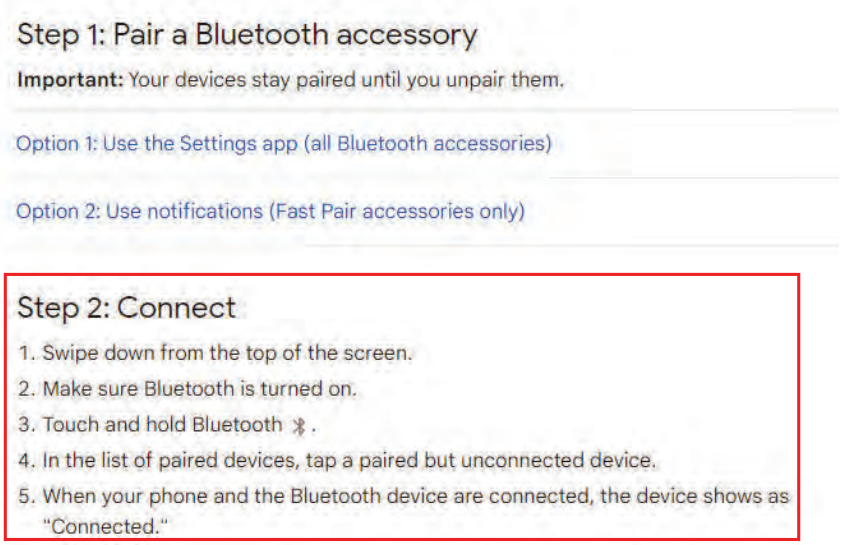




LifeScan, Inc. Ex. 1036
Page 953 of 2225
IPR2025-00102

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| | BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity Bluetooth 5.0 wireless technology<br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>Connectivity<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US |

320

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| |  <br>Source: https://support.google.com/android/answer/9075925?hl=en |



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classll(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

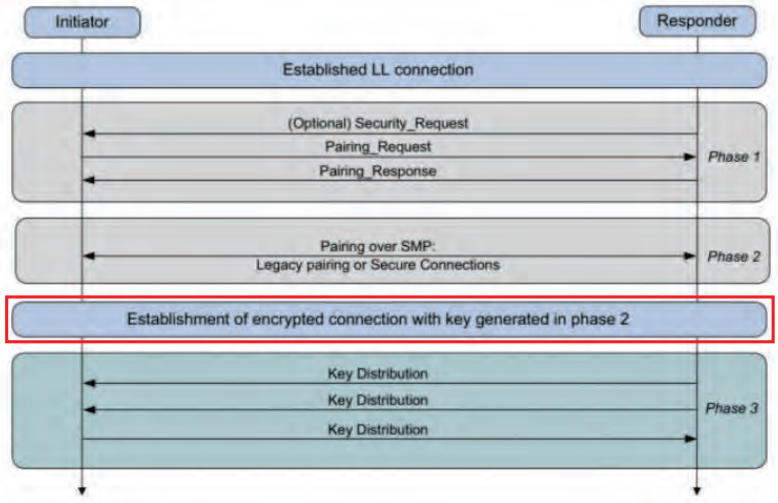
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**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

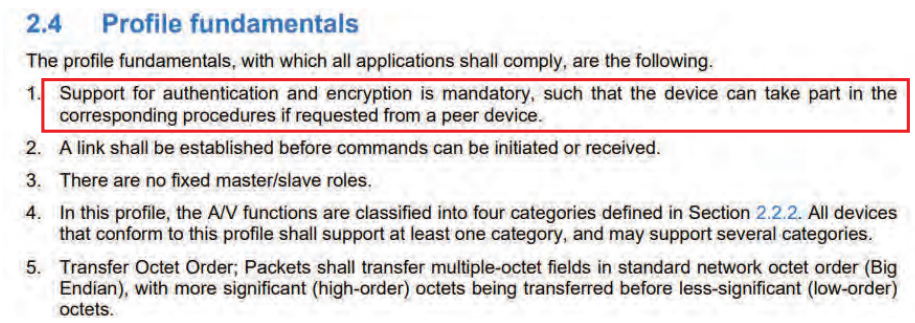
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Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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| | In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>  |

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Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

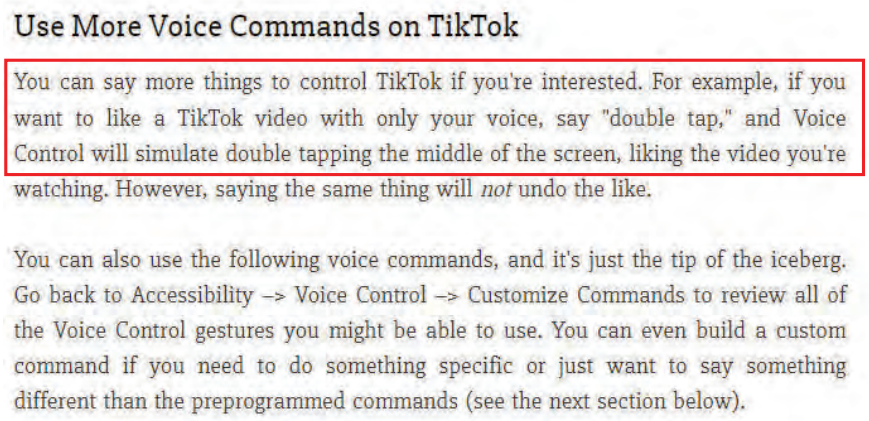


## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

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2. A link shall be established before commands can be initiated or received.
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4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20



## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

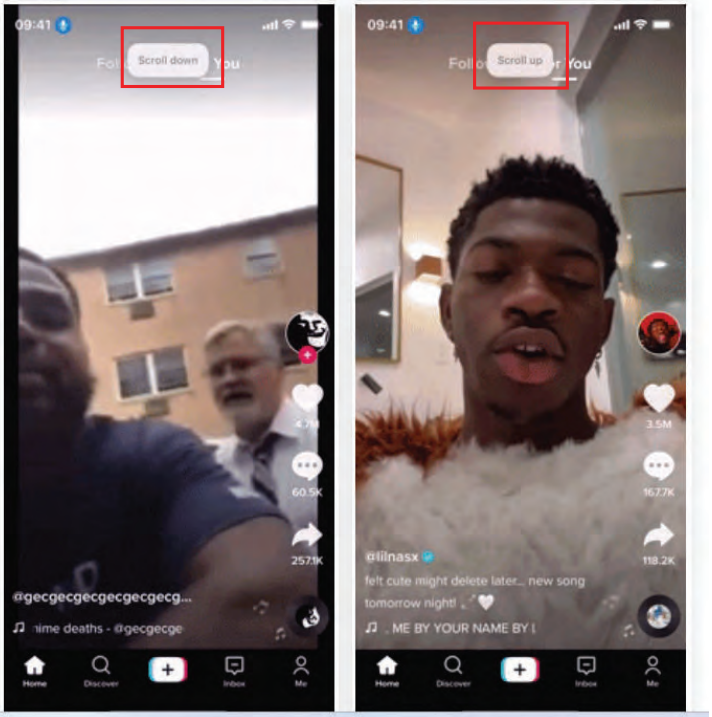
Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7] The system of claim 4, wherein the new-data comprises one or more of audio data, video data, image data, text data, digital data, and data associated with the new-data. | Defendant provides the system of claim 4, wherein establishing the short-range paired wireless connection comprises the data capture device using an association protocol.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. |

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| | For example, the Bluetooth devices such as AirPods or earphones capture the audio command ("audio data") provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("new-data") on AirPods or earphones, the TikTok app receives the user's command in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as a signal notification in order to like or scroll the subsequent video.<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

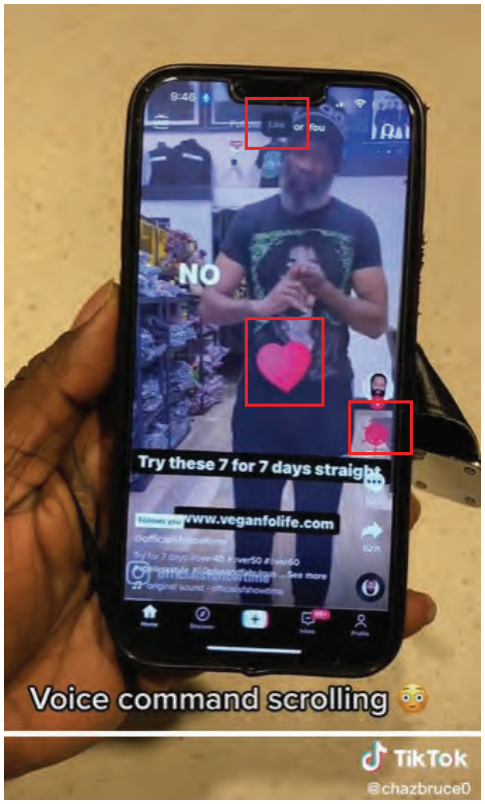
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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



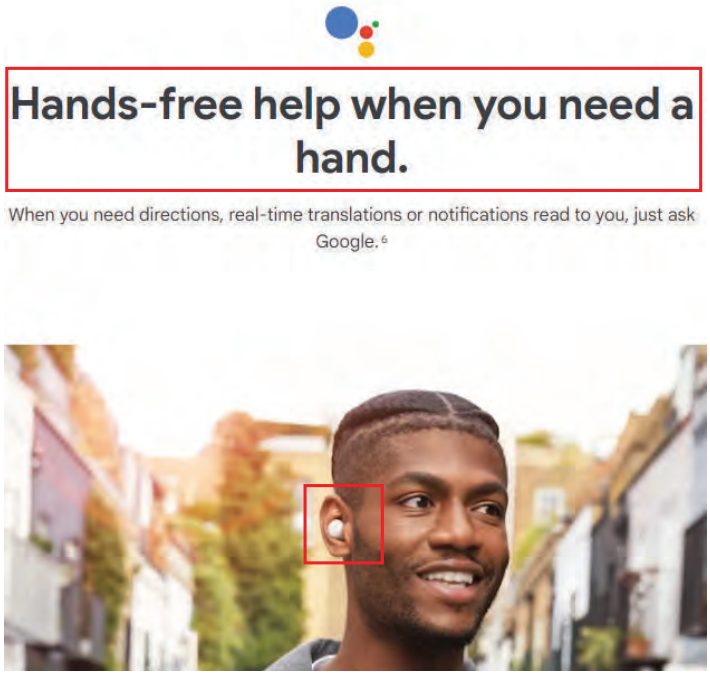

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

330




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

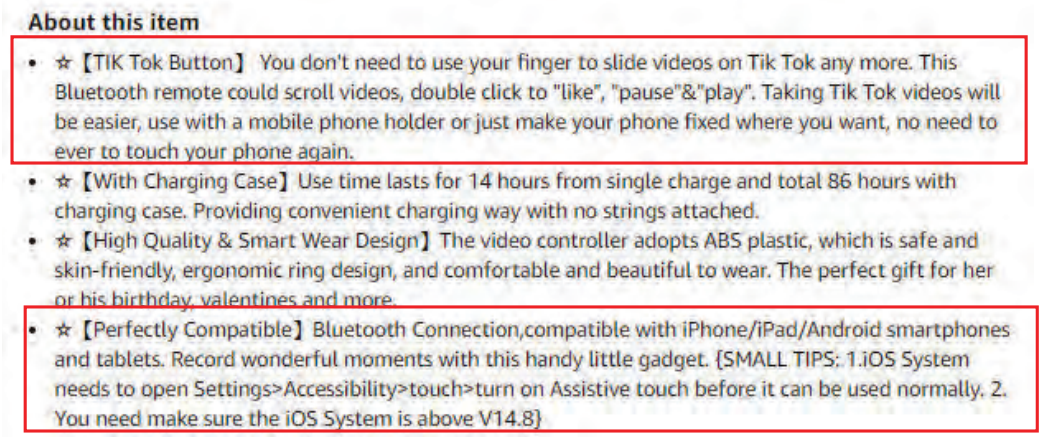
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 967 of 2225
IPR2025-00102

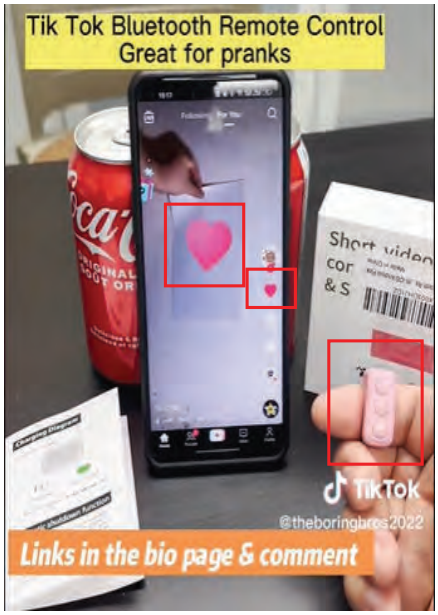


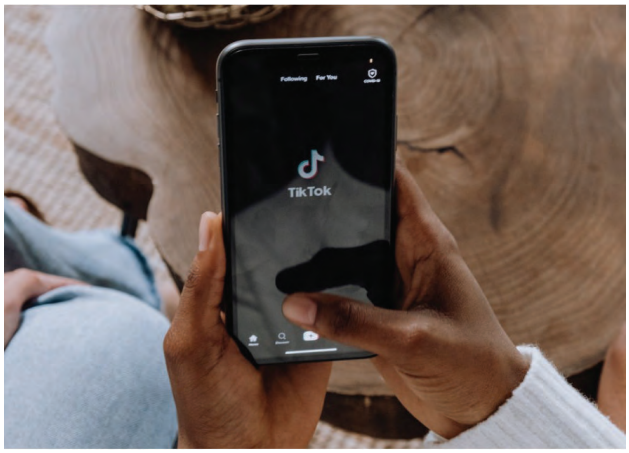
**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant |
| [8] The system of claim 4, wherein a graphical user interface (GUI) is provided in the cryptographically | Defendant provides the system of claim 4, wherein a graphical user interface (GUI) is provided in the cryptographically authenticated cellular phone, and wherein the graphical user interface (GUI) is for the received new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents |

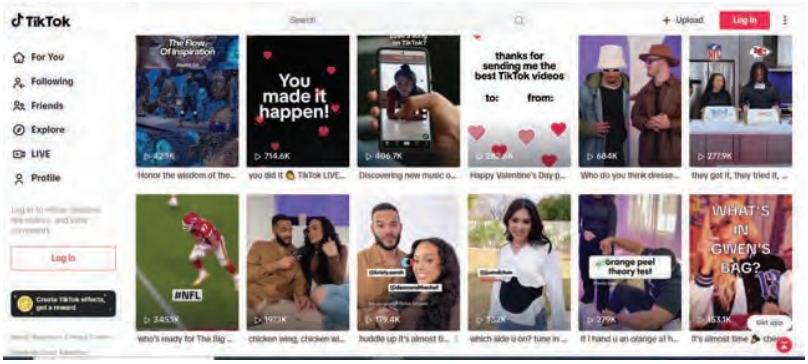
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| authenticated cellular phone, and wherein the graphical user interface (GUI) is for the received new-data. | For example, the TikTok app installed on the mobile device (“cellular phone”) comprises graphical user interface (“GUI”) which allows the user to access the liked and watched videos (“new-data”).<br>  <br><br>Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber |

## Onboarding - It starts with a Swipe

The process of getting hooked to TikTok starts right away in the users onboarding experience. TikTok asks users to choose their interests. This information is used for personalizing each user's feed. This is a common practice for products with curated content and used by many different apps.

But TikTok's user onboarding is really smart. It encourages users to scroll through the feed and tells them that the content will become more relevant and personalized the more they use it. While this is true for many algorithms, many apps don't tell users this explicitly. By doing so, TikTok encourages users to continue using the app for a better experience

Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber

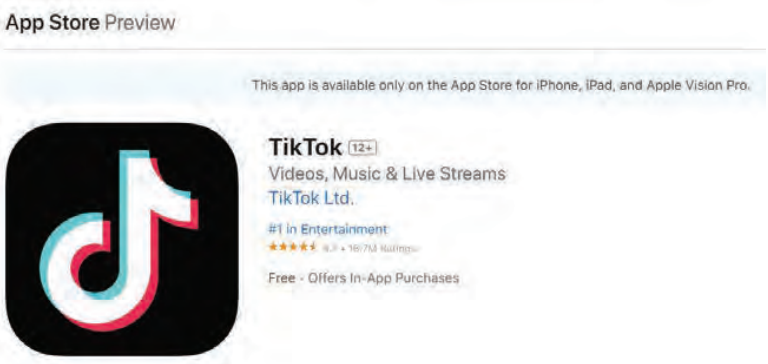


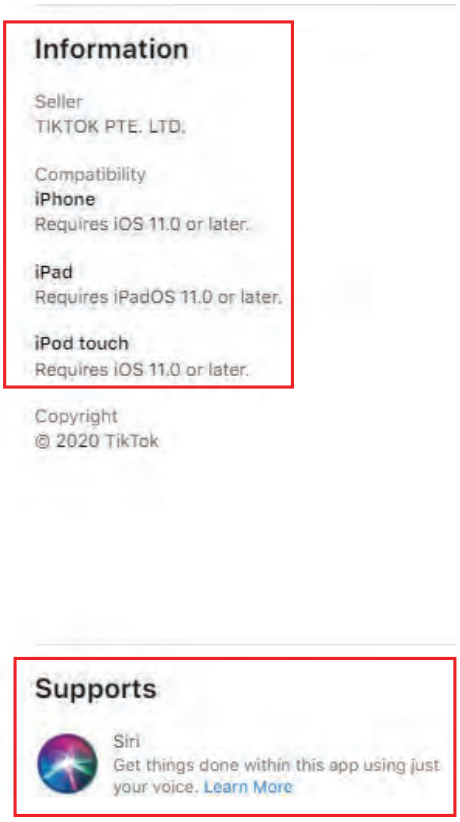

Source: https://www.tiktok.com/@tiktok

337

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant |
| [9.P] A short-range wireless enabled cellular phone, comprising: | ByteDance ("Defendant") makes, uses, sells, and/or offers to sell a short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, Defendant provides TikTok[5] app which includes the functionality of TikTok Shop that enables merchants to sell products and allows the users to buy products from the TikTok app. TikTok App enables merchants to sell their products including, but not limited to, iPhones and Android phones ("a short range wireless enabled cellular phone") to TikTok app users.<br><br>For example, TikTok app is installed in a mobile device such as an iPhone or an Android phone. The users of the TikTok app use the mobile device while operating the TikTok app. Further, the TikTok app installed in the mobile device can be remotely controlled through Bluetooth devices[6] such as AirPods and Bluetooth remotes. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided to the Bluetooth devices. |

[5] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.
[6] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

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| |  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

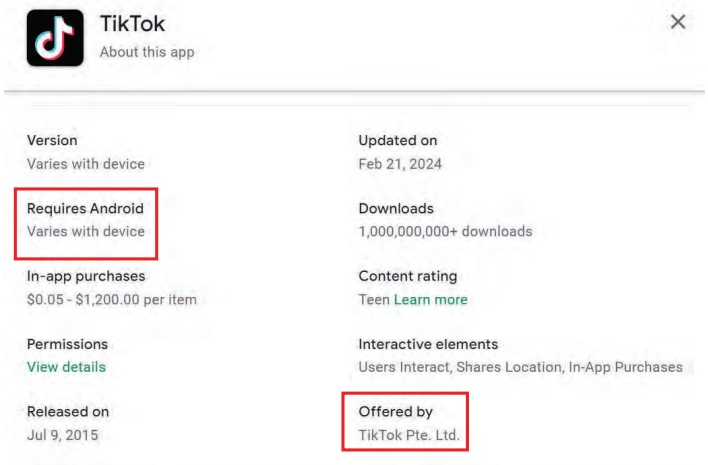



Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

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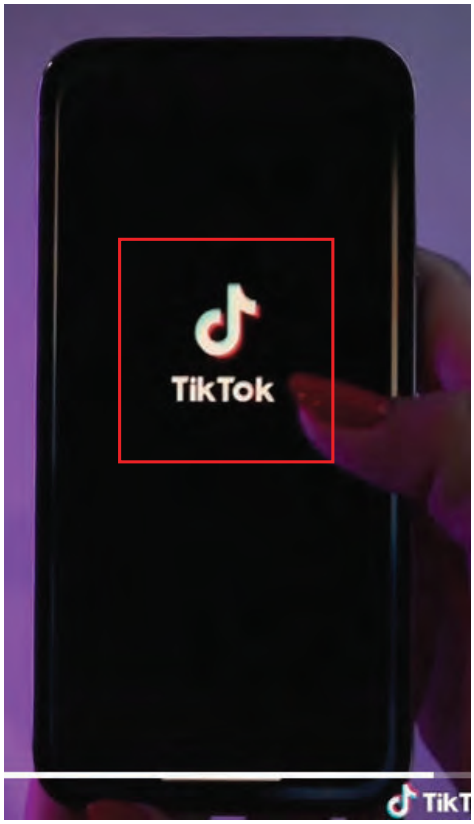



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

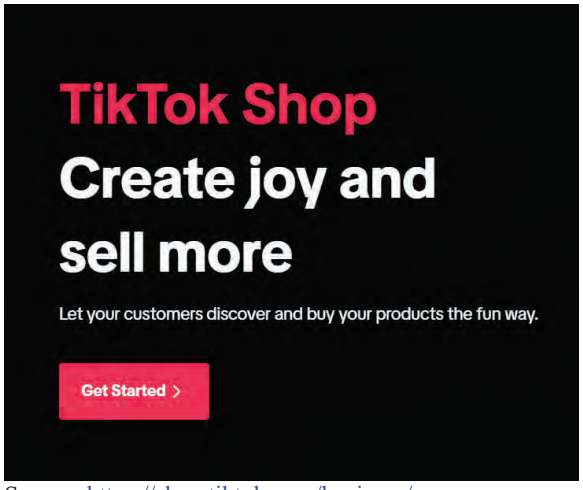



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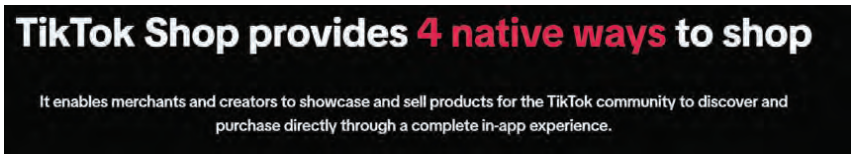
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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

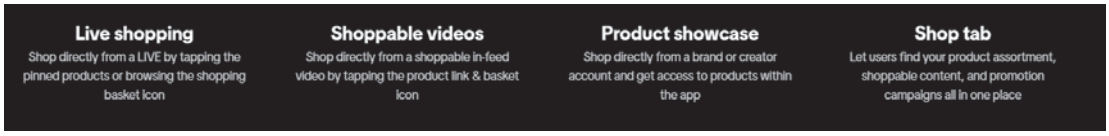
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Source: https://shop.tiktok.com/business/en

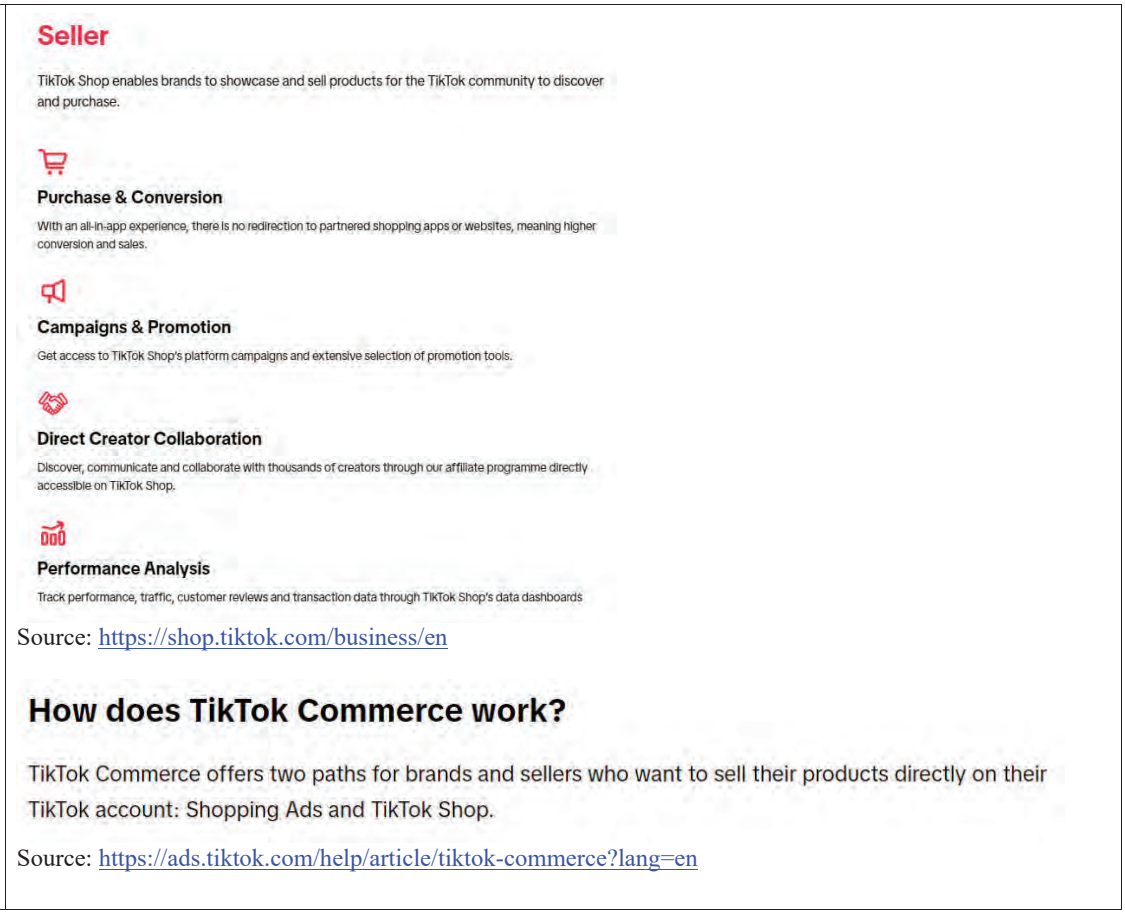



Source: https://shop.tiktok.com/business/en




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343




Source: https://shop.tiktok.com/business/en

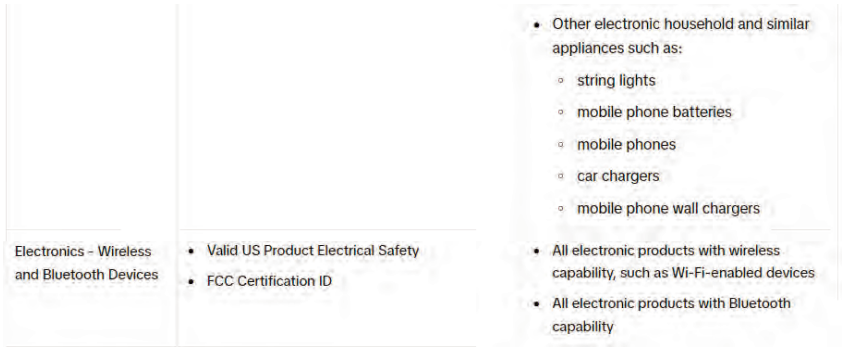
## How does TikTok Commerce work?

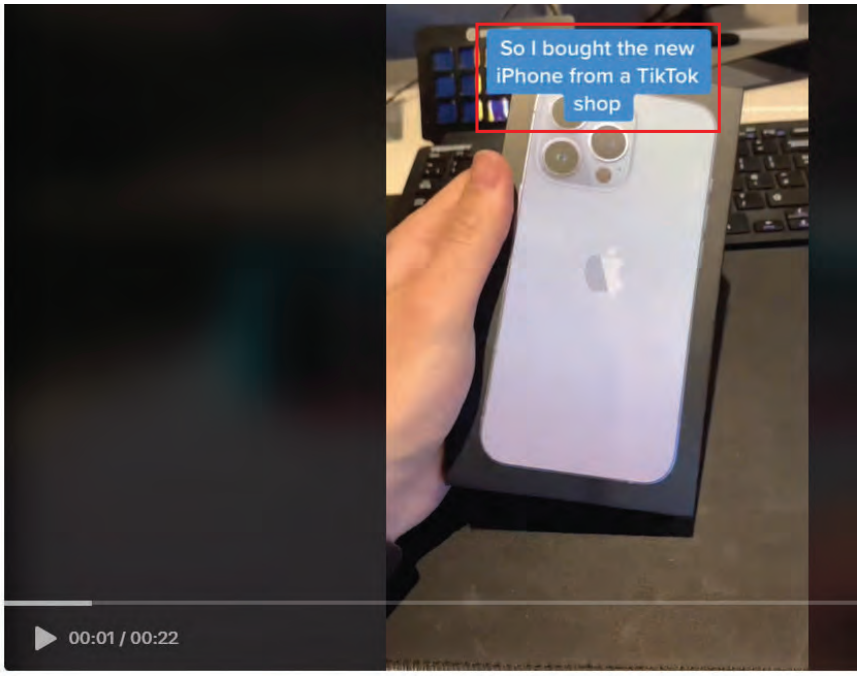
TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.

Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en

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| | **About TikTok Shop**<br><br>TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.<br><br>Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.<br><br>• See TikTok Shop and Showcase<br>• See How to Add Product Links to TikTok Videos<br><br>With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en<br><br>**Electrical Products and Electronics**<br><br>Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.<br><br>Electrical and electronic products include but are not limited to:<br><br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

345

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| |  <br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |



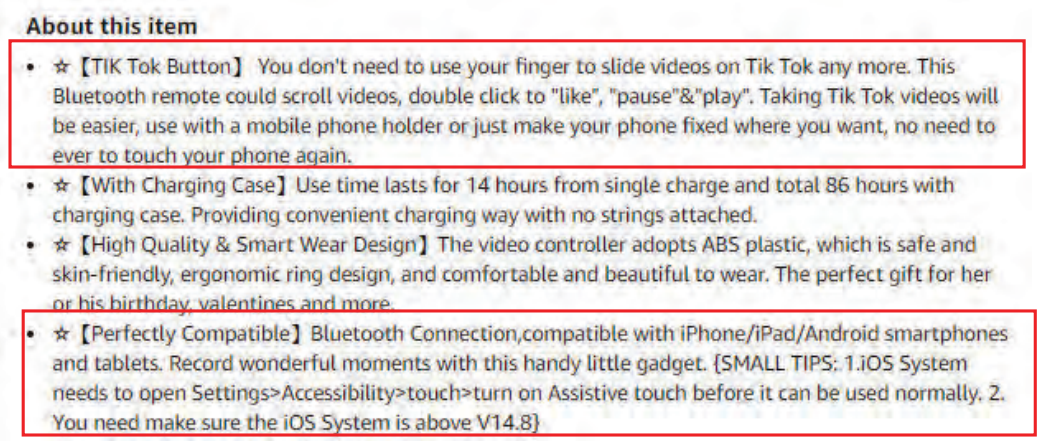

So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime

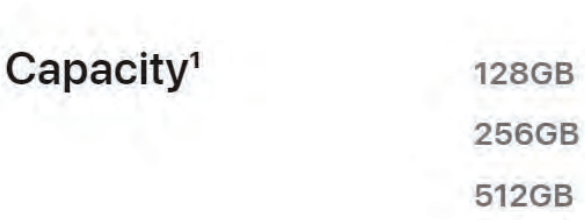
Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502, at 0:01

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

348

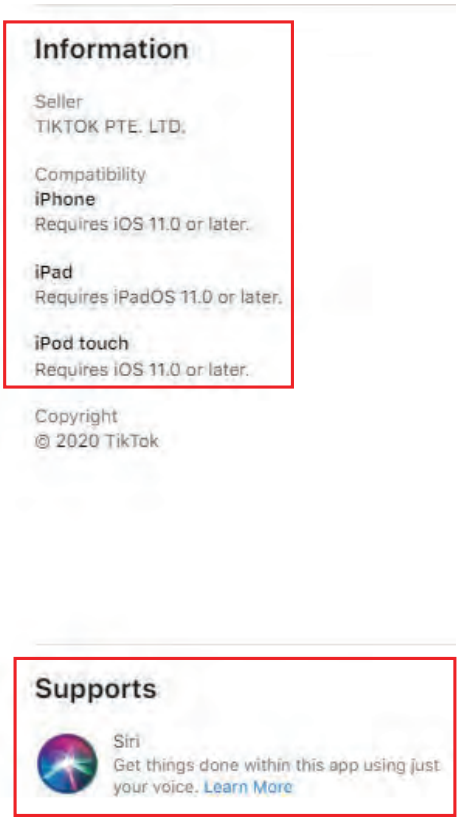
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.1] a memory device; a processor coupled to said memory device; | Defendant provides a memory device; a processor coupled to said memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the users of the TikTok app, while operating the TikTok app, utilize a mobile device that comprises a memory (“memory device”) and a processor coupled to the memory. The memory is utilized to store the TikTok app and the information related to it and the processor is utilized to execute the computer-readable instructions related to the TikTok app. |

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| |  <br>Source: https://www.apple.com/iphone-13/specs/<br>  <br>Source: https://www.apple.com/iphone-13/specs/ |

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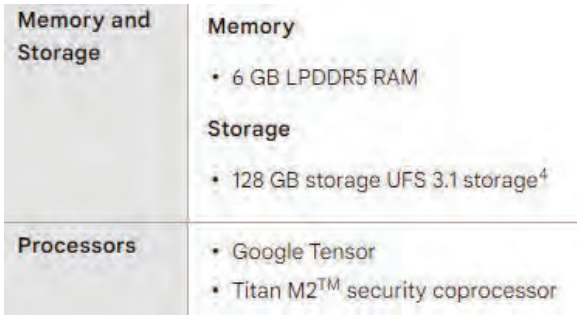


LifeScan, Inc. Ex. 1036
Page 984 of 2225
IPR2025-00102



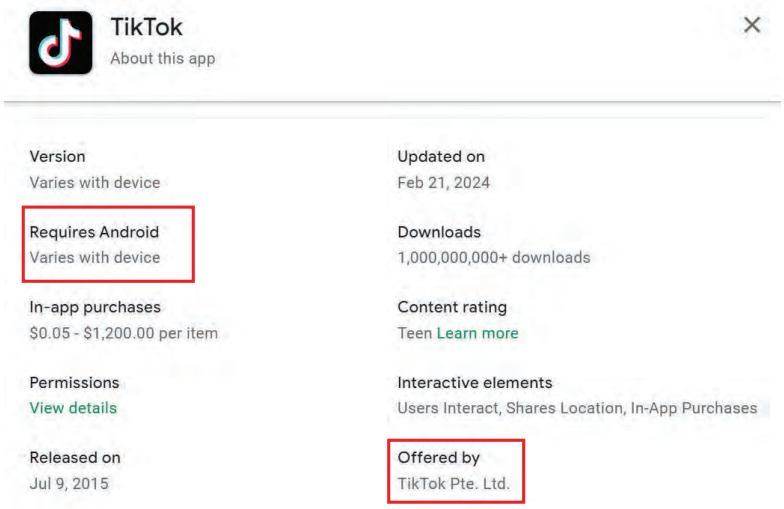

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

351



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| Memory and Storage | **Memory**<br>• 6 GB LPDDR5 RAM<br>**Storage**<br>• 128 GB storage UFS 3.1 storage[4] |
| Processors | • Google Tensor<br>• Titan M2™ security coprocessor |

Source: https://support.google.com/pixelphone/answer/7158570?hl=en



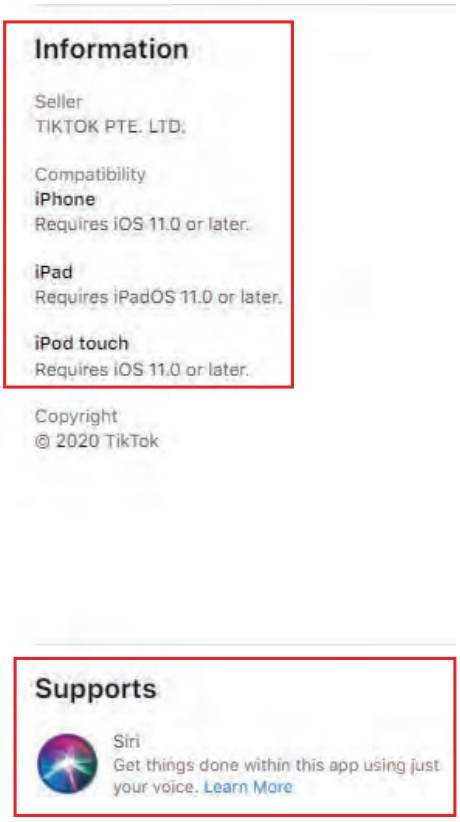

Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.2] a cellular network communication device configured to connect to internet via a cellular data network; | Defendant provides a cellular network communication device configured to connect to internet via a cellular data network.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes mobile device which comprises a cellular network communication device designed to establish an internet connection through Wi-Fi or a cellular data network. The user of the TikTok app uses the established internet connection to access the TikTok app and perform functions such as 'scrolling'/'liking' the video. |



LifeScan, Inc. Ex. 1036
Page 987 of 2225
IPR2025-00102

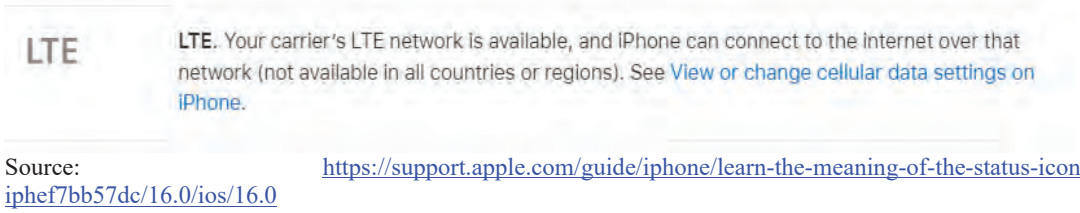



Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

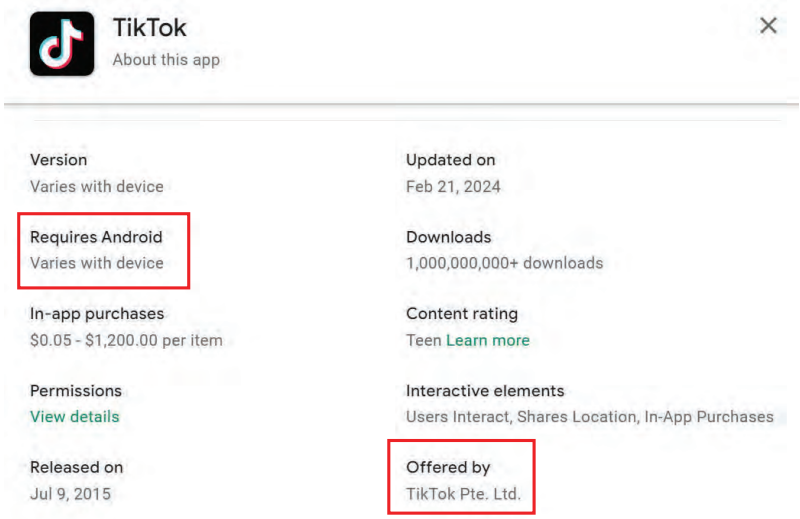
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| | If iPhone is connected to the internet using the cellular data network, an icon identifying the cellular network appears in the status bar.<br><br>5G, LTE, 4G, and 3G service on GSM cellular networks support simultaneous voice and data communications. For all other cellular connections, you can't use internet services while you're talking o the phone unless iPhone also has a Wi-Fi connection to the internet. Depending on your network connection, you may not be able to receive calls while iPhone transfers data over the cellular network—when downloading a webpage, for example.<br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Choose cellular data options for data usage, performance, battery life, and more**<br><br>To turn Cellular Data on or off, go to Settings > Cellular.<br><br>To set options when Cellular Data is on, go to Settings > Cellular > Cellular Data Options, then do any of the following:<br><br>• *Reduce cellular usage:* Turn on Low Data Mode, or tap Data Mode, then choose Low Data Mode. This mode pauses automatic updates and background tasks when iPhone isn't connected to Wi-Fi.<br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>  **Cell signal.** The number of bars indicates the signal strength of your cellular service. If there's no signal, "No Service" appears.<br><br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0 |

355

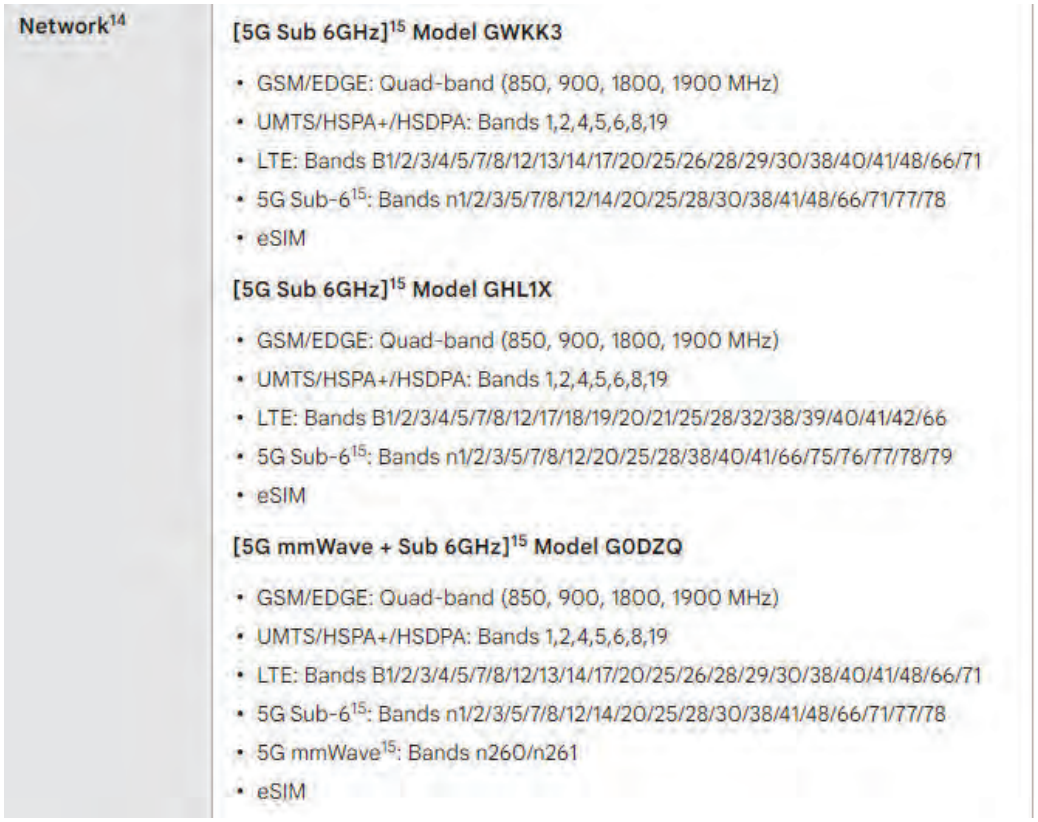



Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

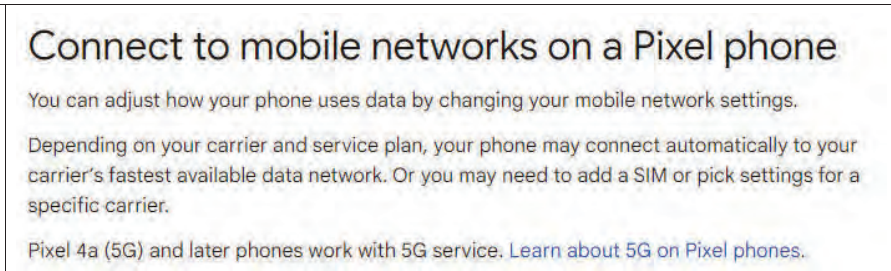
356



| Network[14] | |
|---|---|
| | **[5G Sub 6GHz][15] Model GWKK3** |
| | • GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz) |
| | • UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19 |
| | • LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71 |
| | • 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78 |
| | • eSIM |
| | **[5G Sub 6GHz][15] Model GHL1X** |
| | • GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz) |
| | • UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19 |
| | • LTE: Bands B1/2/3/4/5/7/8/12/17/18/19/20/21/25/28/32/38/39/40/41/42/66 |
| | • 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/20/25/28/38/40/41/66/75/76/77/78/79 |
| | • eSIM |
| | **[5G mmWave + Sub 6GHz][15] Model G0DZQ** |
| | • GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz) |
| | • UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19 |
| | • LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71 |
| | • 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78 |
| | • 5G mmWave[15]: Bands n260/n261 |
| | • eSIM |

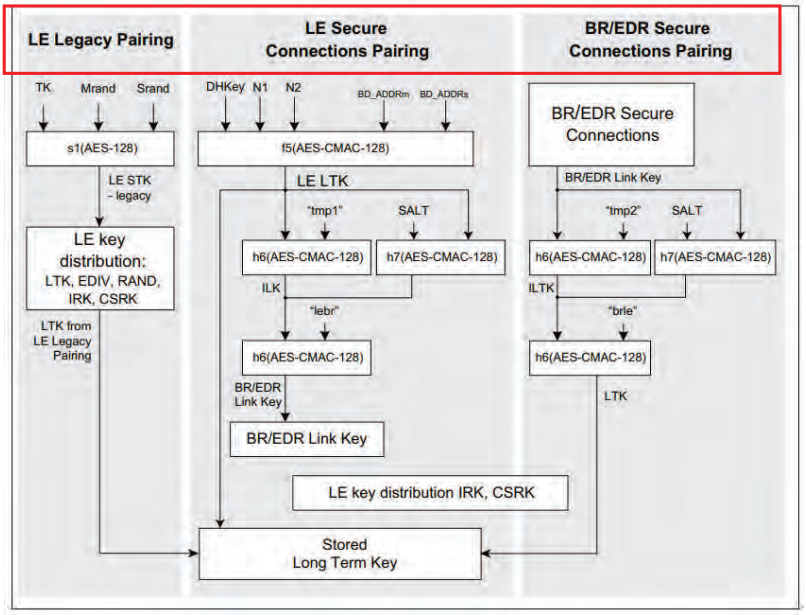
Source: https://support.google.com/pixelphone/answer/7158570?hl=en

357

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|---|---|
| |  <br>Source: https://support.google.com/pixelphone/answer/2926415?hl=en<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.3] a short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled cellular phone and a short-range wireless enabled data capture device, wherein the short-range wireless enabled data capture device is configured to cryptographically authenticate identity of the short-range wireless enabled cellular phone when establishing the | Defendant provides a short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled cellular phone and a short-range wireless enabled data capture device, wherein the short-range wireless enabled data capture device is configured to cryptographically authenticate identity of the short-range wireless enabled cellular phone when establishing the short-range paired wireless connection, and wherein establishing the short-range paired wireless connection comprises the short-range wireless enabled mobile device using an association protocol.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device ("short-range wireless enabled cellular phone") which comprises Bluetooth ("short-range wireless communication device"). Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("short-range wireless enabled data capture device"). The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the mobile device and the Bluetooth device are connected through an encrypted connection ("association protocol") created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established |

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| short-range paired wireless connection, and wherein establishing the short-range paired wireless connection comprises the short-range wireless enabled mobile device using an association protocol; | between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |

359




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

| | | |
|---|---|---|
| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

360

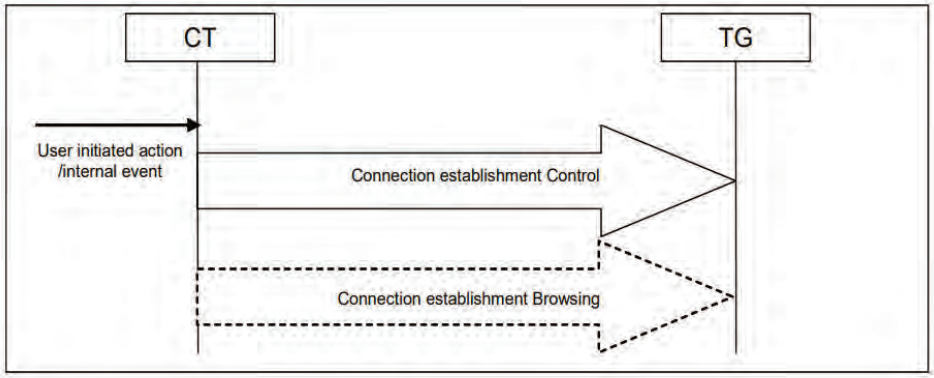



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

361

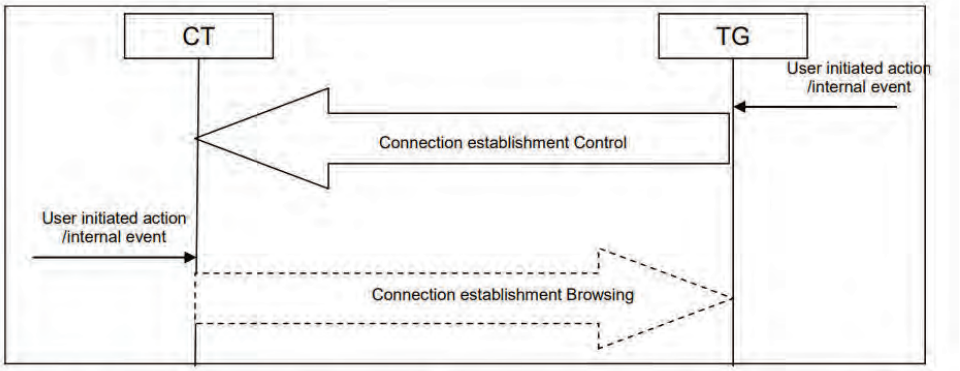



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

362

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|---|---|
| | Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity Bluetooth 5.0 wireless technology<br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

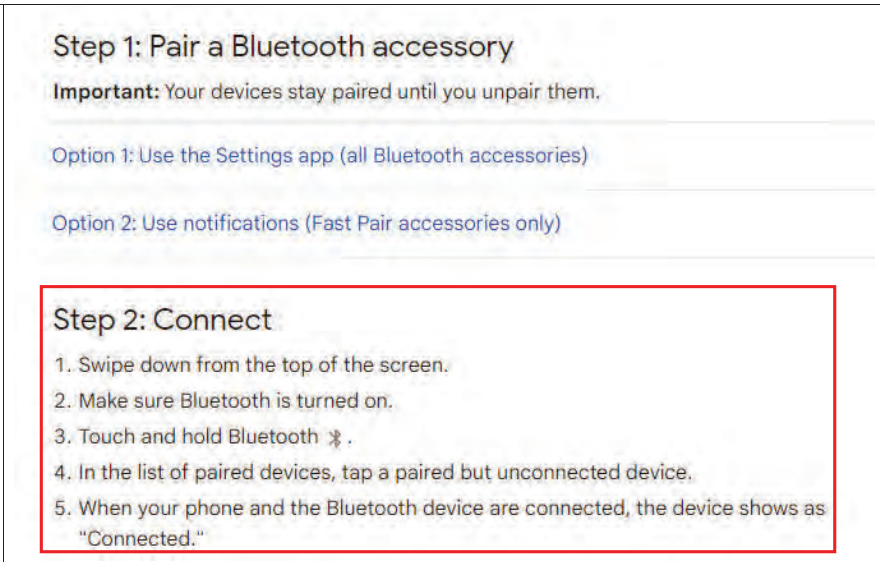
363

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|---|---|
| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web<br>**Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US |

364



LifeScan, Inc. Ex. 1036
Page 998 of 2225
IPR2025-00102




Source: https://support.google.com/android/answer/9075925?hl=en

365



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classll(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

### Bluetooth permissions

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

**About this item**

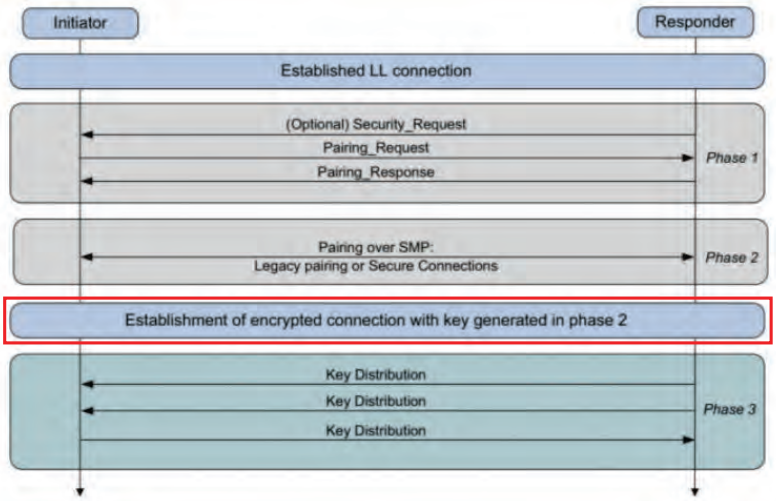
- ☆【TIK Tok Button】You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

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|---|---|
| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

Exhibit 5

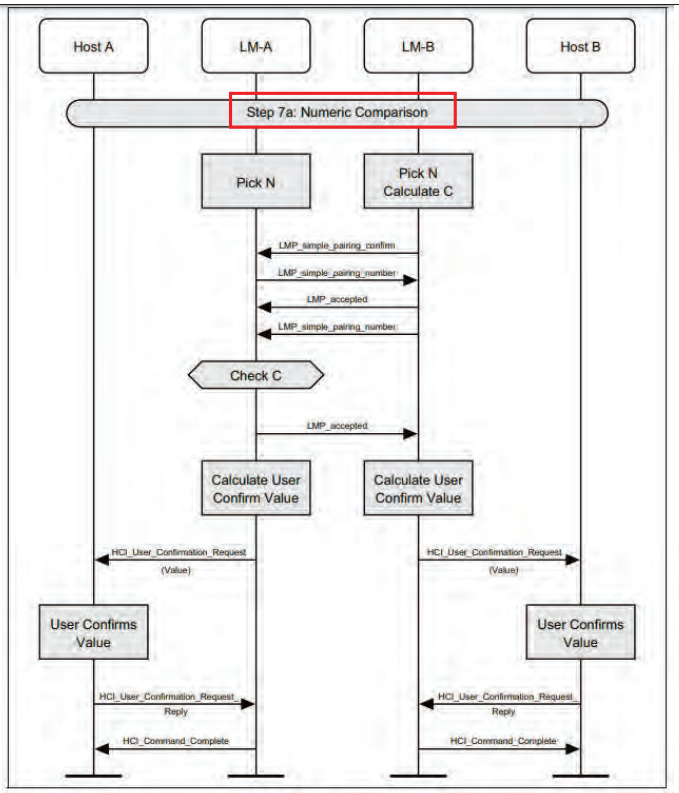



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

371

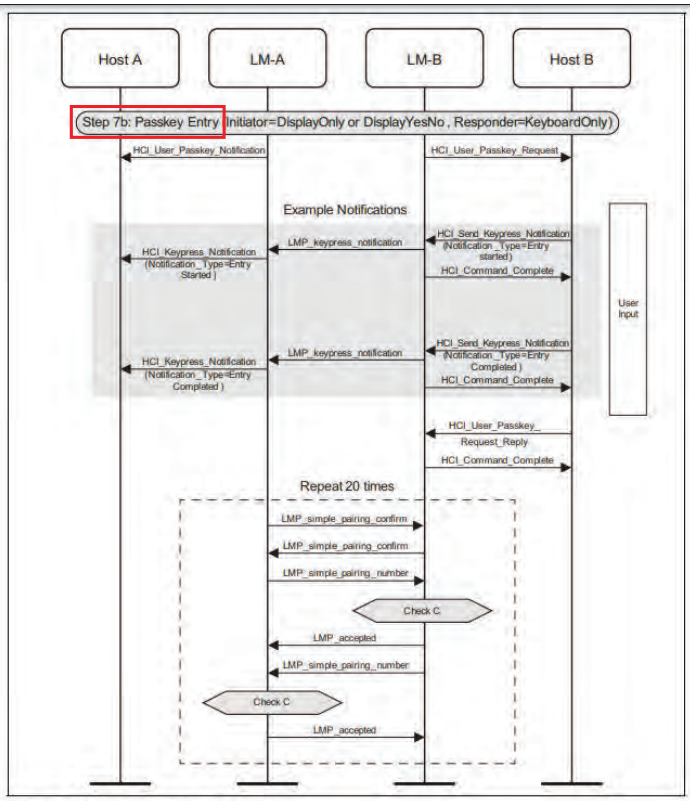



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

372

Exhibit 5

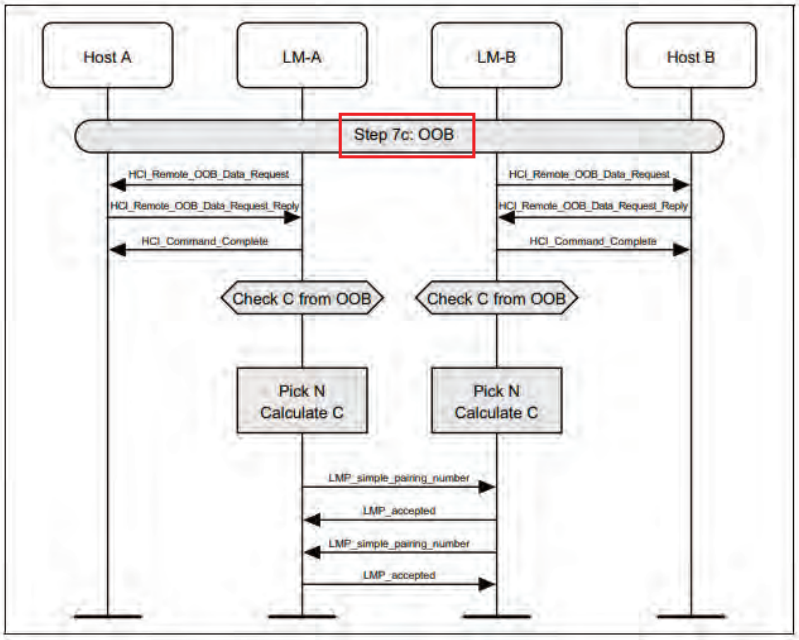
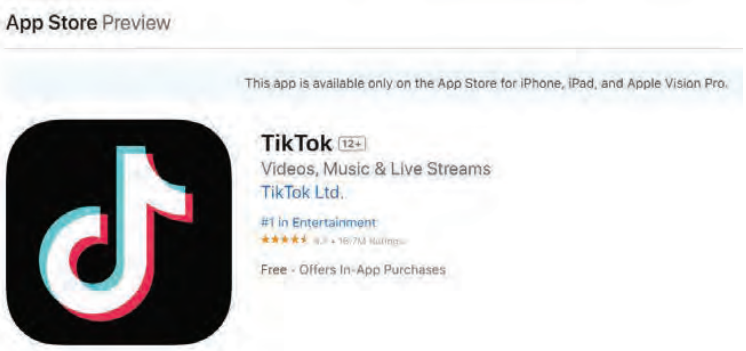



*Figure 4.20: OOB authentication (P-192)*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

373

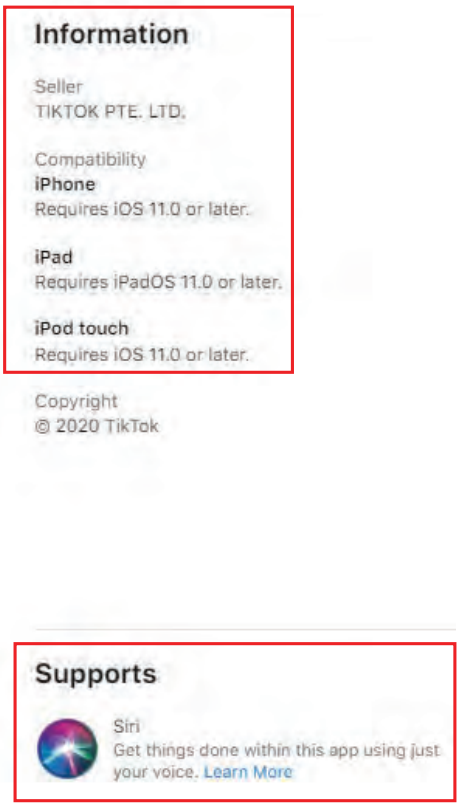
| | |
|---|---|
| | **Encryption Key Size Control Enhancements**<br>New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.<br>Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.<br>Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.4] a mobile client application for the short-range wireless enabled cellular phone comprising executable instructions that, when executed by the processor controls the processor to: | Defendant provides a mobile client application for the short-range wireless enabled cellular phone comprising executable instructions.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app ("mobile client application") is installed in the mobile device ("short-range wireless enabled cellular phone") and can be remotely controlled through Bluetooth devices such as AirPods, earphones, or Bluetooth remotes. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to receive and execute the inputs (using executable instructions) provided by the user through the Bluetooth devices and perform corresponding functions such as 'scrolling'/'liking' the video.<br><br>For example, the TikTok app for iOS allows a user to configure gestures for phrases such that when the user provides an audio command corresponding to the phrase, a gesture is automatically performed on the user interface of the TikTok app causing a functionality such as 'liking' or 'scrolling' of a video in the app. The custom phrases and corresponding gestures for the TikTok app are set in the Voice Control settings of iOS. For example, when the phrase "double tap" and a custom gesture causing a double tap on the screen is configured for the TikTok app, then the audio command "double tap" provided by the user on the Bluetooth device (such |

| | |
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| | as AirPods) causes the double tapping gesture to be performed in the TikTok app leading to 'liking' of the video.<br>  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |



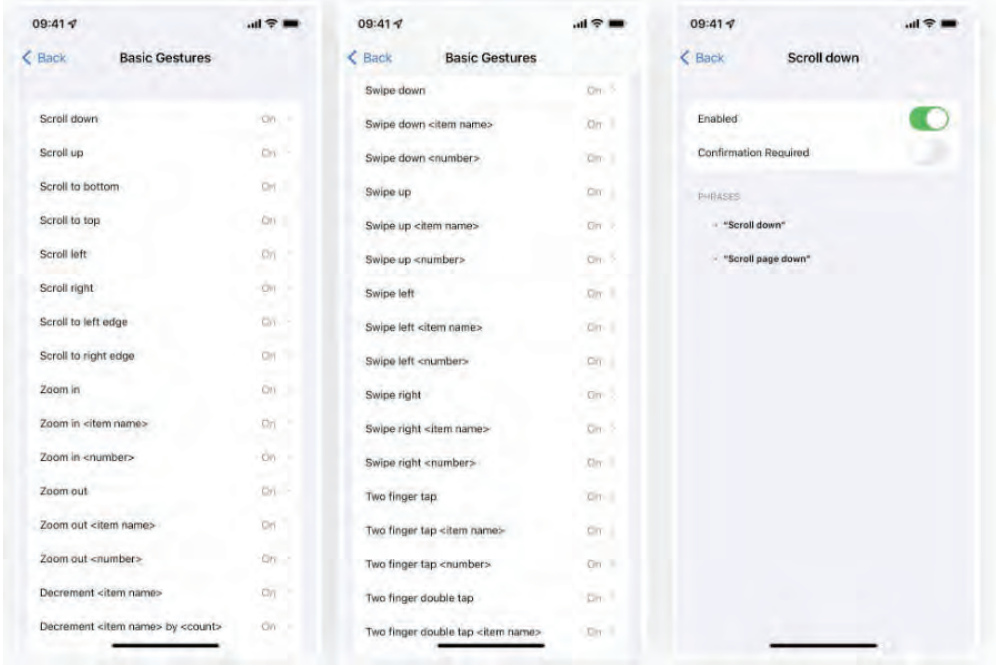


LifeScan, Inc. Ex. 1036
Page 1009 of 2225
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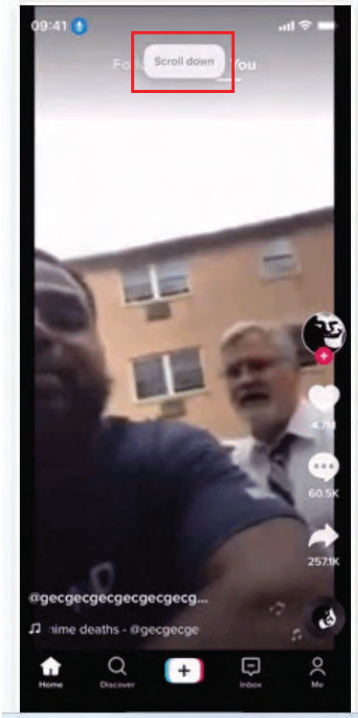

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

376




Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/#

| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

379

Exhibit 5

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| | **If an app would like to use Bluetooth on your device**<br>Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.<br><br>**About Bluetooth privacy settings**<br>Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.<br>Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.<br>Source: https://support.apple.com/en-us/HT210578 |





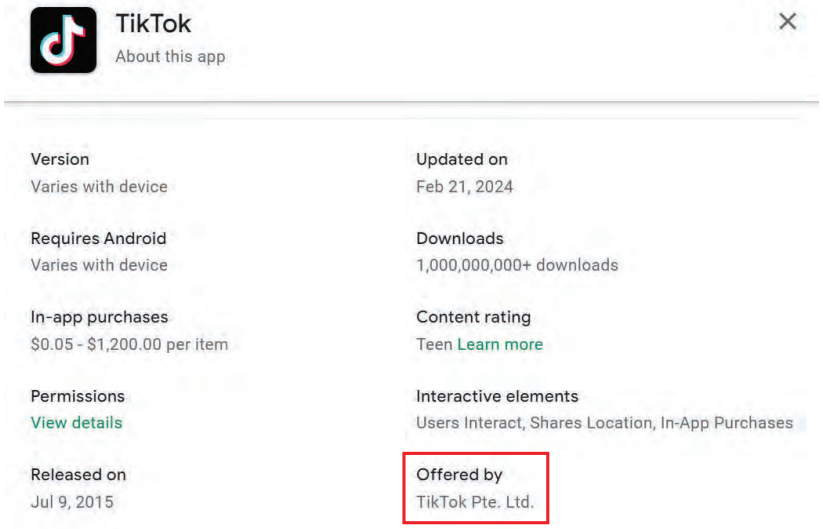
LifeScan, Inc. Ex. 1036
Page 1014 of 2225
IPR2025-00102

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>For example, the TikTok app when installed on an Android phone such as Pixel 6a (used herein as an exemplary Android-based device), allows the user to turn on Voice Access feature in the Android phone's Accessibility settings to perform multiple functionalities such as 'liking' the content and 'scrolling' the videos while accessing the TikTok app. When an audio command corresponding to the desired functionality is provided through the Bluetooth device, Pixel 6a receives the command and the TikTok app processes the executed |

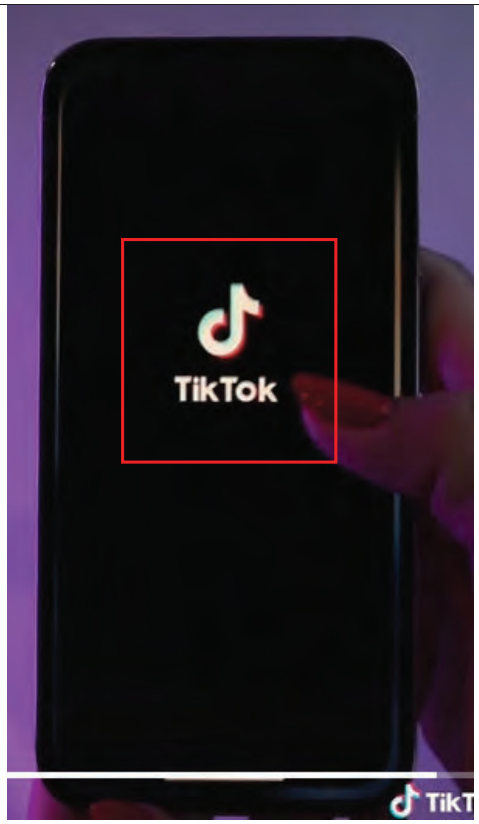
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| | command and performs the corresponding functionality such as scrolling/liking the video. For example, when Voice Access is enabled while surfing the TikTok app and the user provides an audio input “Scroll down” on the Bluetooth device such as an earphone, the TikTok app scrolls down to load the next video.<br>  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

382

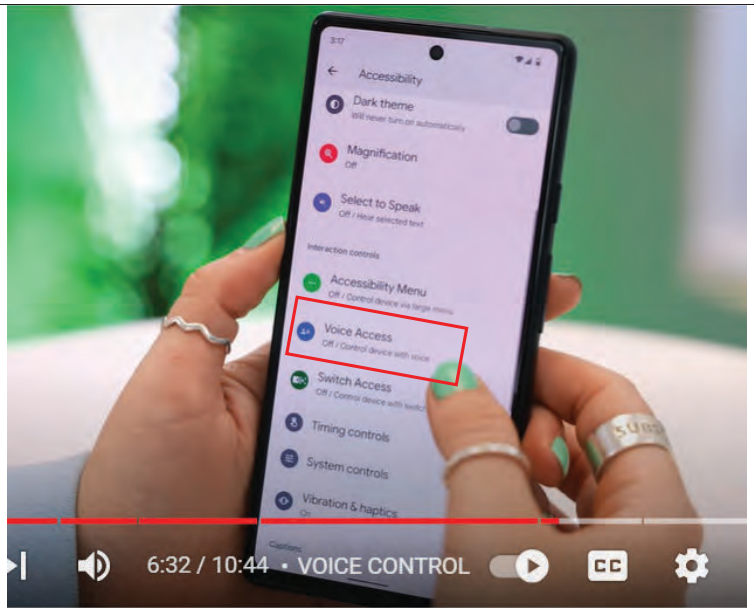
Exhibit 5




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

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| | **Step 3: Start using Voice Access**<br>To turn on Voice Access, follow these steps:<br>1. Open your device's Settings app.<br>2. Tap **Accessibility**, then tap **Voice Access.**<br>3. Tap **Use Voice Access**.<br>4. Start Voice Access in one of these ways:<br>• If "Hey Google" detection is on, you can say "Hey Google, Voice Access."<br>• Open your notification shade and tap **Touch to start**.<br>• On your Home screen, tap the Voice Access app.<br>• Tap the Voice Access activation button. (You can set up the activation button in Settings > **Accessibility** > **Voice Access** > **Settings** > **Activation button**.)<br>5. Say a command, such as "Open Gmail." Learn more Voice Access commands.<br>The first time you turn on Voice Access, two extra steps help you get started:<br>• A guide to "Hey Google" settings helps set you up for a good hands-free experience.<br>• An interactive tutorial teaches you how Voice Access works.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

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| |  <br>Source: https://www.youtube.com/watch?v=Ec52kzzqVRM, at 6:32 |

Here is how to scroll through TikTok hands-free on Android:

- Install Google's Voice Access app from Play Store.
- Go to **Settings** › **Accessibility**; find and select the Voice Access app.
- Tap on **Use service** to enable Voice Access.
- When prompted, grant permissions to the Voice Access app.
- Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.
- Once done, you will see a blue floating icon on your screen.
- Tap on the floating icon to activate Voice Access. You are all set!
- Now, open TikTok and say "**scroll down**" to see the magic.

Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/

- **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:
  1. Connect your keyboard or switch to your device:
     - Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices.

Source: https://support.google.com/accessibility/android/answer/6151848?hl=en

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

387

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| | Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>For example, TikTok app is also configured to receive data from third-party Bluetooth remotes. These Bluetooth remotes connect to the mobile device via Bluetooth and allow the user to scroll through videos or 'like' a video using designated buttons on the remote (for example, a user can "like" a particular video on the TikTok app by double clicking a designated button). |

388

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

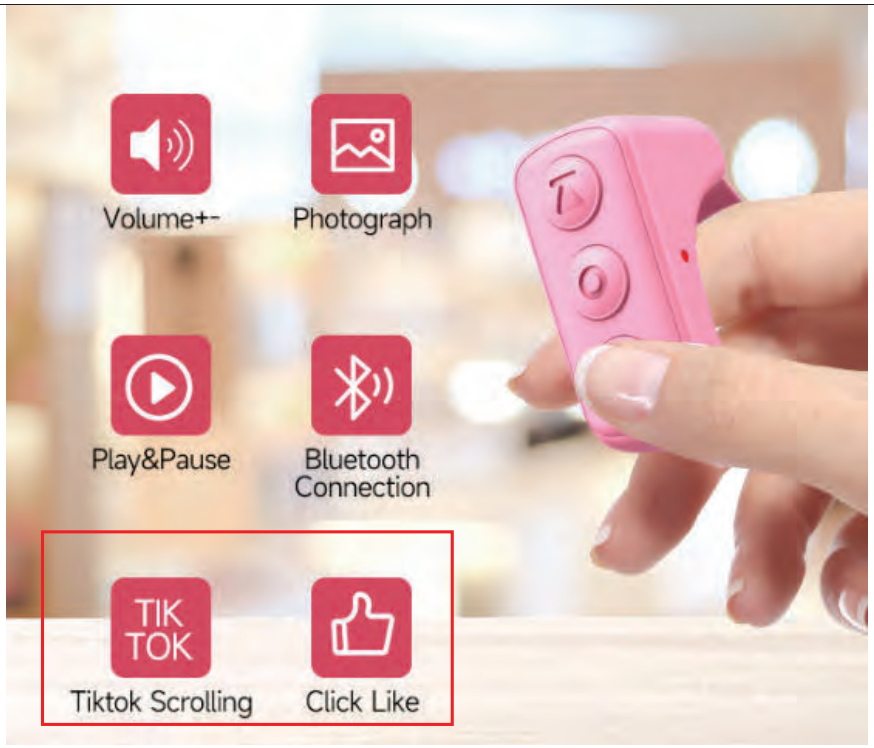
389



LifeScan, Inc. Ex. 1036
Page 1023 of 2225
IPR2025-00102

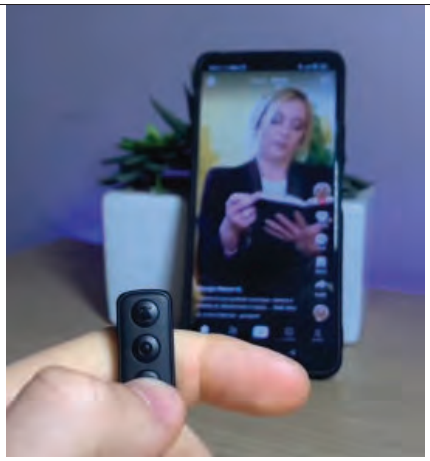
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



Source: https://www.youtube.com/shorts/rz7SWRCzdMg

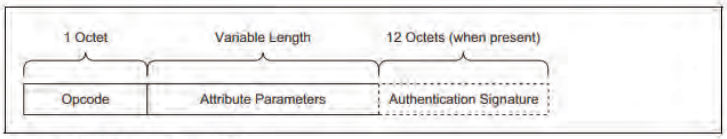
```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

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| | BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>**Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.5] receive a new-data object from the short-range wireless enabled data capture device over the established short-range paired wireless connection, wherein the new-data object | Defendant provides mobile client application that receive a new-data object from the short-range wireless enabled data capture device over the established short-range paired wireless connection wherein the new-data object comprises: signal to notify and acquired new-data, wherein the acquired new-data is data acquired by the short-range wireless enabled data capture device after the short-range paired wireless connection is established between the short-range wireless enabled cellular phone and the short-range wireless enabled data capture device, and wherein the signal to notify corresponds to the acquiring of the new-data for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| comprises: signal to notify and acquired new-data, wherein the acquired new-data is data acquired by the short-range wireless enabled data capture device after the short-range paired wireless connection is established between the short-range wireless enabled cellular phone and the short-range wireless enabled data capture device, and wherein the signal to notify corresponds to the acquiring of the new-data for transfer; and | For example, after a Bluetooth connection is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command in the form of signal notification ("signal to notify") that comprises the information related to the command. Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("signal to notify and acquired new-data") on AirPods or earphones, the TikTok app receives the user's command as a signal notification in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as a signal notification in order to like or scroll the subsequent video.<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT defines a framework for organizing and exchanging data between the BLE devices. When a GATT server (e.g., a Bluetooth device), has new data or an event to notify the GATT client (e.g., a mobile device), it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, |

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| | but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br><br>  <br><br>*Figure 2.3: Attribute Protocol PDU*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2225 |

397

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

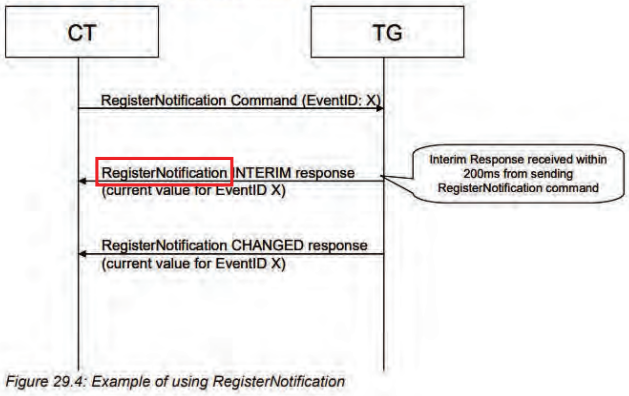



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139

398

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2267 |

399

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

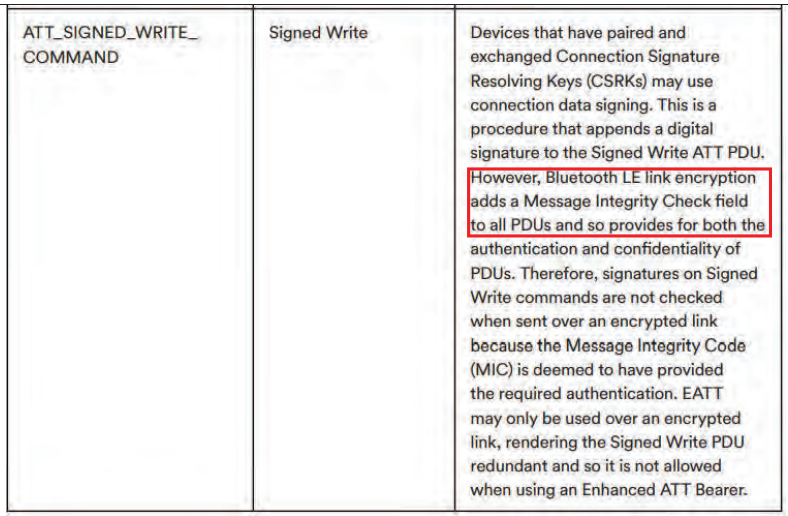
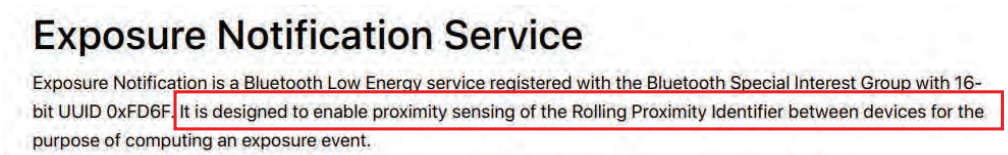
### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

401

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| |  <br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br><br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

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|---|---|
| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

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| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

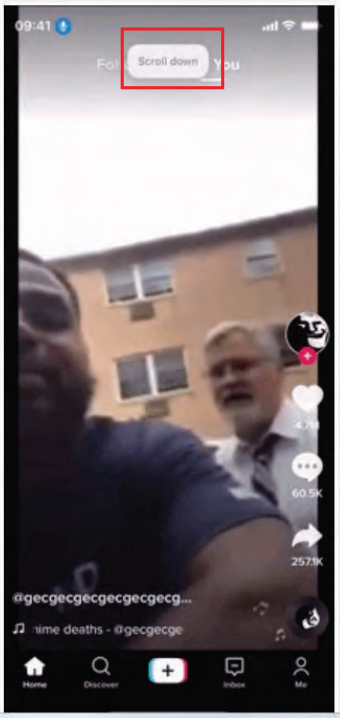
404

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

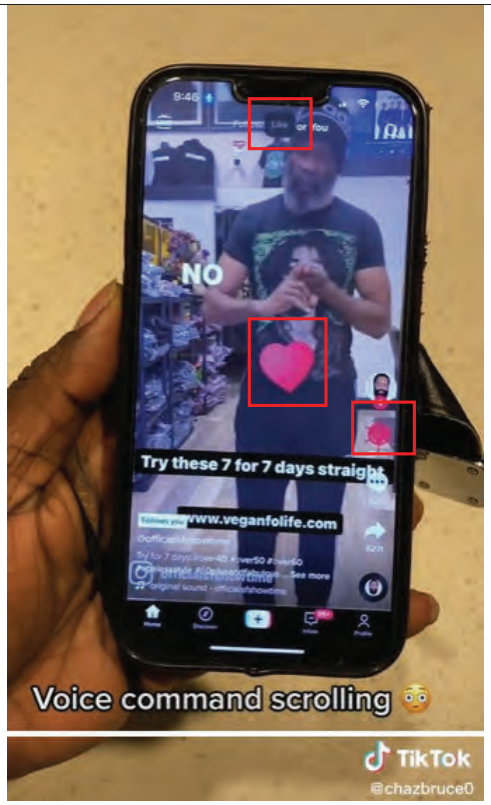
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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

406

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

407




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

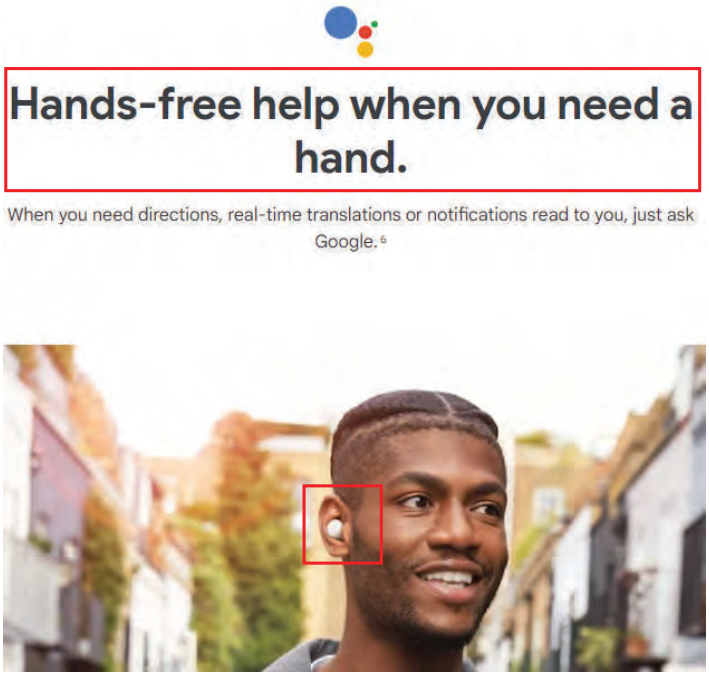
| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | **android.permission.BLUETOOTH_CONNECT** \| App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

410




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

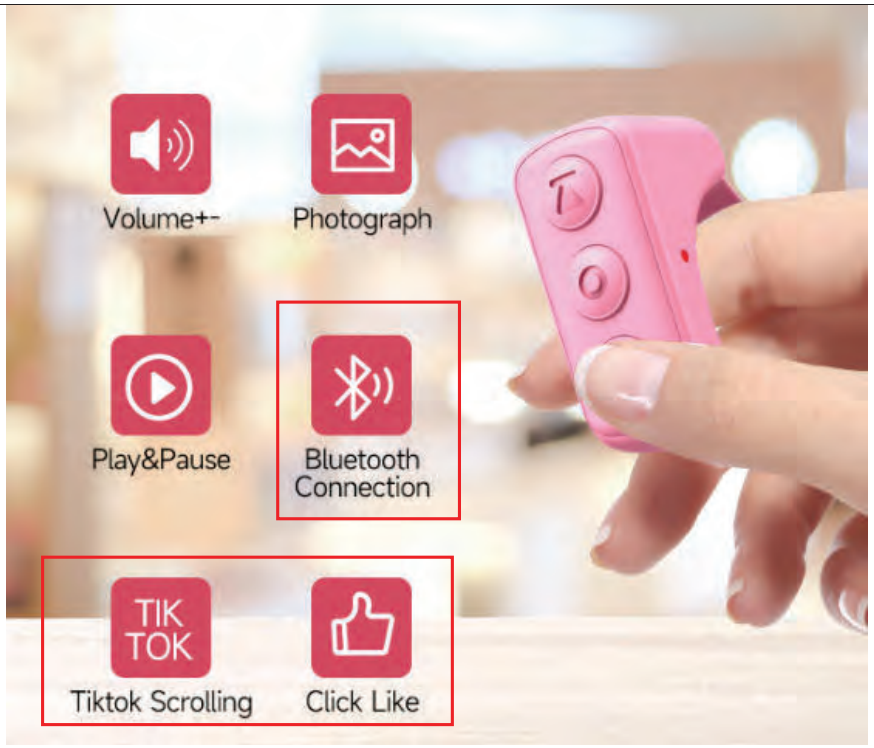
Source: https://blog.malcore.io/p/tiktok63

411

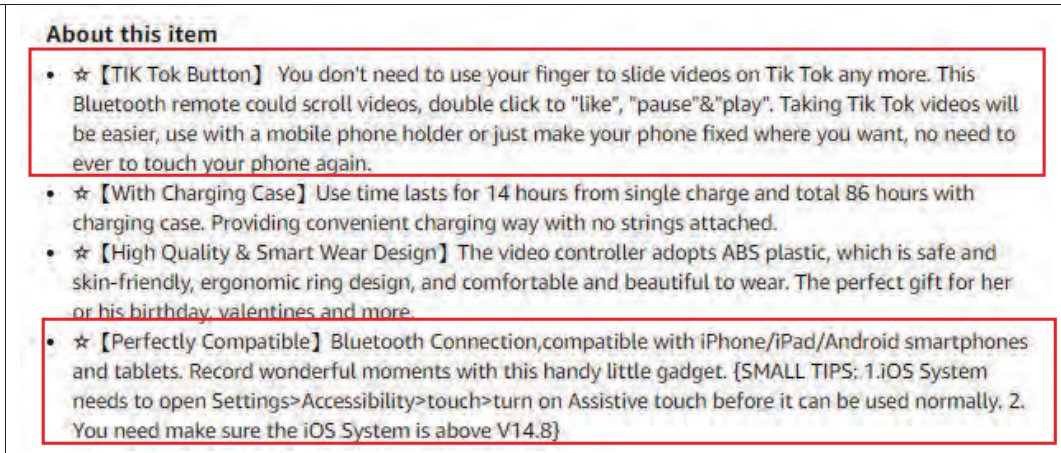
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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

412

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

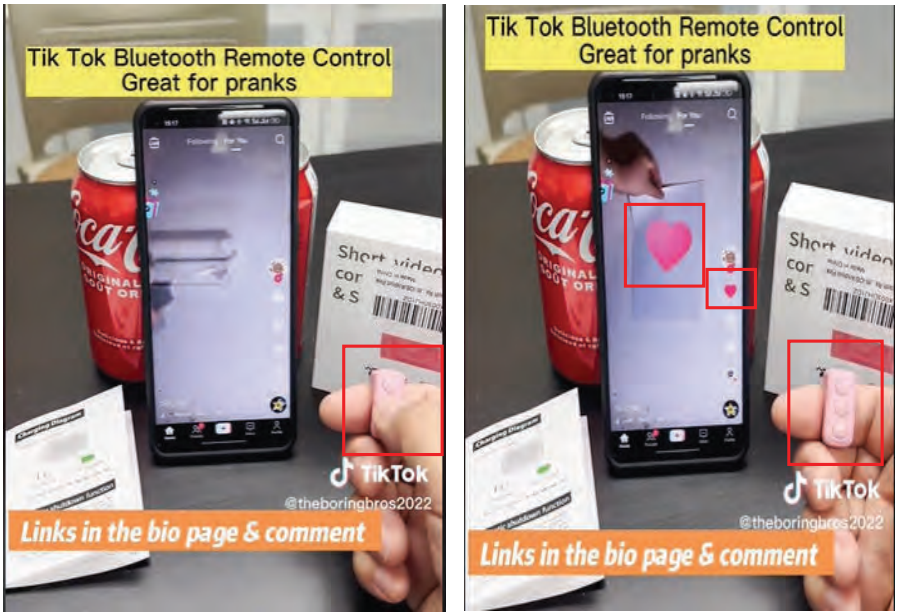
414



**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

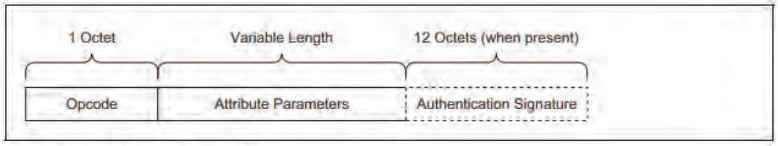
Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.6] associated new-data, wherein the associated new-data corresponds to data associated with the new-data; | Defendant provides a mobile client application wherein the new-data object comprises associated new-data, wherein the associated new-data corresponds to data associated with the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

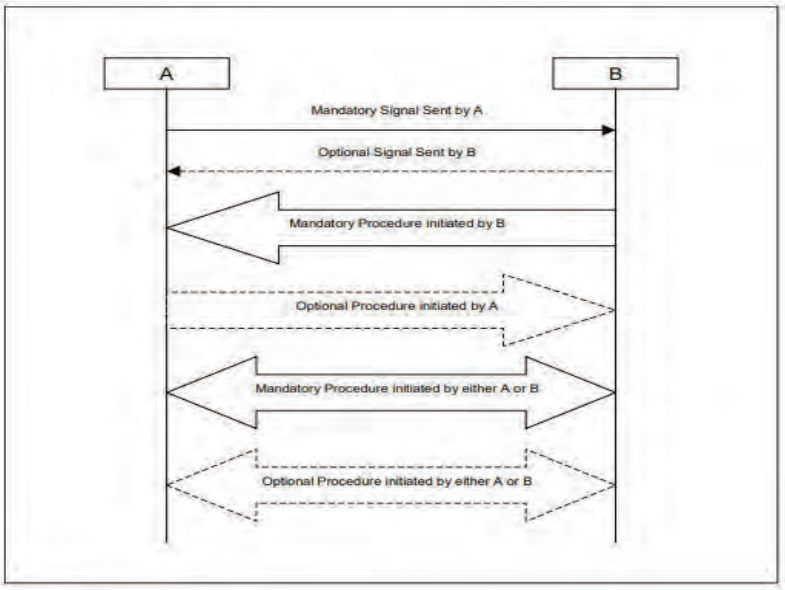
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| | For example, while operating the TikTok app, the Bluetooth devices such as AirPods or Earphones capture the user's audio input which is sent to the mobile device as a signal notification along the metadata (associated new-data") associated with the audio input, for example, size of the audio command.<br><br>When an Audio Stream contains content which is controlled by a content control service, it includes the CCID in a list of such services in the Audio Stream's metadata to tell both Acceptors and Commanders where they can find the correct service. We'll look at Commanders in a moment in Section 3.12.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2022/01/Introducing-Bluetooth-LE-Audio-book.pdf, Page 64<br><br>it to a remote Bluetooth device. The functions available for a conventional infrared remote controller can be realized in this profile. In addition to this, the profile uses Bluetooth specific extensions to support transfer of metadata related to content to be transferred between Bluetooth devices. Browsing features are provided to allow a remote controller to navigate the media and control specific media players on the remote target device. The remote control described in this profile is designed specific to A/V control. Other remote control solutions using Bluetooth wireless technology may be applied for general Bluetooth devices including A/V devices.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 10<br><br>The GetItemAttributes command is used to retrieve the metadata attributes for a particular media element item or folder item. The PDU format is similar to that of the GetElementAttributes command, however the GetItemAttributes is sent over the browsing channel to the Browsed Player and is not encapsulated within an AV/C frame.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 78<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.7] listen and process the signal to notify; | Defendant provides mobile client application that listen and process the signal to notify.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, the TikTok app in the mobile device receives the user command (provided through the Bluetooth devices) in the form of signal notification ("signal to notify") that comprises the information related to the command. Further, the TikTok app processes the received notification to perform the corresponding functionality.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command and processes it to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command and processes it to like or scroll the subsequent video.<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client establishes a connection with a GATT server, it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/ |

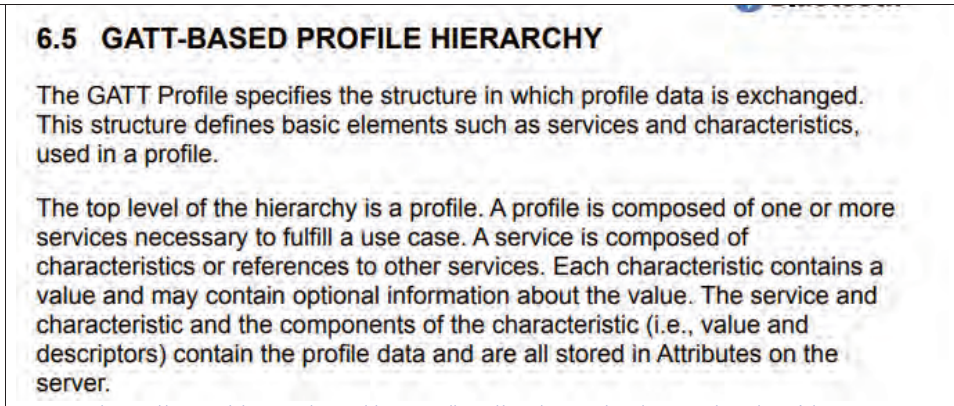
418

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| | The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br>  <br><br>*Figure 2.3: Attribute Protocol PDU*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043 , Page 2225 |

419

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| |  <br>*Figure 1.2: Signaling conventions*<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11 |

420



## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

## Use More Voice Commands on TikTok

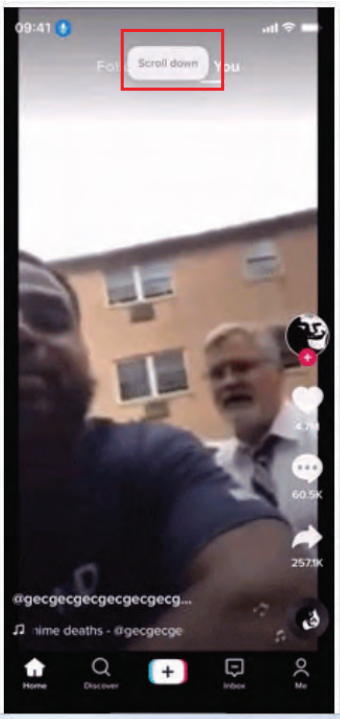
You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

421

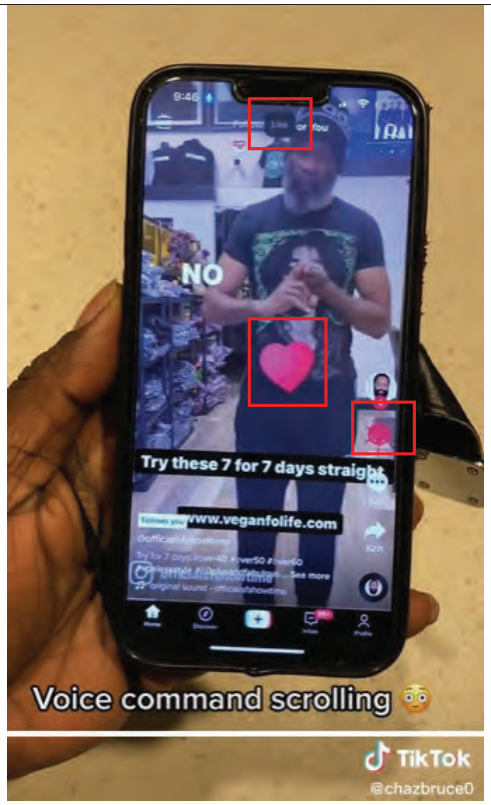
Exhibit 5

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

422



LifeScan, Inc. Ex. 1036
Page 1056 of 2225
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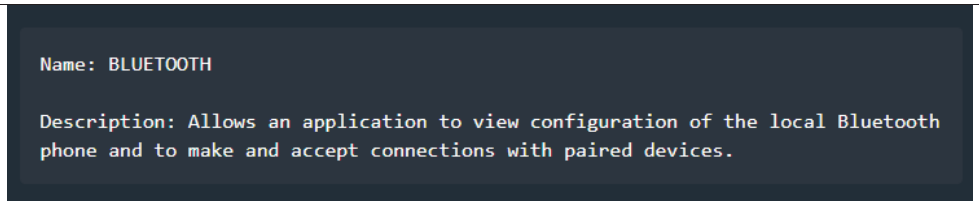



Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

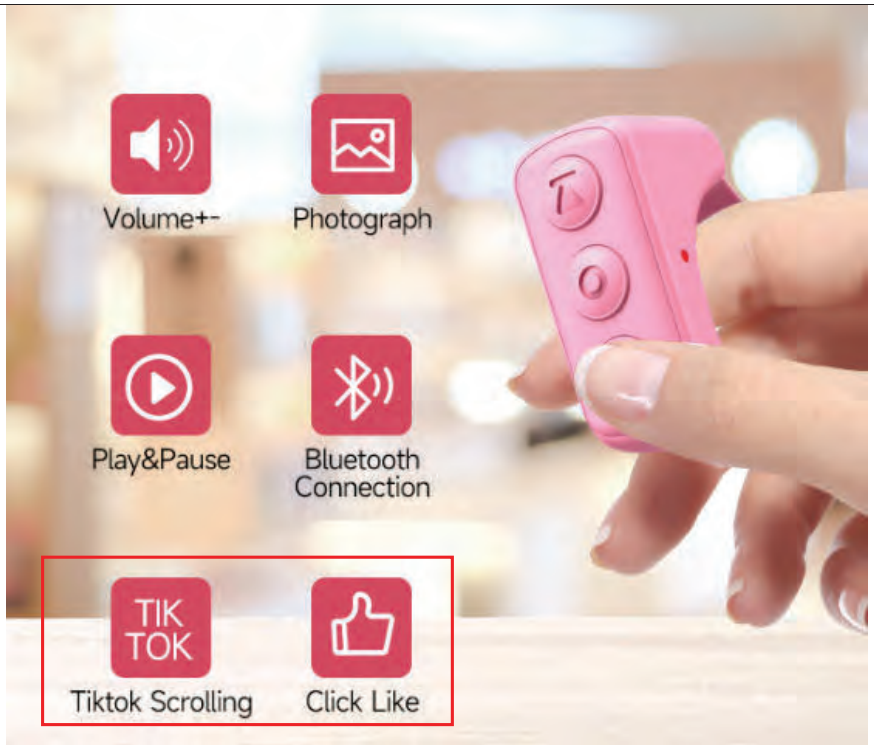
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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

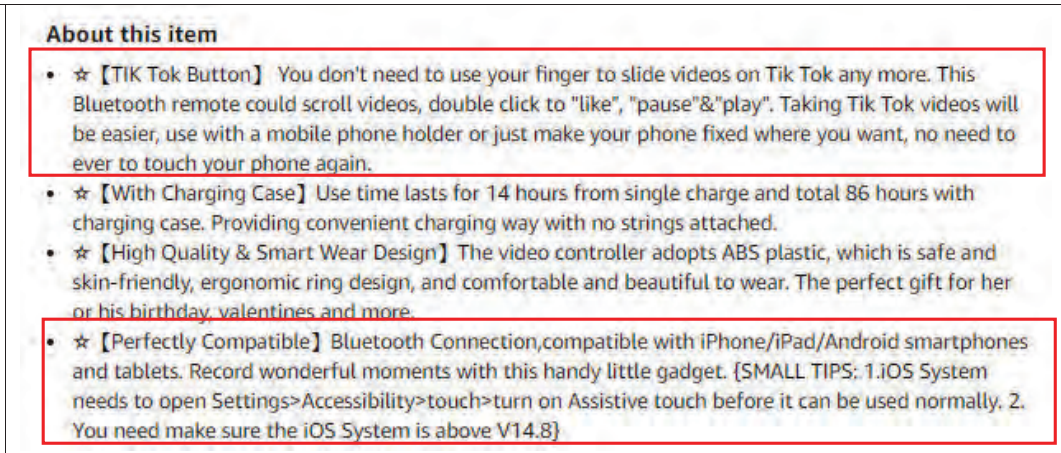
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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|---|---|
| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



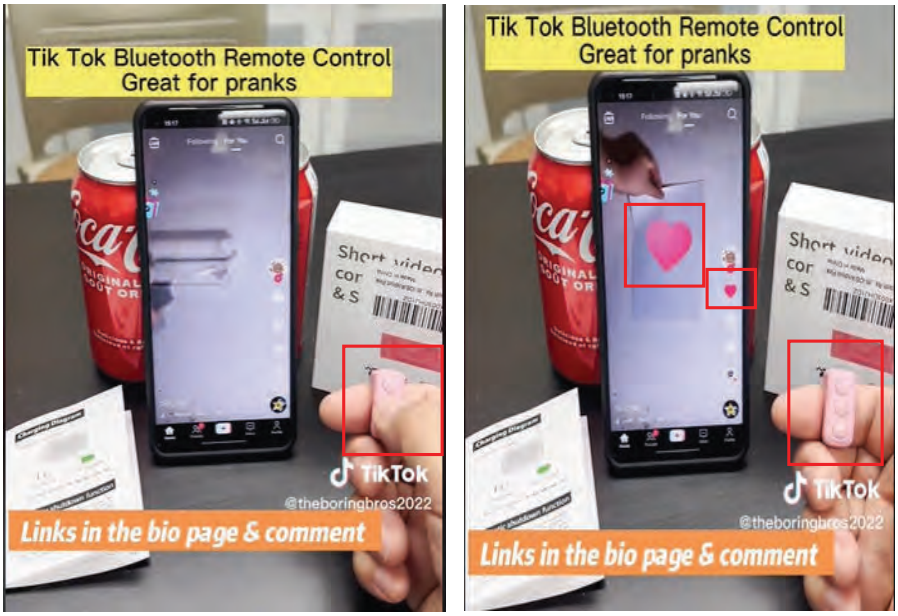
**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

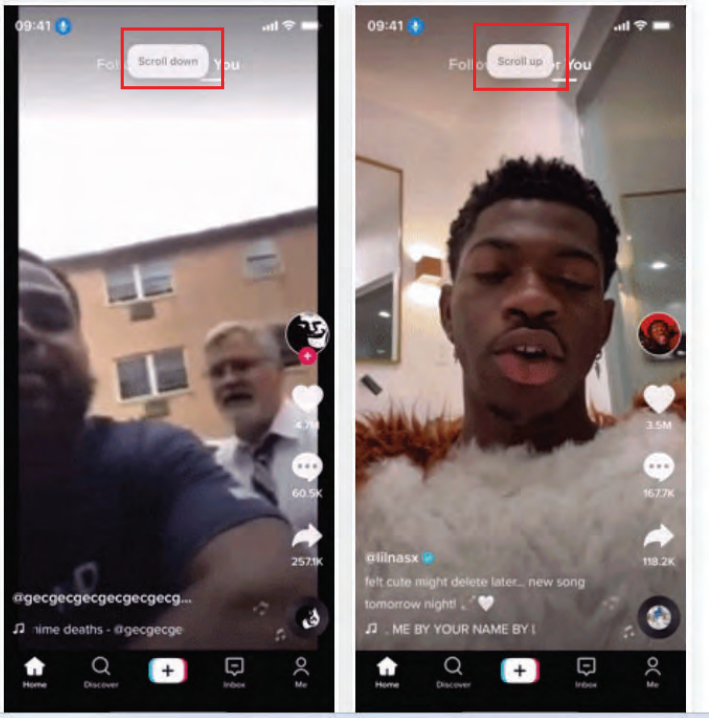
Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

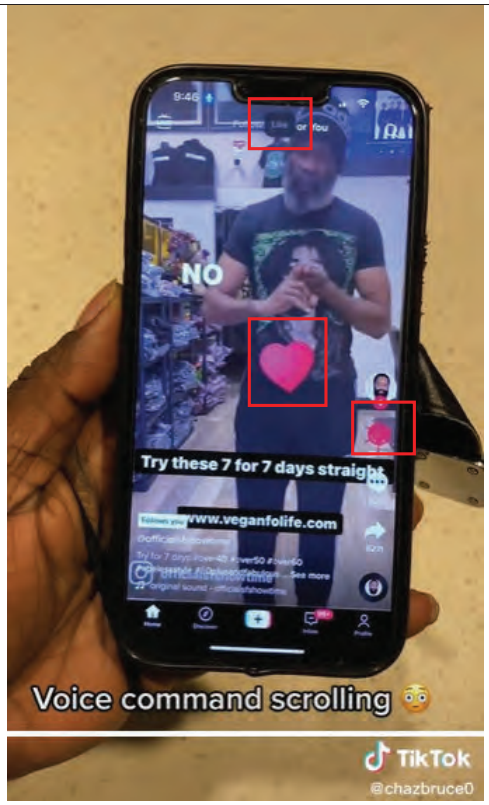
428

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.8] store the received new-data in the memory device; and | Defendant provides mobile client application that store the received new-data in the memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, the TikTok app stores the user's activity (liked and watched videos) including the commands ("received new-data") at least temporarily in the cache memory of the mobile device (in which the TikTok app is installed).<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

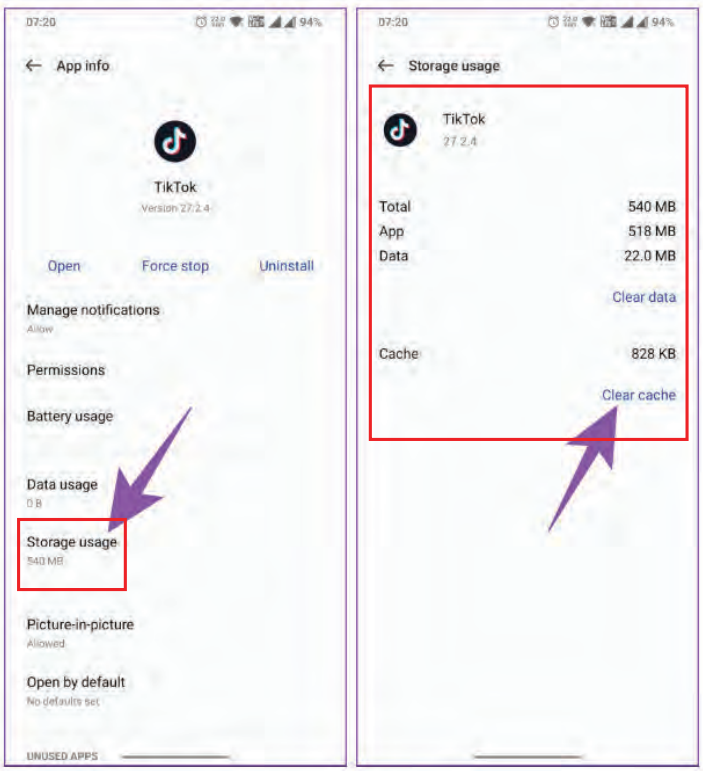
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br><br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

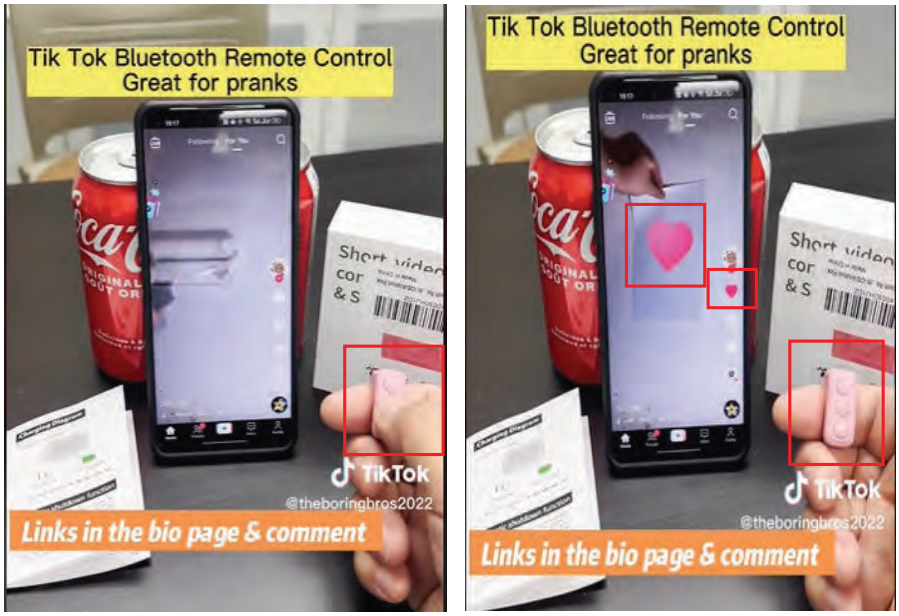
433

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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

434

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

435

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09 |

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>However, some have been noticing that the app is taking up a huge amount of space on their devices, sometimes gigabytes worth of storage. If you're looking to make more space on your device, here's how to reduce the amount of room TikTok is using on your phone.<br><br>Source: https://www.dexerto.com/entertainment/tiktok-storage-free-up-space-1775839/<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/ |

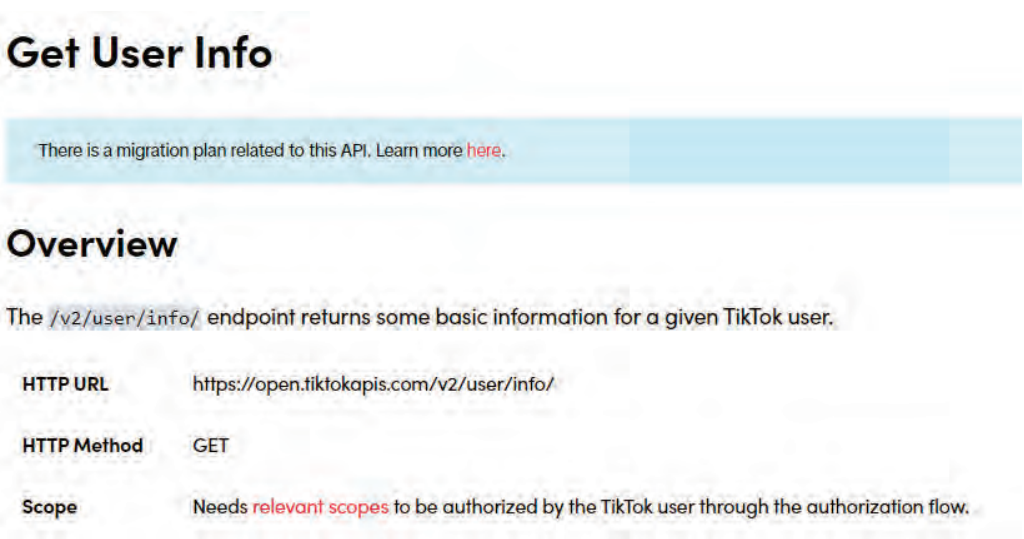
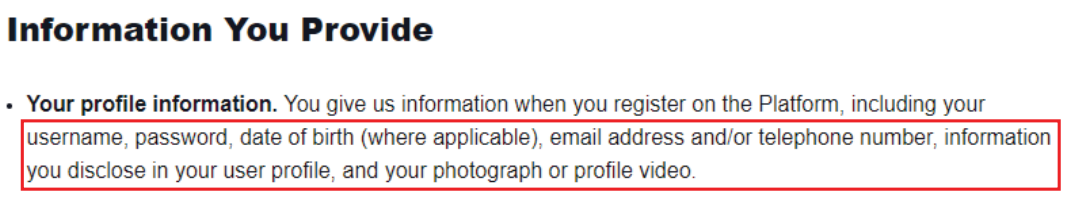
438



LifeScan, Inc. Ex. 1036
Page 1072 of 2225
IPR2025-00102

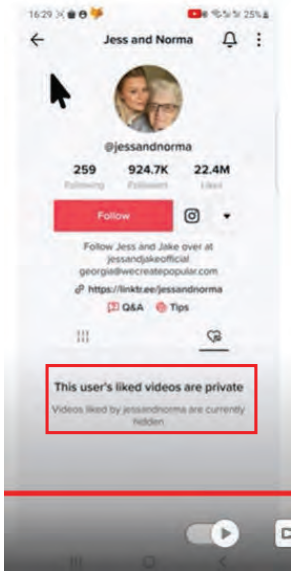
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| | **There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.9] use HTTP to transfer the new-data along with user information to a user data publishing website over the cellular data network, wherein the user | Defendant provides mobile client application that uses HTTP to transfer the new-data along with user information to a user data publishing website over the cellular data network, wherein the user information corresponds to a user identifier that uniquely identifies a particular user of the user data publishing website and is used by the user data publishing website to publish the new-data for private consumption.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| information corresponds to a user identifier that uniquely identifies a particular user of the user data publishing website and is used by the user data publishing website to publish the new-data for private consumption. | For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok App for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app. Additionally, the TikTok app provides the functionality to the user to hide their liked videos from their profile ("publish the new-data for private consumption").<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>**File upload**<br><br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br><br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint. |

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| | Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide<br>  <br><br>Source: https://developers.tiktok.com/doc/tiktok-api-v2-get-user-info<br>  <br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |

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| | You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information<br><br>**How to manage who can view your liked videos**<br><br>You can choose to show or hide your liked videos on your profile. Your liked videos are hidden from your profile by default when you create an account.<br><br>To hide or show your liked videos on your profile:<br>1. In the TikTok app, tap **Profile** at the bottom.<br>2. Tap the **Menu** button at the top.<br>3. Tap **Settings and privacy**, then tap **Privacy**.<br>4. Tap **Liked videos** and select **Everyone** (public accounts only), **Followers** (private accounts only) or **Only me**.<br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking |




Source: https://www.youtube.com/watch?v=JzlTDsCIOQA&t=68s, at 1:10

If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**

As you watch videos, the app size increases and data is stored on your device and cached with other downloads.

Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/

443

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [10] The short-range wireless enabled cellular phone of claim 9, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing. | Defendant provides the short-range wireless enabled cellular phone of claim 9, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app installed in the mobile device using Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes which comprises Bluetooth ("short-range paired wireless connection"). Using Bluetooth ("Bluetooth paired wireless connection"), the Bluetooth devices pairs with the mobile device. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video.<br><br>**Connectivity** Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

444

## Connectivity

Each earbud: Bluetooth 5.0

Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

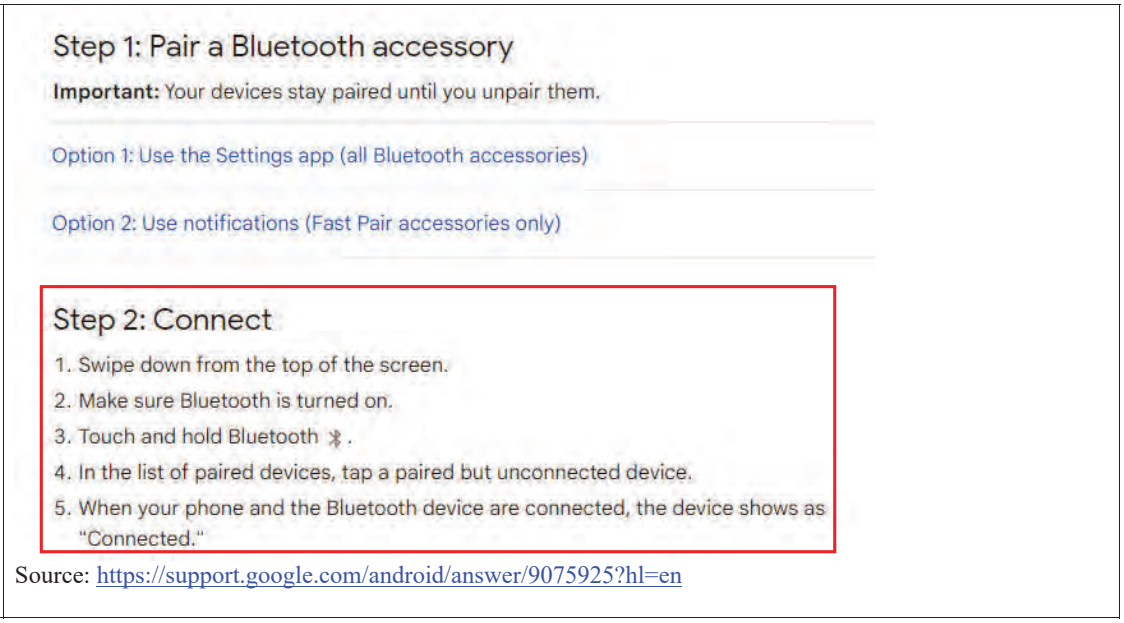
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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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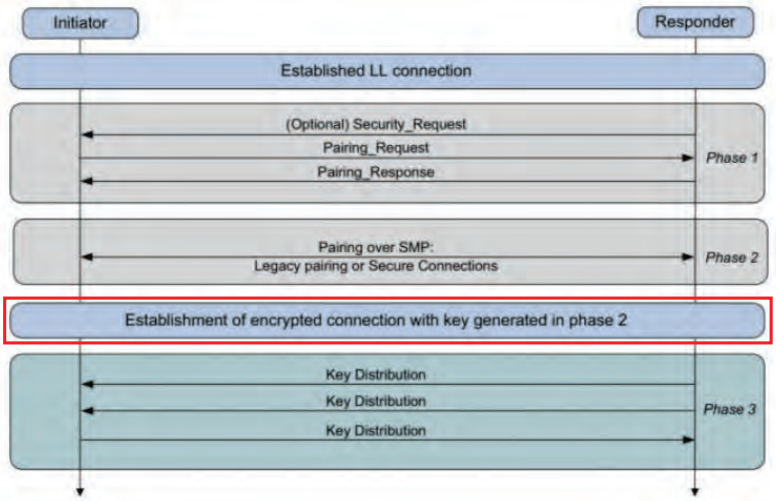
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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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Source: https://support.google.com/android/answer/9075925?hl=en

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth<br><br>In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

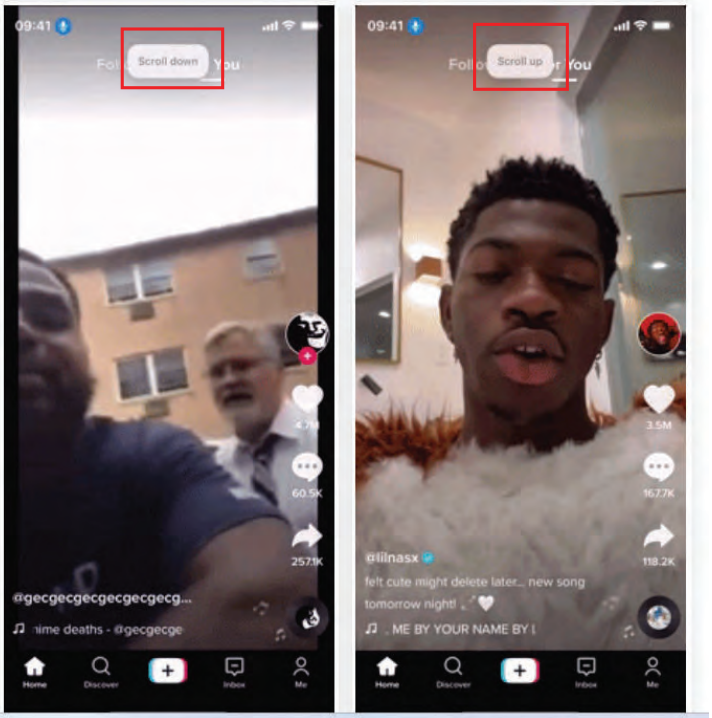
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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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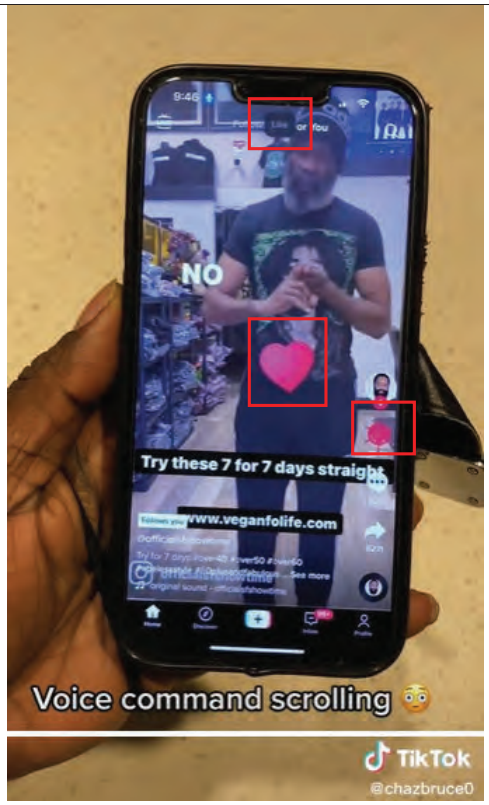
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| | **About this item**<br>• ☆【TIK Tok Button】You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [11] The short-range wireless enabled cellular phone of claim 9, wherein the new-data comprises one or more of audio data, video data, image data, text data, digital data, and data associated with the new-data. | Defendant provides the short-range wireless enabled cellular phone of claim 9, wherein the new-data comprises one or more of audio data, video data, image data, text data, digital data, and data associated with the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device (“short-range wireless enabled cellular phone”) and the Bluetooth device, the Bluetooth device captures the user’s command (“new-data”) and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command (“audio data”) provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and |

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| | information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("new-data") on AirPods or earphones, the TikTok app receives the user's command in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as a signal notification in order to like or scroll the subsequent video.<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results. |

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| | Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

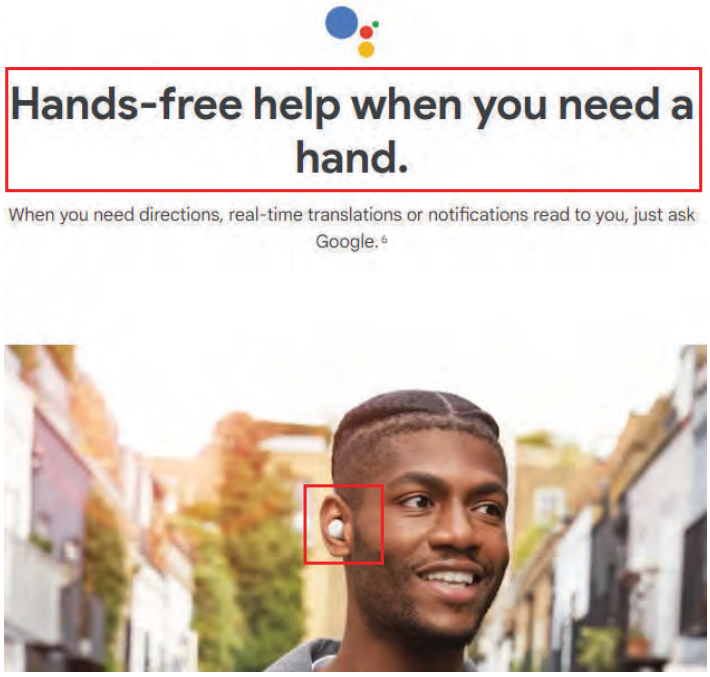
454

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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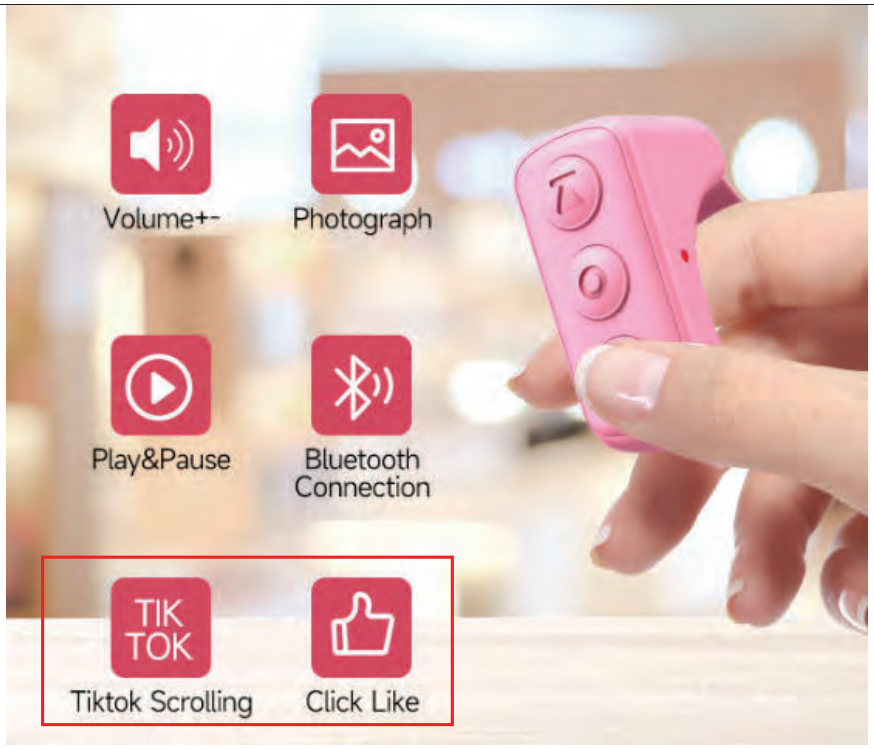



Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

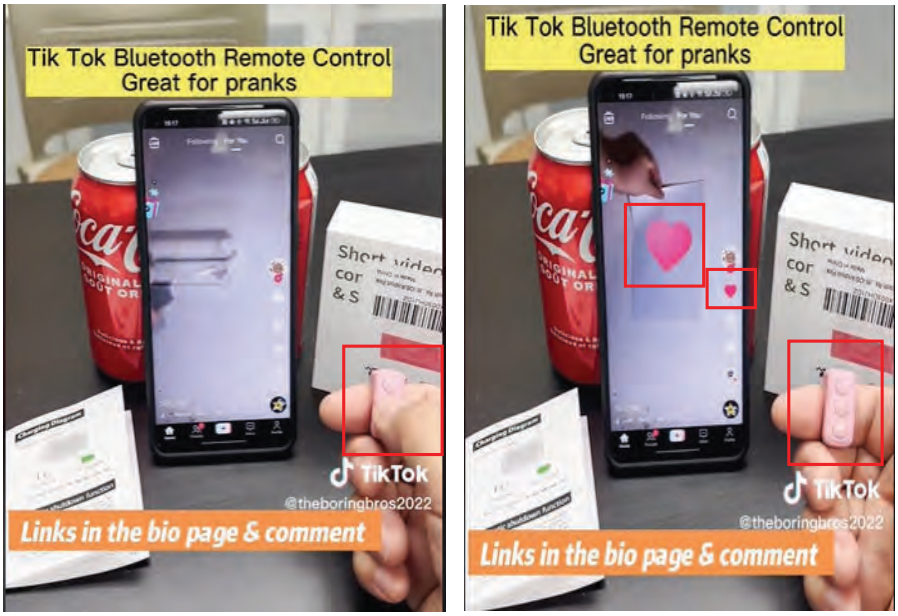
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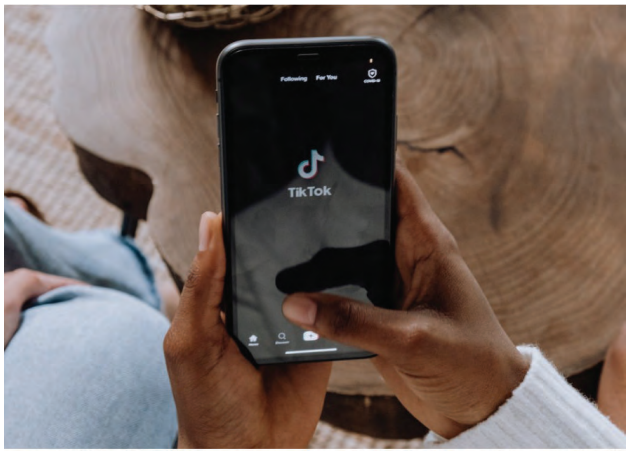
| | |
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12] The short-range wireless enabled cellular phone of claim 9, wherein a graphical user interface (GUI) is provided in the | Defendant provides the short-range wireless enabled cellular phone of claim 9, wherein a graphical user interface (GUI) is provided in the cryptographically authenticated short-range wireless enabled cellular phone, and wherein the graphical user interface (GUI) is for the received new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents |

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| cryptographically authenticated short-range wireless enabled cellular phone, and wherein the graphical user interface (GUI) is for the received new-data. | For example, the TikTok app installed on the mobile device (“short-range wireless enabled cellular phone”) comprises graphical user interface (“GUI”) which allows the user to access the liked and watched videos (“new-data”).<br>  <br><br>Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber |

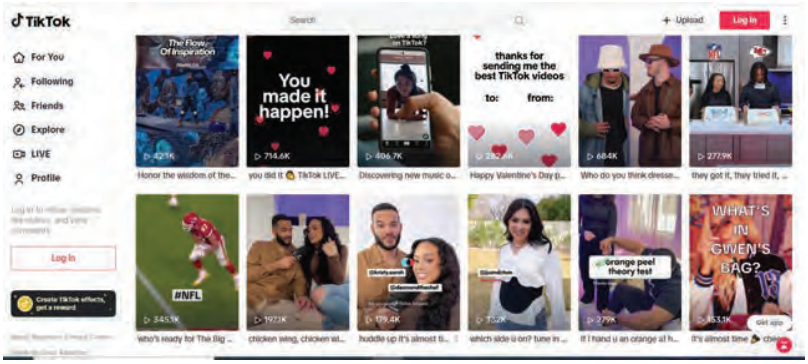
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## Onboarding - It starts with a Swipe

The process of getting hooked to TikTok starts right away in the users onboarding experience. TikTok asks users to choose their interests. This information is used for personalizing each user's feed. This is a common practice for products with curated content and used by many different apps.

But TikTok's user onboarding is really smart. It encourages users to scroll through the feed and tells them that the content will become more relevant and personalized the more they use it. While this is true for many algorithms, many apps don't tell users this explicitly. By doing so, TikTok encourages users to continue using the app for a better experience

Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber

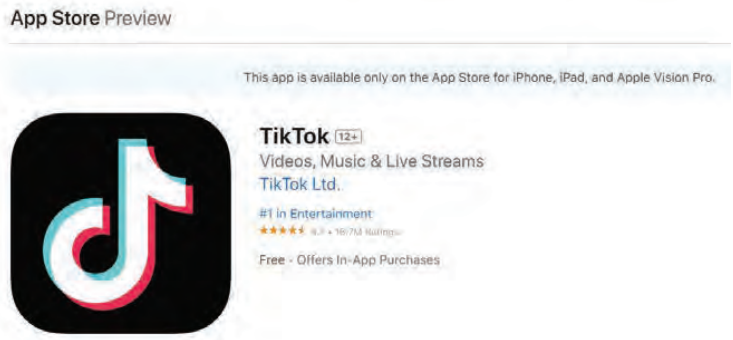



Source: https://www.tiktok.com/@tiktok

463

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant |
| [13.P] A system, comprising:<br>a short-range wireless enabled data capture device, comprising: | ByteDance ("Defendant") makes, uses, sells, and/or offers to sell a system, comprising: a short-range wireless enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, Defendant provides TikTok[7] app which includes the functionality of TikTok Shop that enables merchants to sell products and allows the users to buy products from the TikTok app. TikTok App enables merchants to sell their products including, but not limited to, Bluetooth-enabled earphones, AirPods, and Bluetooth remotes[8] ("a short-range wireless enabled data capture device") to TikTok users.<br><br>For example, the TikTok app is installed in a mobile device such as an iPhone or an Android phone and can be remotely controlled through Bluetooth devices such as Bluetooth enabled earphones, AirPods and Bluetooth remotes. The TikTok app utilizes the Bluetooth technology of the Bluetooth devices and the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided to the Bluetooth devices. |

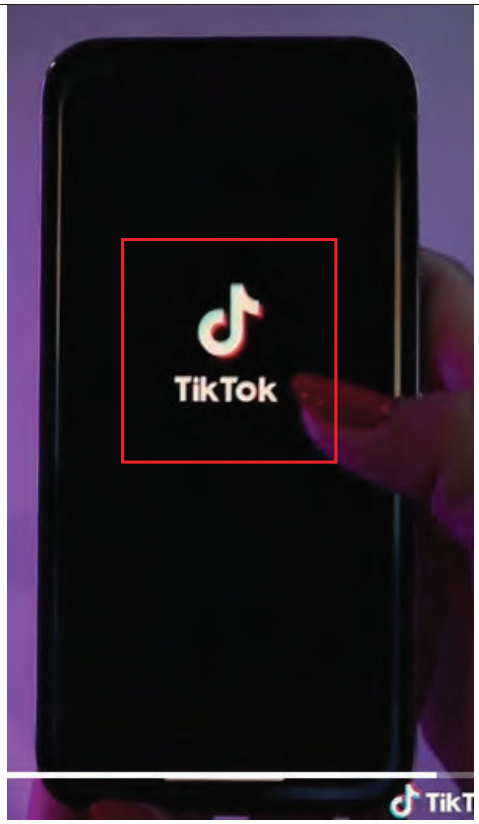
[7] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.
[8] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.



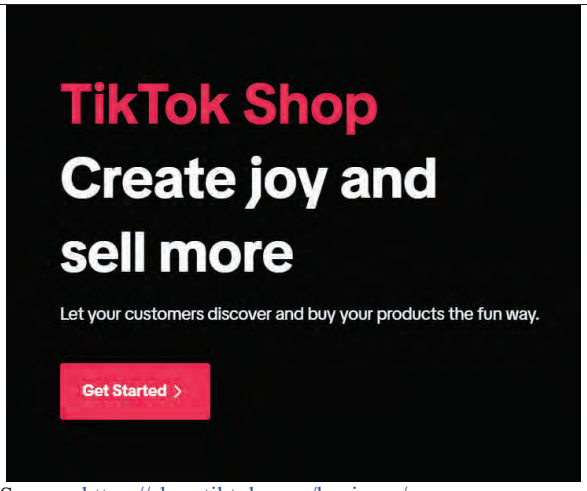

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320



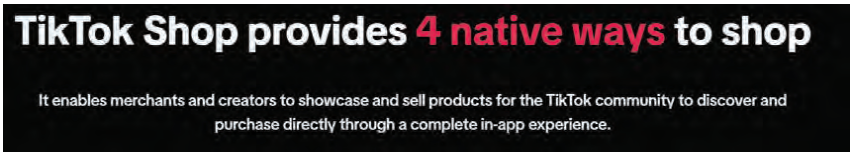

Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

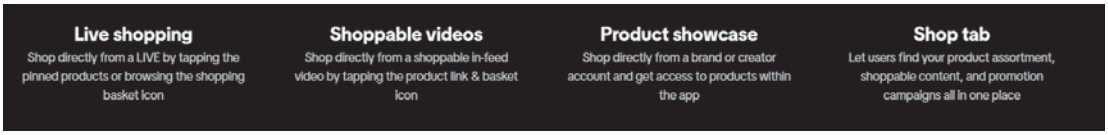
466



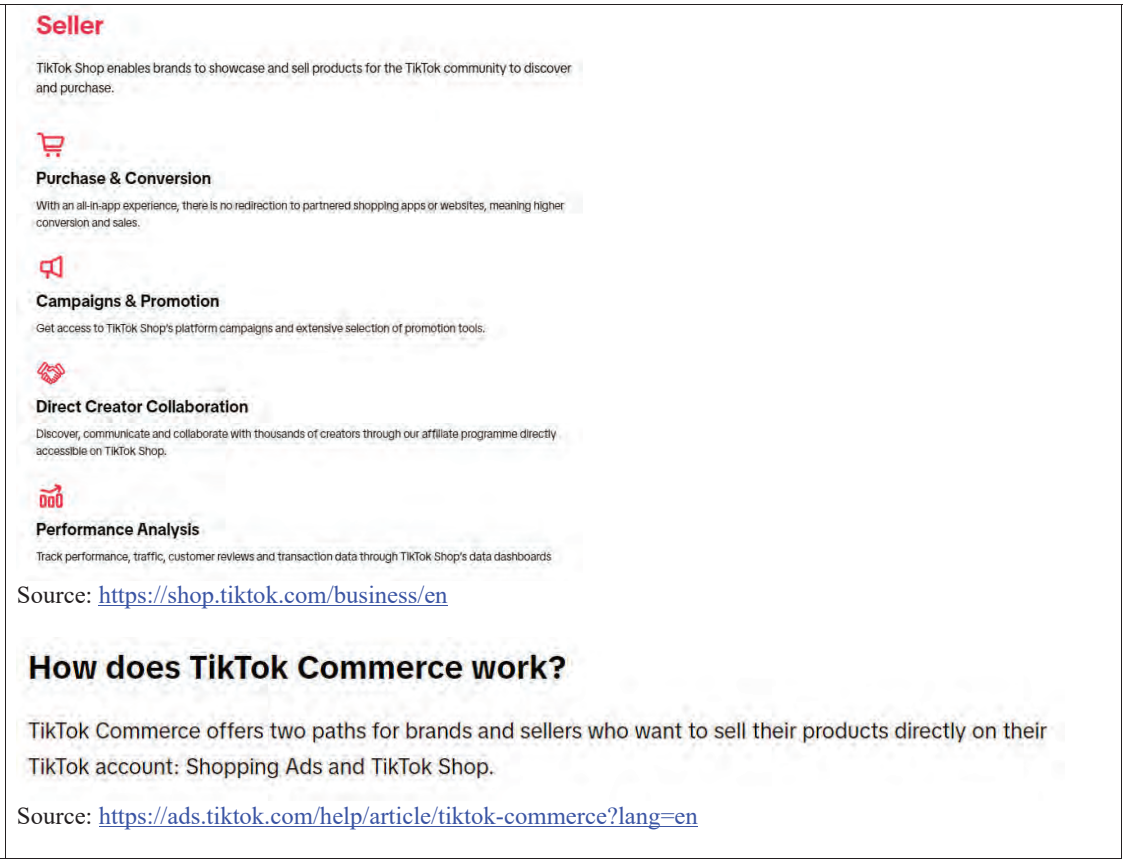

Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en

## How does TikTok Commerce work?

TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.

Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en

468



LifeScan, Inc. Ex. 1036
Page 1102 of 2225
IPR2025-00102

## About TikTok Shop

TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.

Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.

- See TikTok Shop and Showcase
- See How to Add Product Links to TikTok Videos

With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.

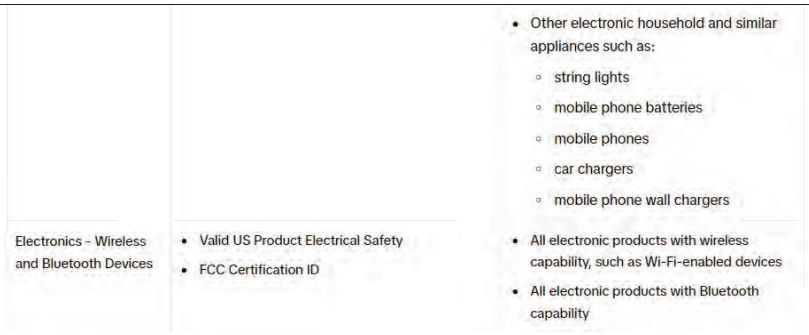
Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en

## Electrical Products and Electronics

Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.

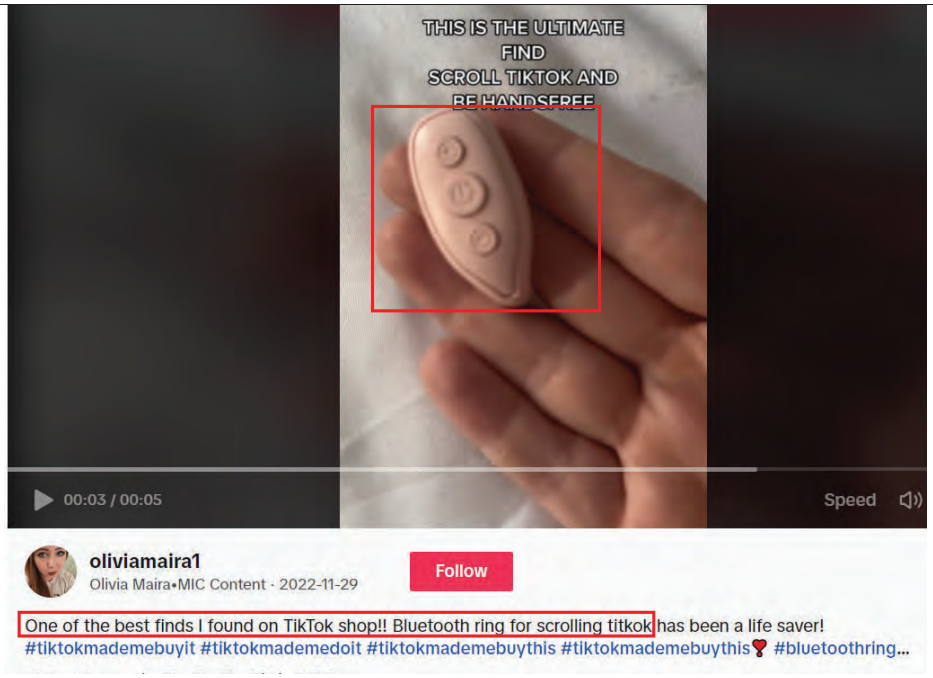
Electrical and electronic products include but are not limited to:

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy



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| Electronics - Wireless and Bluetooth Devices | • Valid US Product Electrical Safety<br>• FCC Certification ID | • Other electronic household and similar appliances such as:<br>◦ string lights<br>◦ mobile phone batteries<br>◦ mobile phones<br>◦ car chargers<br>◦ mobile phone wall chargers<br>• All electronic products with wireless capability, such as Wi-Fi-enabled devices<br>• All electronic products with Bluetooth capability | |

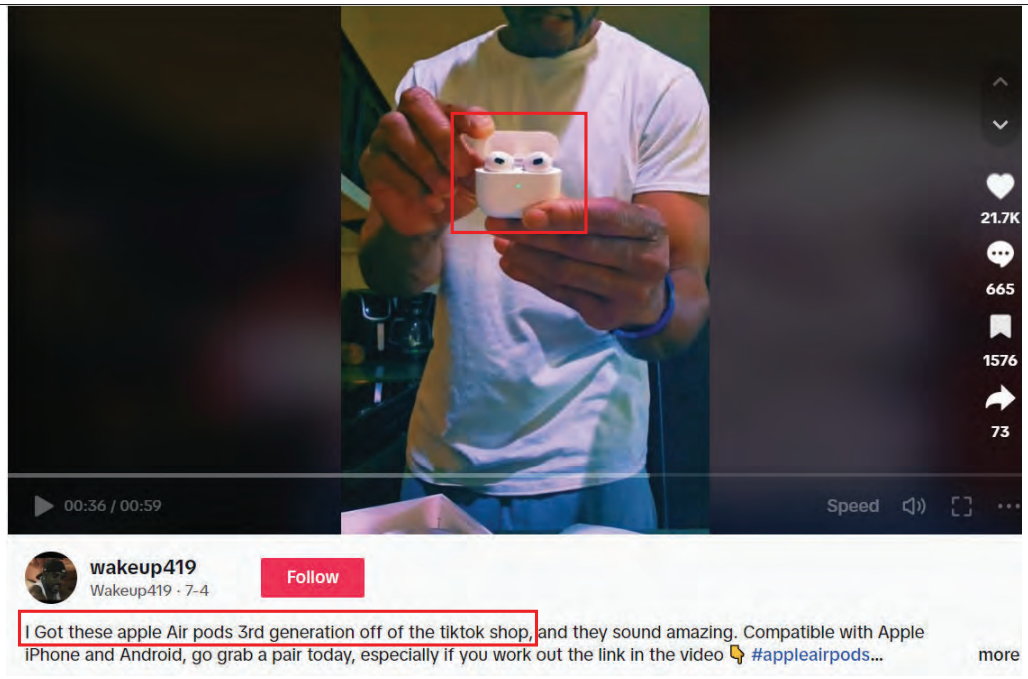
Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy




Source: https://www.tiktok.com/@oliviamaira1/video/7171162583678946566, at 0:03

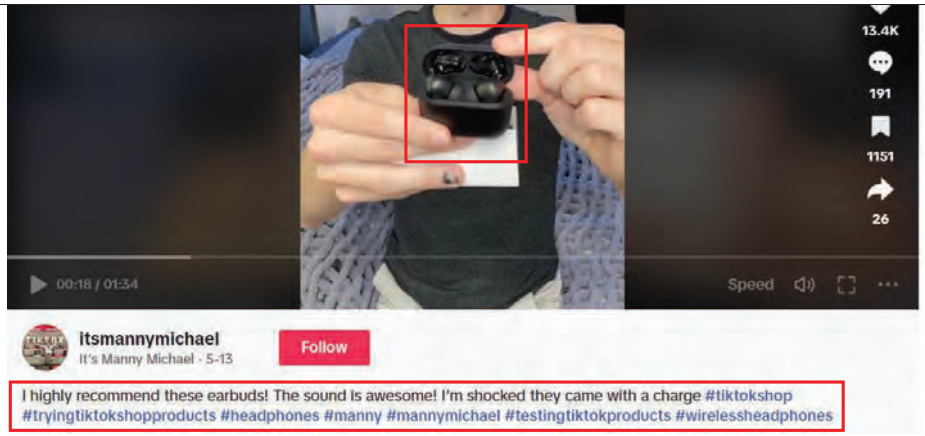
471

Exhibit 5




Source: https://www.tiktok.com/@wakeup419/video/7251981896937213226, at 0:36

472



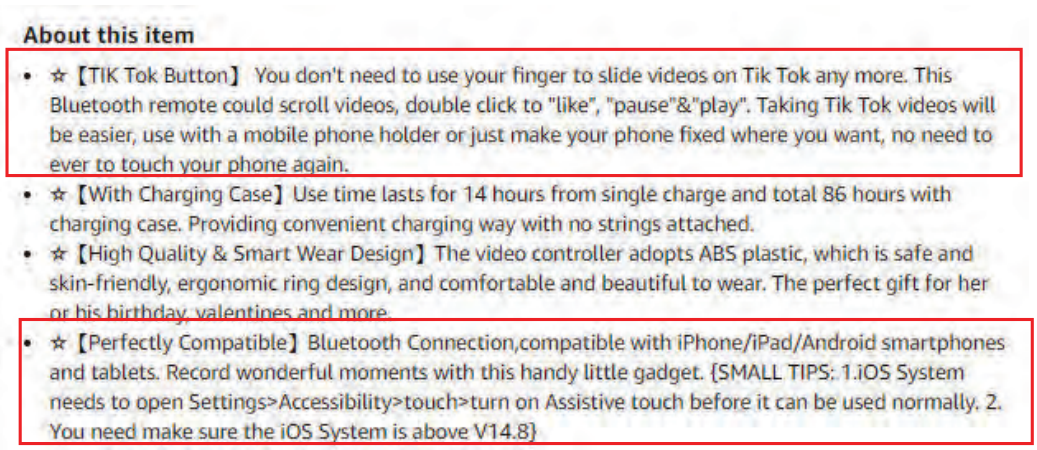

Source: https://www.tiktok.com/@itsmannymichael/video/7232432938531671342, at 0:18

## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

473

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| | Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br><br>  <br>**About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.1] a first memory device;<br>a first processor coupled to the first memory device; | Defendant provides a first memory device; a first processor coupled to the first memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, AirPods and Bluetooth enabled earphones that comprises a memory ("first memory device") and a processor coupled to the memory ("a first processor coupled to the first memory device"). The memory is used for temporary storage of audio data locally in the Bluetooth device such as |

AirPods and Bluetooth enabled earphones. The processor processes the user's data and sends it for execution to the mobile device, where the TikTok app is installed.

For example, the users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, Bluetooth remote that upon information and belief comprises a memory ("first memory device") and a processor coupled to the memory ("a first processor coupled to the first memory device"). The memory is used for temporary storing the user's selection of the clicked button locally. The processor processes the user's data and sends it for execution to the mobile device, where the TikTok app is installed.

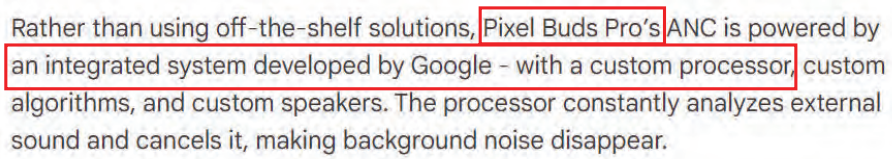
**Chip** H1 headphone chip

Source: https://www.apple.com/airpods-2nd-generation/specs/




Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471

475

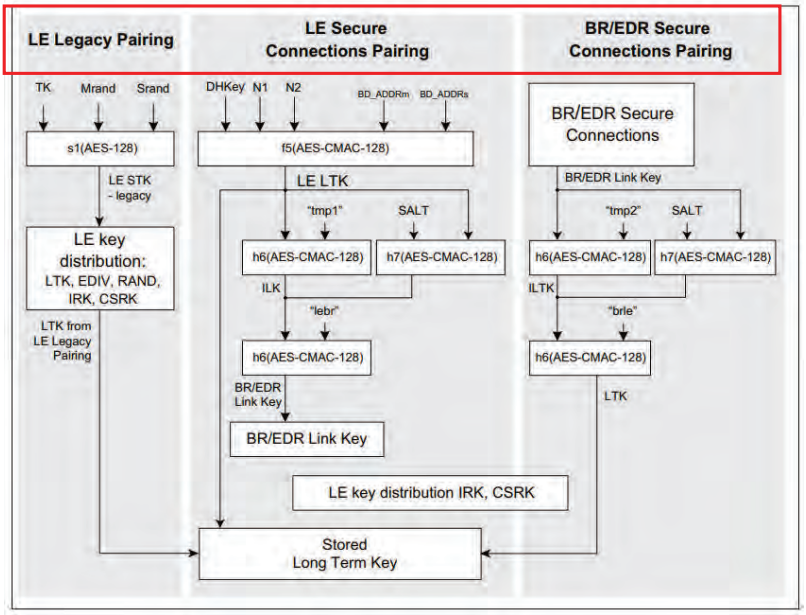
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| |  <br>Source: https://store.google.com/product/pixel_buds_pro<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.2] a first short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled data capture device and a short-range wireless enabled cellular phone, wherein establishing the short-range paired wireless connection comprises cryptographically authenticating identity of the short-range wireless enabled cellular phone, and wherein establishing the short-range paired | Defendant provides a first short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled data capture device and a short-range wireless enabled cellular phone, wherein establishing the short-range paired wireless connection comprises cryptographically authenticating identity of the short-range wireless enabled cellular phone, and wherein establishing the short-range paired wireless connection further comprises the short-range wireless enabled data capture device using an association protocol.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app installed in the mobile device ("short-range wireless enabled cellular phone") using Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("short-range wireless enabled data capture device") which comprises Bluetooth ("first short-range wireless communication device"). Using Bluetooth, the Bluetooth devices pairs with the mobile device. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the Bluetooth device and the mobile device are connected through an encrypted connection ("association protocol") created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established |

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| wireless connection further comprises the short-range wireless enabled data capture device using an association protocol; | between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>**Connectivity** Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>**Connectivity**<br><br>Each earbud: Bluetooth 5.0<br><br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US<br><br>  <br><br><br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1 |

477

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| | The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |

478




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

479

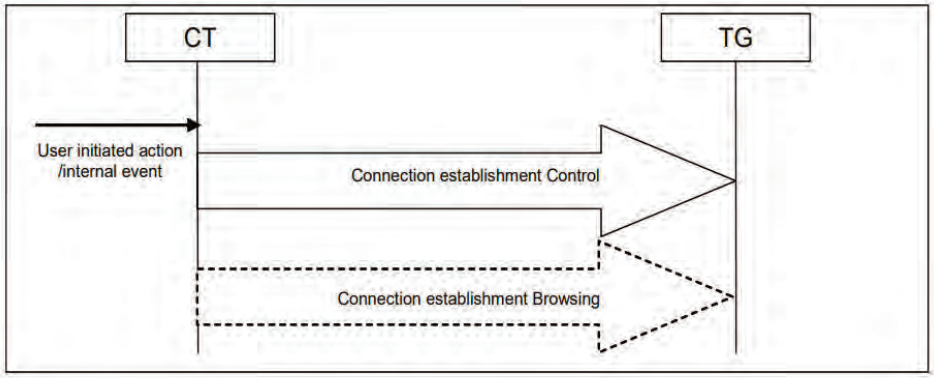



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

480

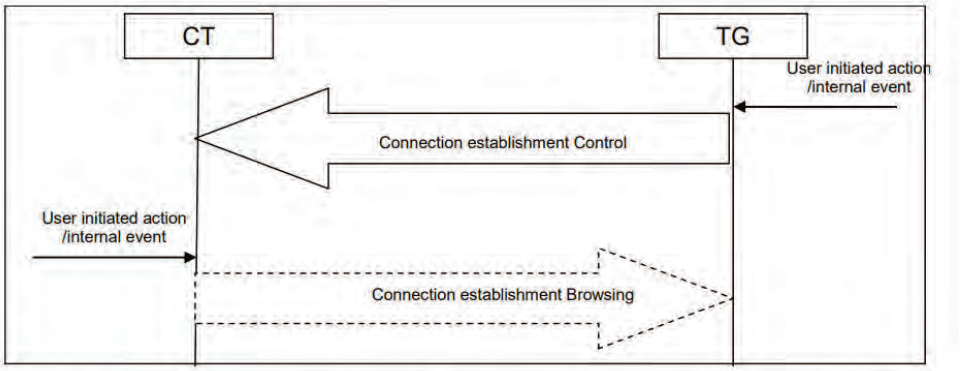



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

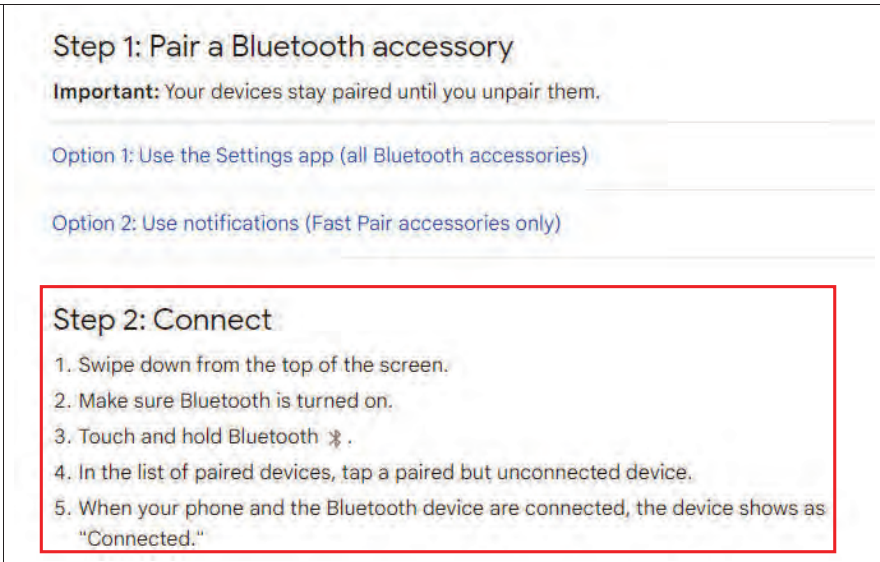
481

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| | Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

482

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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web |

483



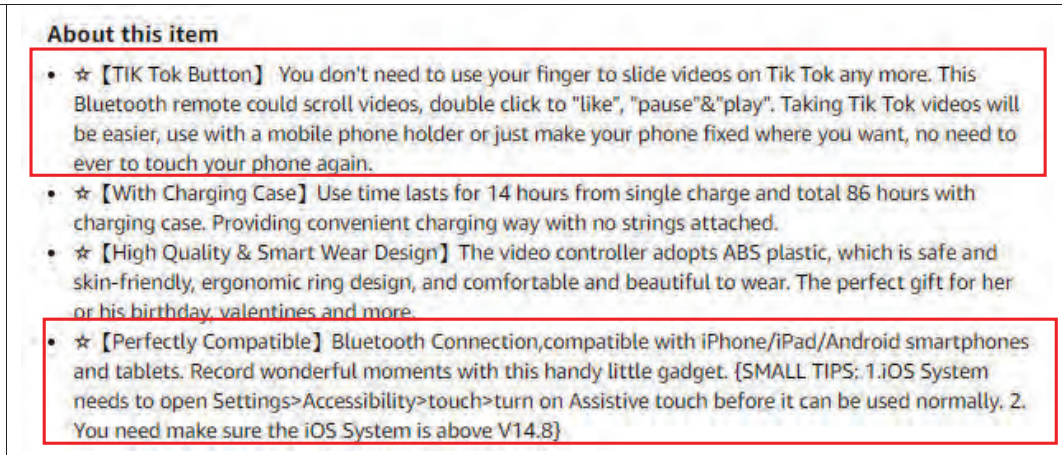

Source: https://support.google.com/android/answer/9075925?hl=en

484

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

485

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

- ☆【TIK Tok Button】You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

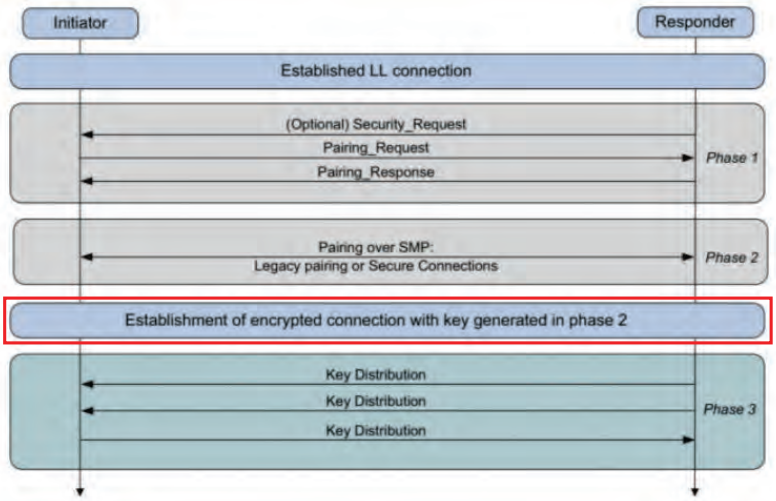
Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

487




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

488

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| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

489

Exhibit 5

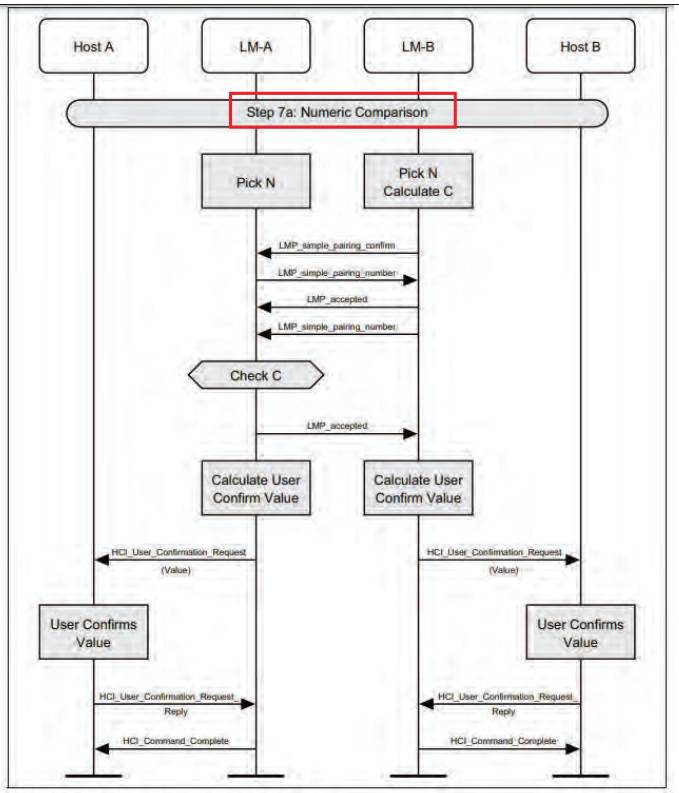



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

490

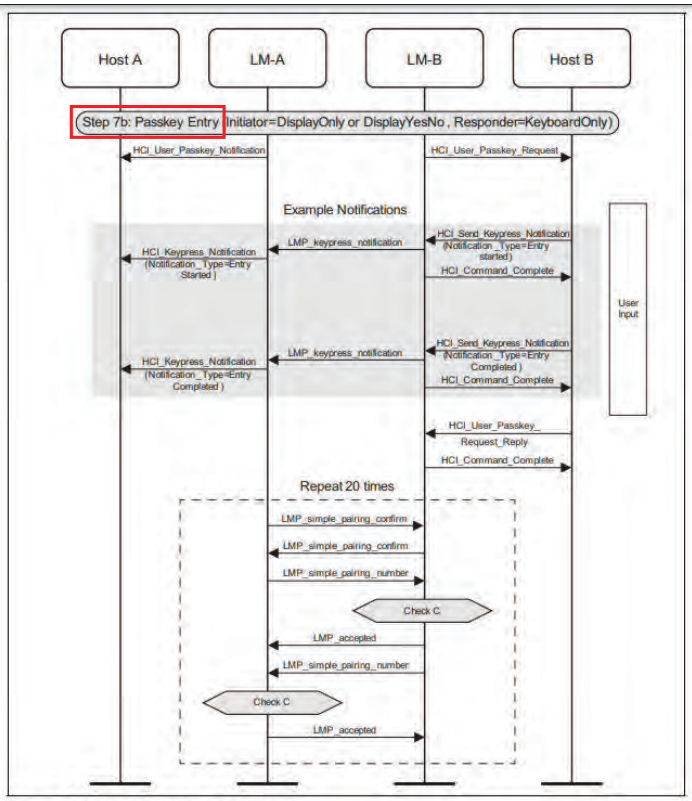



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

491

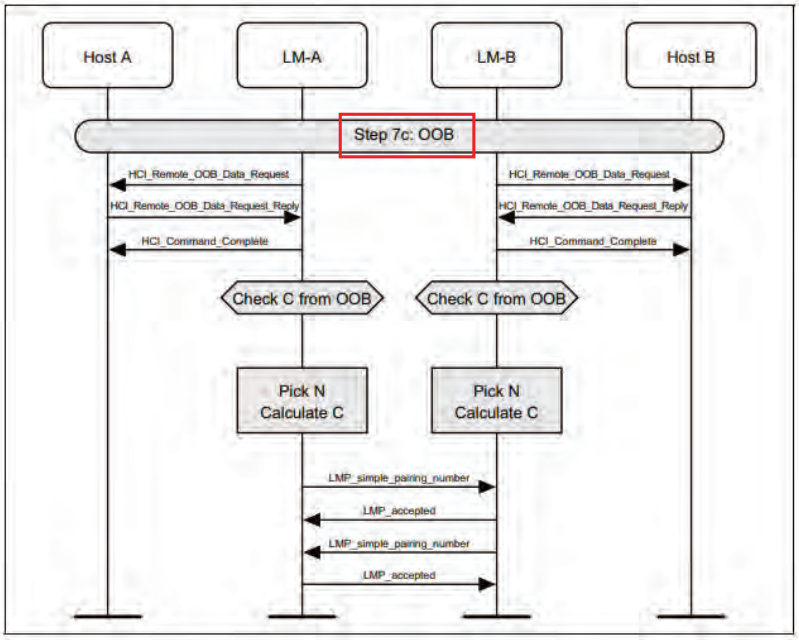
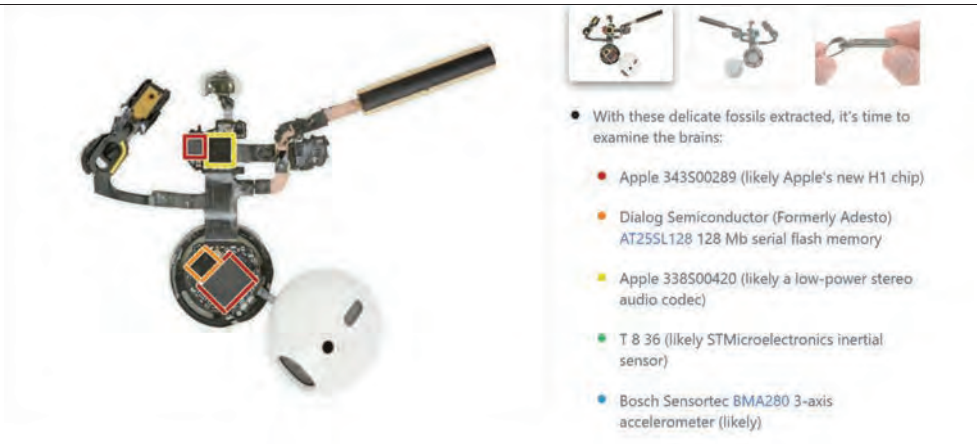



*Figure 4.20: OOB authentication (P-192)*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

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| | **Encryption Key Size Control Enhancements**<br>New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.<br>Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.<br>Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.3] a data capture circuitry; | Defendant provides a data capture circuitry.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as AirPods and Bluetooth-enabled earphones. The Bluetooth devices comprises microphone, sensors, chips, and controls among other components (“data capture circuitry”) to capture user’s audio commands.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as Bluetooth remote. The Bluetooth remote comprises buttons and sensors (“data capture circuitry”) to capture the user’s selection of the clicked button. |

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| |  <br>Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471 |

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| | **Audio Technology**<br>▪ Custom high-excursion Apple driver<br>▪ Custom high dynamic range amplifier<br>▪ Active Noise Cancellation<br>▪ Adaptive Transparency<br>▪ Vent system for pressure equalization<br>▪ Personalized Spatial Audio with dynamic head tracking[1]<br>▪ Adaptive EQ<br>**Sensors**<br>▪ Dual beamforming microphones<br>▪ Inward-facing microphone<br>▪ Skin-detect sensor<br>▪ Motion-detecting accelerometer<br>▪ Speech-detecting accelerometer<br>▪ Touch control<br>**Chip**<br>▪ Apple H2 headphone chip<br>▪ Apple U1 chip in MagSafe Charging Case<br>**Controls**<br>▪ Press once to play, pause, or answer a phone call<br>▪ Press twice to skip forward<br>▪ Press three times to skip back<br>▪ Press and hold to switch between Active Noise Cancellation and Adaptive Transparency<br>▪ Swipe up or down to adjust volume<br>▪ Say "Hey Siri" to do things like play a song, make a call, or get directions<br>Source: https://support.apple.com/kb/SP880?locale=en_US |

495



LifeScan, Inc. Ex. 1036
Page 1129 of 2225
IPR2025-00102

## Set Microphone to left, right, or automatic

There's a microphone in each AirPod, so you can make phone calls and use Siri. By default, Microphone is set to Automatic, so that either of your AirPods can act as the microphone. If you're using only one AirPod, that AirPod will be the microphone.

You can also set Microphone to Always Left or Always Right. You can also set Microphone to Always Left or Always Right to always have either the right or the left AirPod use the microphone even if you remove it from your ear or put it in the case.

Source: https://support.apple.com/en-us/HT207009

**Connectivity**

Each earbud: Bluetooth 5.0

**Audio**

Each earbud: Custom-designed 11 mm dynamic speaker driver · · Acti...

**Voice**

Each earbud: · · Three microphones · · Bluetooth Super Wideband · ...

**Sensors**

Each earbud: Capacitive touch (tap and swipe) sensors for music, call...

Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.4] said first processor configured to acquire new-data using the data capture circuitry, wherein | Defendant provides a first processor configured to acquire new-data using the data capture circuitry, wherein the new-data is data acquired after the short-range paired wireless connection between the short-range wireless enabled data capture device and the short-range wireless enabled cellular phone is established. |

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| the new-data is data acquired after the short-range paired wireless connection between the short-range wireless enabled data capture device and the short-range wireless enabled cellular phone is established; | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth device captures the user's command ("new-data") using its data capture circuitry, processes it and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is processed and transferred to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down", the Bluetooth devices such as AirPods or earphones capture the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button, the Bluetooth remote captures the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

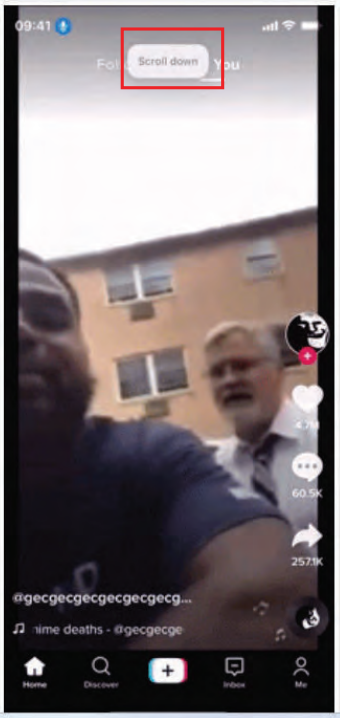
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| | Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br><br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br><br>  <br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

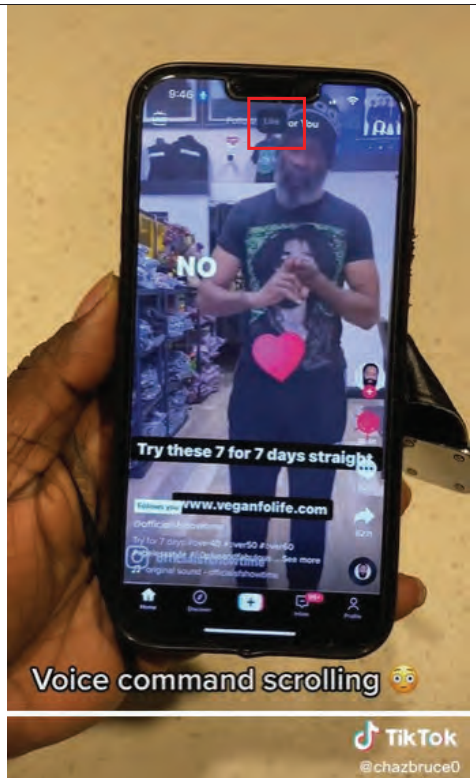
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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

502

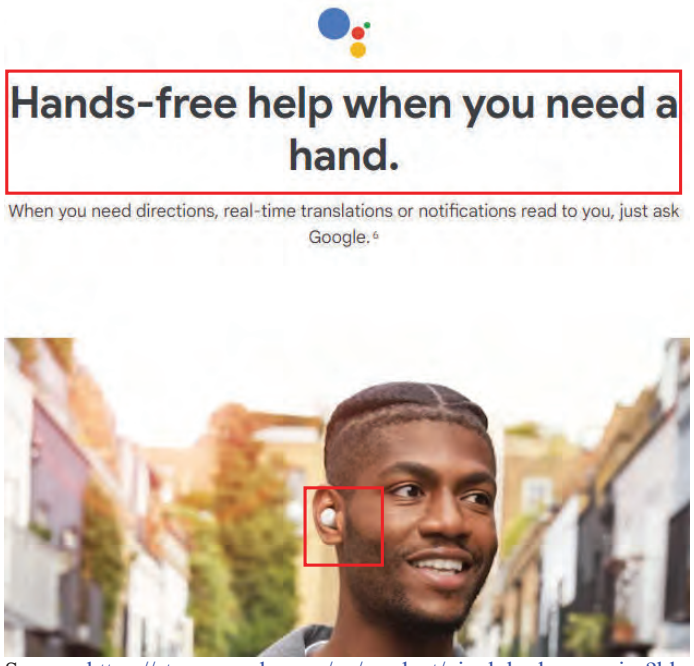
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| | **android.permission.BLUETOOTH_CONNECT** \| App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

503

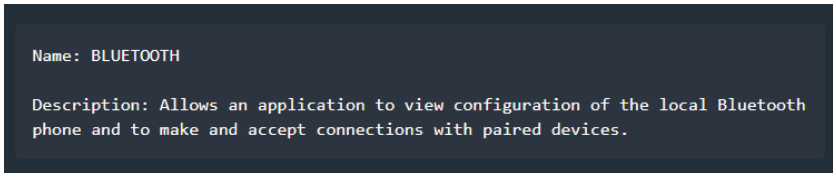
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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

504

Exhibit 5




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help




Source: https://blog.malcore.io/p/tiktok63

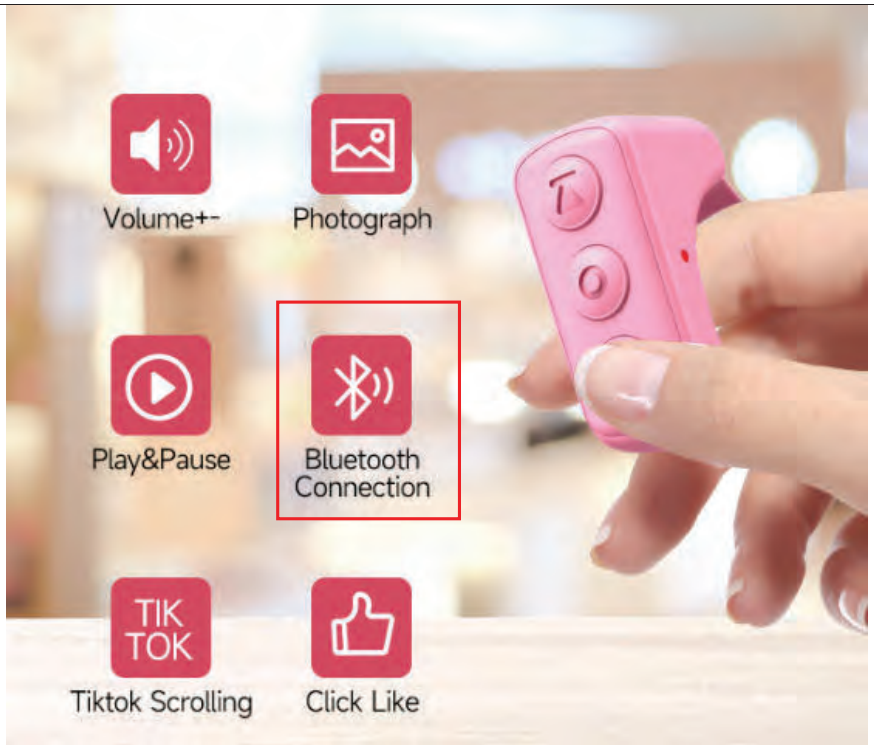
505

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

506

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

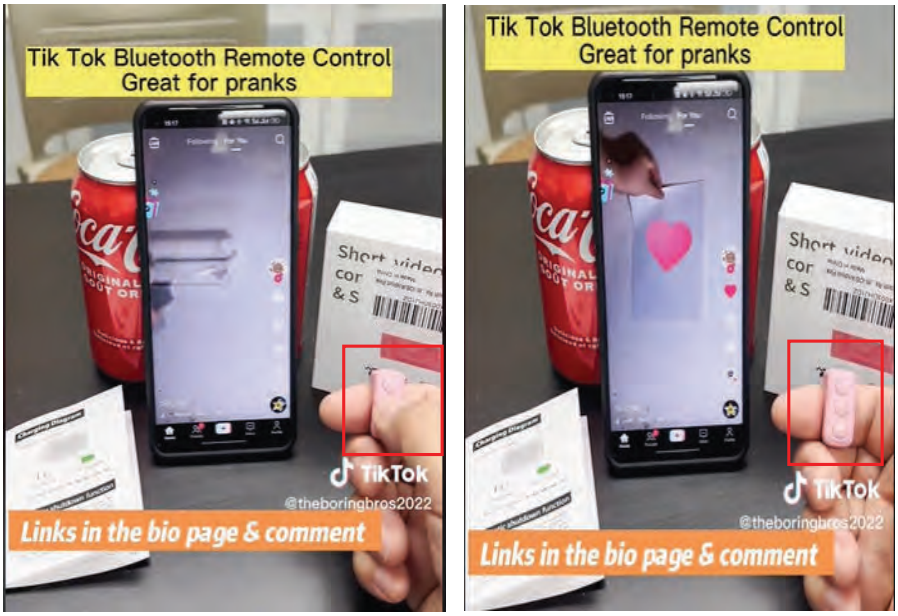
507

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

508

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.5] said first processor further configured to store the acquired new-data in the first memory device; | Defendant provides a first processor further configured to store the acquired new-data in the first memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device captures the user's command ("new-data"), processes it, temporarily stores it before buffering and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user, temporarily stores the audio data locally, processes, and transfers the command to the mobile device on which the TikTok app is installed. Similarly, the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote, upon information and belief, temporarily stores the user's selection of the clicked button locally prior to buffering purposes and transfer the command to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the audio command is stored, at least temporarily, processed and sent for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, upon information and belief, the user's selection is stored locally prior to buffering, processed and sent for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

511



LifeScan, Inc. Ex. 1036
Page 1145 of 2225
IPR2025-00102




Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471

Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.

Source: https://store.google.com/product/pixel_buds_pro

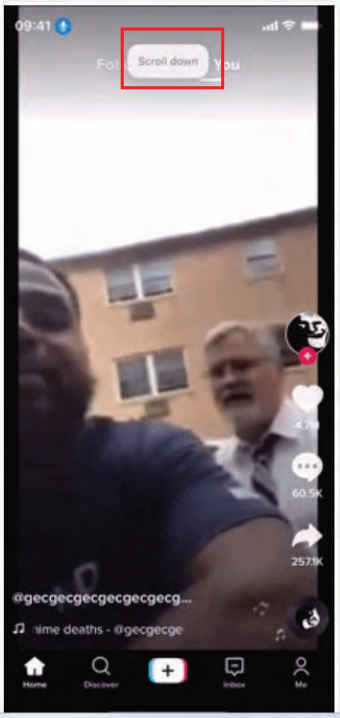
512

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

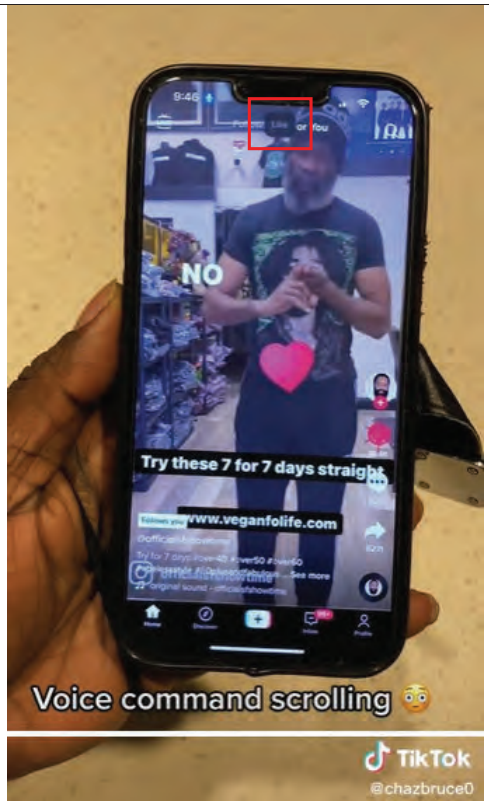
513

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|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

514

| | |
|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

515

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|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

516

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|---|---|
| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

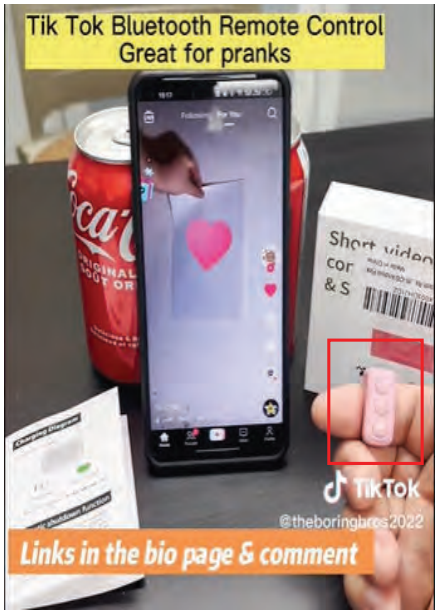
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

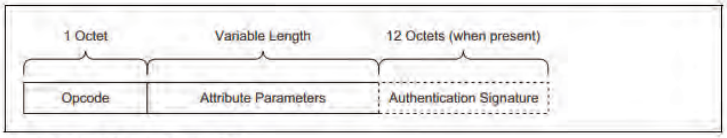
518

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|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.6] said processor further configured to create a new-data object, wherein the new-data object comprises: | Defendant provides a processor further configured to create a new-data object, wherein the new-data object comprises: signal to notify, wherein the signal to notify corresponds to the acquiring of the new-data for transfer; the acquired new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| signal to notify, wherein the signal to notify corresponds to the acquiring of the new-data for transfer;<br>the acquired new-data; and | For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command in the form of signal notification ("signal to notify") that comprises the information related to the command. Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command as a signal notification in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as a signal notification in order to like or scroll the subsequent video.<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT defines a framework for organizing and exchanging data between the BLE devices. When a GATT server (e.g., a Bluetooth device), has new data or an event to notify the GATT client (e.g., a mobile device), it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to |

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| | Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br><br>  <br>*Figure 2.3: Attribute Protocol PDU*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2225 |

522

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

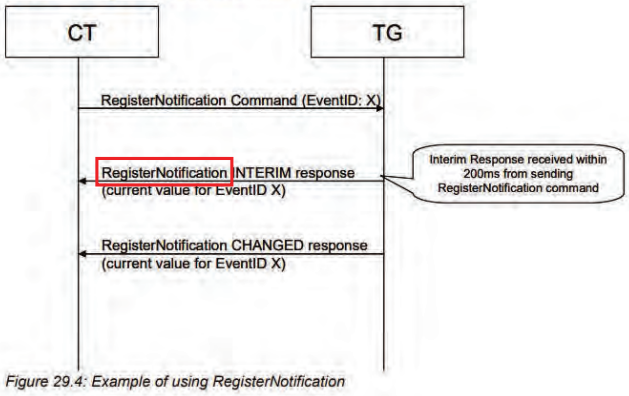



*Figure 29.4: Example of using RegisterNotification*

Source:https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139

523

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2267 |

524

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

525



LifeScan, Inc. Ex. 1036
Page 1159 of 2225
IPR2025-00102

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

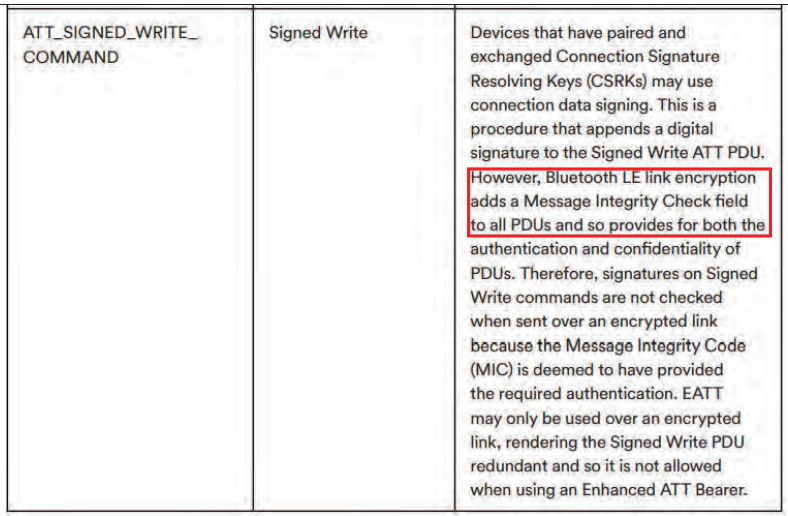
### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

526

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| |  <br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br><br>**Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

527

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| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

528

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| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

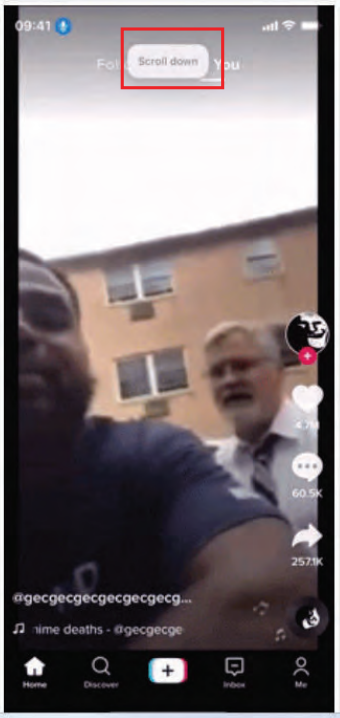
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

529

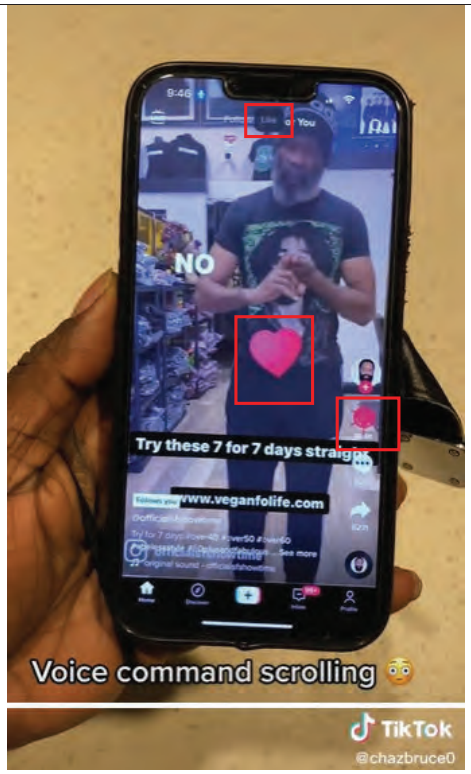
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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

530

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

532




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

533

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| | **android.permission.BLUETOOTH_CONNECT** — App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

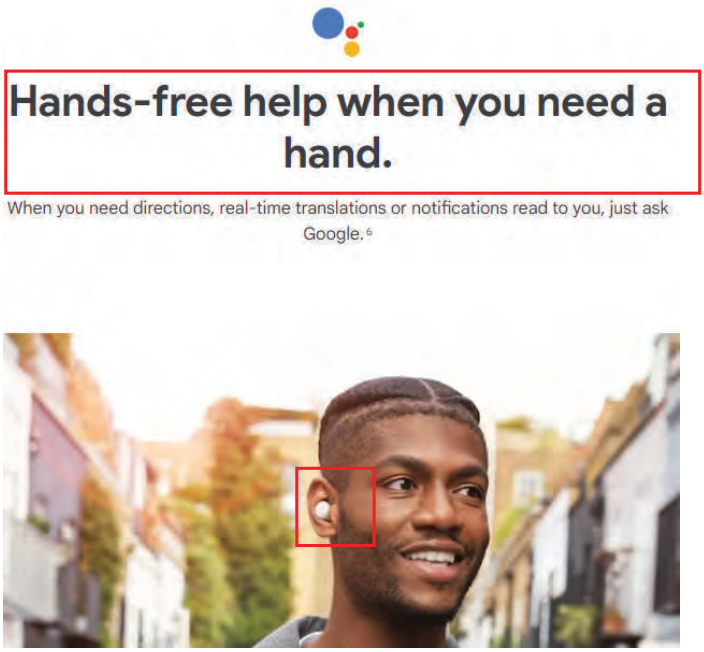
534

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

535



LifeScan, Inc. Ex. 1036
Page 1169 of 2225
IPR2025-00102




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

536

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

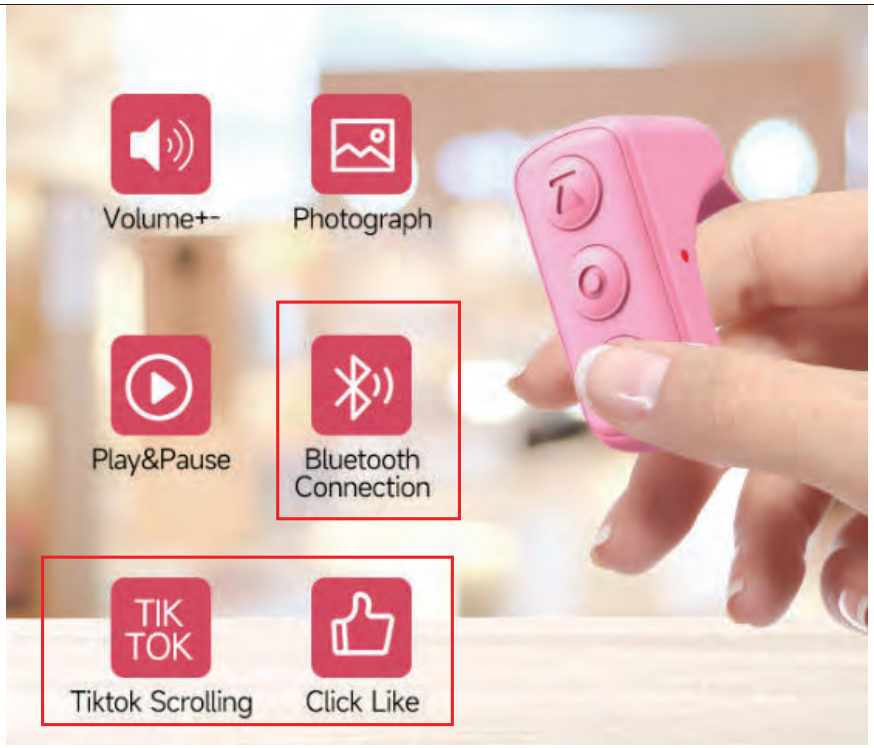
537

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

538



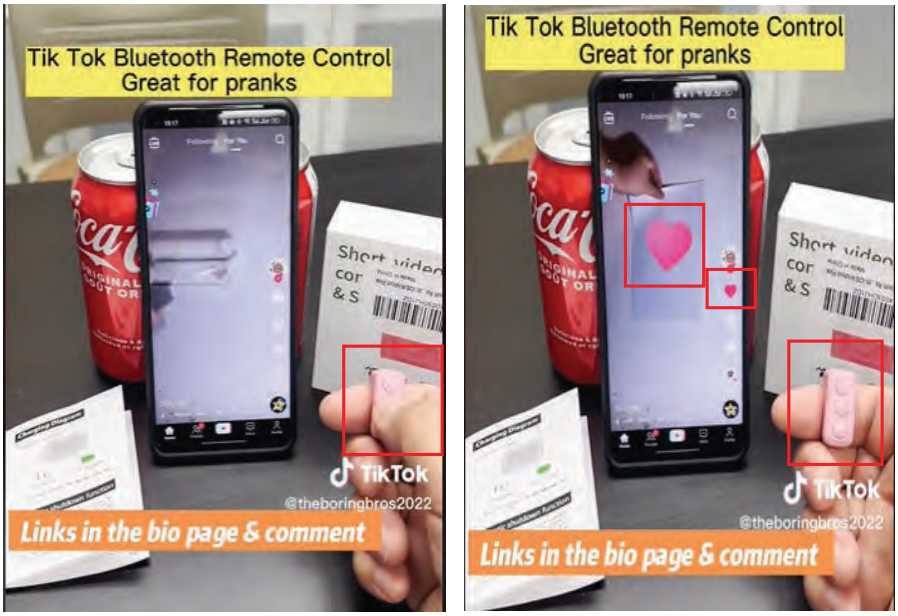
LifeScan, Inc. Ex. 1036
Page 1172 of 2225
IPR2025-00102

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

539

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

540

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.7] associated new-data, wherein the associated new-data corresponds to data associated with the new-data; and | Defendant provides processor configured to create a new-data object, wherein the new-data object comprises: associated new-data, wherein the associated new-data corresponds to data associated with the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

| | |
|---|---|
| | For example, while operating the TikTok app, the Bluetooth devices such as AirPods or Earphones capture the user's audio input which is sent to the mobile device as a signal notification along with the metadata (associated new-data") associated with the audio input, for example, size of the audio command.<br><br>When an Audio Stream contains content which is controlled by a content control service, it includes the CCID in a list of such services in the Audio Stream's metadata to tell both Acceptors and Commanders where they can find the correct service. We'll look at Commanders in a moment in Section 3.12.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2022/01/Introducing-Bluetooth-LE-Audio-book.pdf, Page 64<br><br>it to a remote Bluetooth device. The functions available for a conventional infrared remote controller can be realized in this profile. In addition to this, the profile uses Bluetooth specific extensions to support transfer of metadata related to content to be transferred between Bluetooth devices. Browsing features are provided to allow a remote controller to navigate the media and control specific media players on the remote target device. The remote control described in this profile is designed specific to A/V control. Other remote control solutions using Bluetooth wireless technology may be applied for general Bluetooth devices including A/V devices.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 10<br><br>The GetItemAttributes command is used to retrieve the metadata attributes for a particular media element item or folder item. The PDU format is similar to that of the GetElementAttributes command, however the GetItemAttributes is sent over the browsing channel to the Browsed Player and is not encapsulated within an AV/C frame.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 78<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.8] said first processor further configured to receive a data transfer | Defendant provides a first processor further configured to receive a data transfer request from the short-range wireless enabled cellular phone, over the established short-range paired wireless connection, wherein the data |

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| request from the short-range wireless enabled cellular phone, over the established short-range paired wireless connection, wherein the data transfer request is for the acquired new-data that was acquired by the short-range wireless enabled data capture device before receiving the data transfer request; and | transfer request is for the acquired new-data that was acquired by the short-range wireless enabled data capture device before receiving the data transfer request.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device ("Bluetooth enabled data capture device"), the Bluetooth device captures the user's command ("acquired new-data"). Further, it would be apparent to a person having ordinary skill in the art that the mobile device sends a request to the Bluetooth device to retrieve new data for transfer.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the mobile device on which the TikTok app is installed, requests the Bluetooth device to send the user's command so as to perform the corresponding functionality in the TikTok app.<br><br>**Transfer Bluetooth data**<br><br>After you have successfully connected to a Bluetooth device, each one has a connected `BluetoothSocket`. You can now share information between devices. Using the `BluetoothSocket`, the general procedure to transfer data is as follows:<br><br>1. Get the `InputStream` and `OutputStream` that handle transmissions through the socket using `getInputStream()` and `getOutputStream()`, respectively.<br>2. Read and write data to the streams using `read(byte[])` and `write(byte[])`.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth/transfer-data |

543

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| | A new Data Channel PDU is a Data Channel PDU sent for the first time by the Link Layer. A last Data Channel PDU is a Data Channel PDU that is resent by the Link Layer. When resending a Data Channel PDU, the LLID field, the SN field and the payload of the sent Data Channel PDU shall be equal to those of the last Data Channel PDU sent by the Link Layer.<br><br>For each new Data Channel PDU that is sent, the SN bit of the Header shall be set to *transmitSeqNum*. If a Data Channel PDU is resent, then the SN bit shall not be changed.<br><br>Upon reception of a Data Channel PDU, the SN bit shall be compared to *nextExpectedSeqNum*. If the bits are different, then this is a resent Data Channel PDU, and *nextExpectedSeqNum* shall not be changed. If the bits are the same, then this is a new Data Channel PDU, and *nextExpectedSeqNum* may be incremented by one (see Section 4.5.9.1).<br><br>When a Data Channel PDU is sent, the NESN bit of the Header shall be set to *nextExpectedSeqNum*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649 |

544

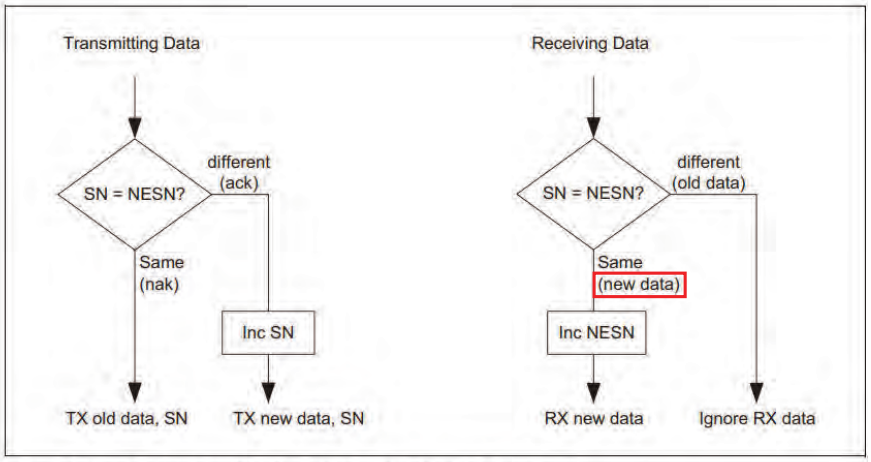



*Figure 4.39: Transmit and Receive SN and NESN flow diagram*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649

Connectionless Slave Broadcast packets are transmitted at each scheduled Connectionless Slave Broadcast Instant. If no new data is available, the Connectionless Slave Broadcast Transmitter shall transmit a packet with the last available data in the payload.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 441

545

| Value | Parameter Description |
|---|---|
| Variable | Data to send in future Connectionless Slave Broadcast packets. This data will be repeated in future Connectionless Slave Broadcast instants until new data is provided |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1030

If Operation indicates the start of new data (values 0x01 or 0x03), then any existing partial or complete advertising data shall be discarded. If the Advertising_Data_Length parameter is zero and Operation is 0x03, any existing partial or complete data shall be deleted (with no new data provided).

If Operation is 0x04, the behavior is the same as if the current advertising data had been sent again; this can be used to cause the Advertising DID value to be updated (see [Vol 6] Part B, Section 4.4.2.11).

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1345

Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

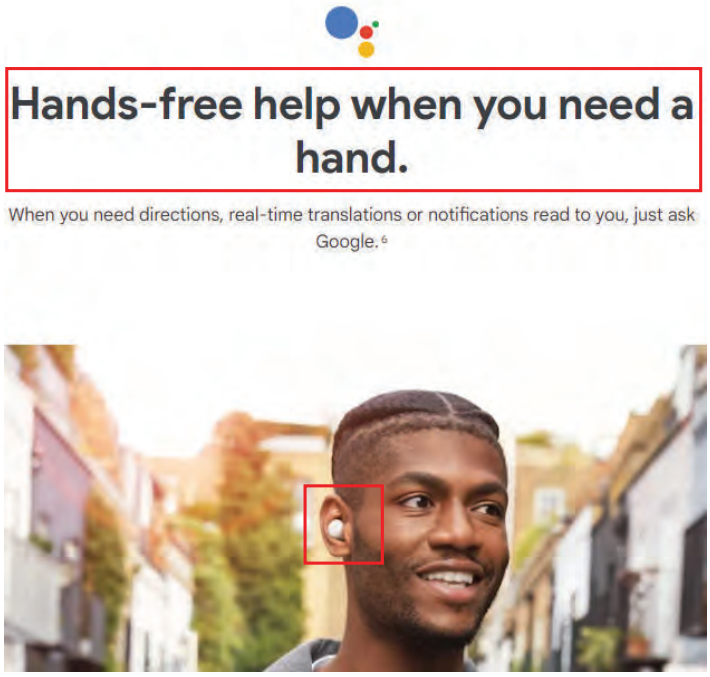
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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

548



LifeScan, Inc. Ex. 1036
Page 1182 of 2225
IPR2025-00102

Exhibit 5




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

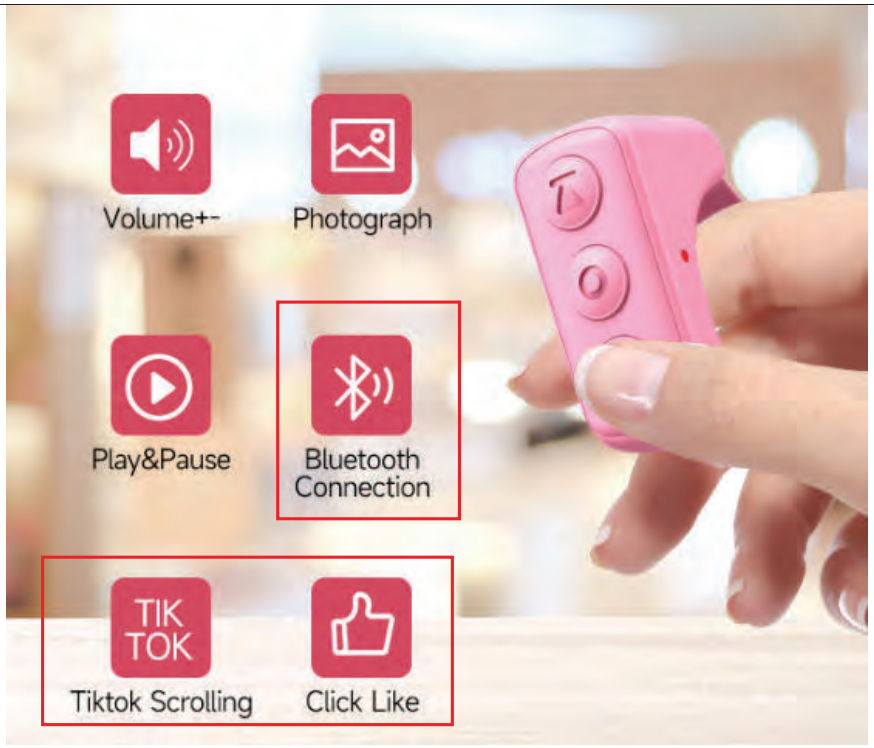
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LifeScan, Inc. Ex. 1036
Page 1183 of 2225
IPR2025-00102

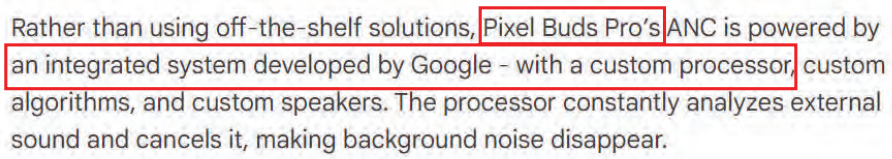
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.9] said first processor configured to transfer the new-data object to the short-range wireless enabled cellular phone over the established short-range paired wireless connection; | Defendant provides a first processor configured to transfer the new-data object to the short-range wireless enabled cellular phone over the established short-range paired wireless connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection (“short-range paired wireless connection”) is established between the mobile device (“short-range wireless enabled cellular phone”) and the Bluetooth device, the Bluetooth device captures the user’s command (“new-data”), processes and automatically transfers the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command and performs the functionality corresponding to the received command. |

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| | For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote, processes it and transfers the data to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as “Double Tap” or “Scroll Down” on AirPods or earphones, after processing, the TikTok app automatically receives the user’s command to ‘like’ or ‘scroll down’ the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, after processing, the TikTok app like or scroll the subsequent video.<br><br>  <br><br><br>Source: https://store.google.com/product/pixel_buds_pro |

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

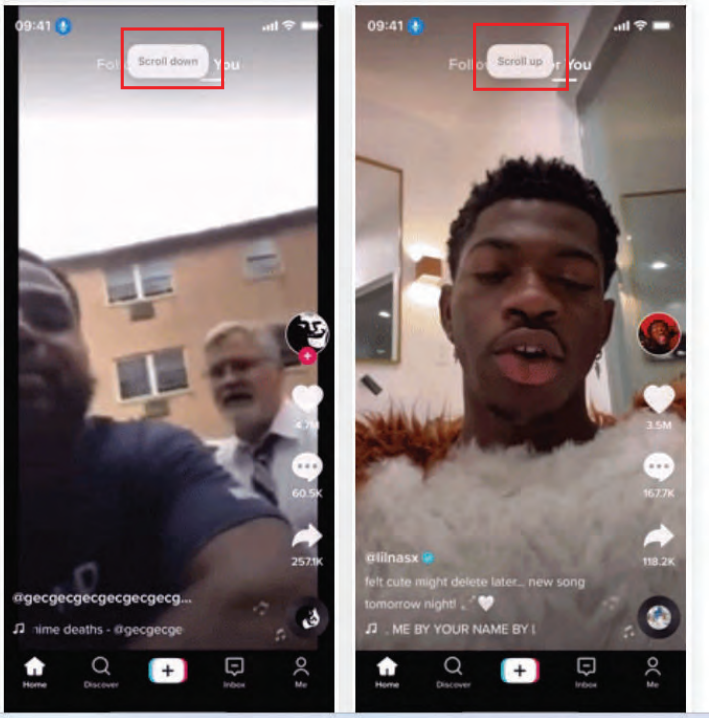
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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

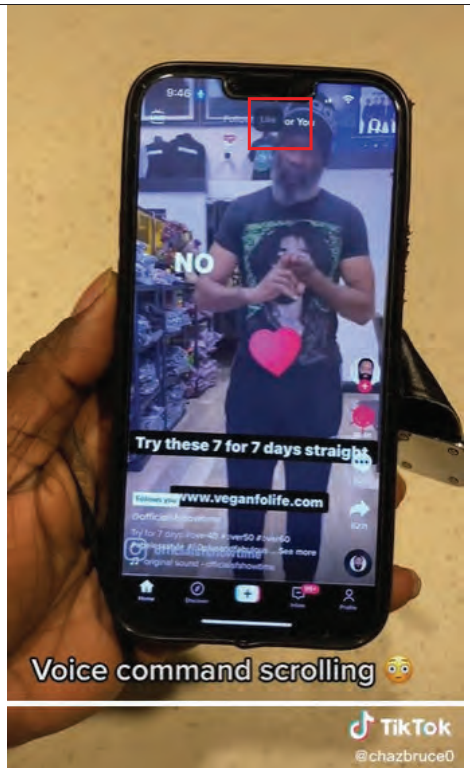
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LifeScan, Inc. Ex. 1036
Page 1189 of 2225
IPR2025-00102

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

556




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

557

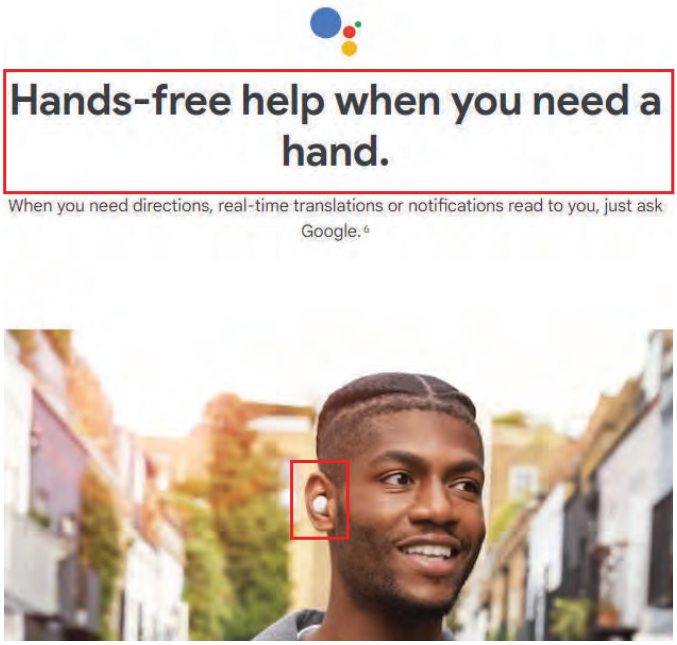
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| | **android.permission.BLUETOOTH_CONNECT** — App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

559



LifeScan, Inc. Ex. 1036
Page 1193 of 2225
IPR2025-00102




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
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Source: https://blog.malcore.io/p/tiktok63

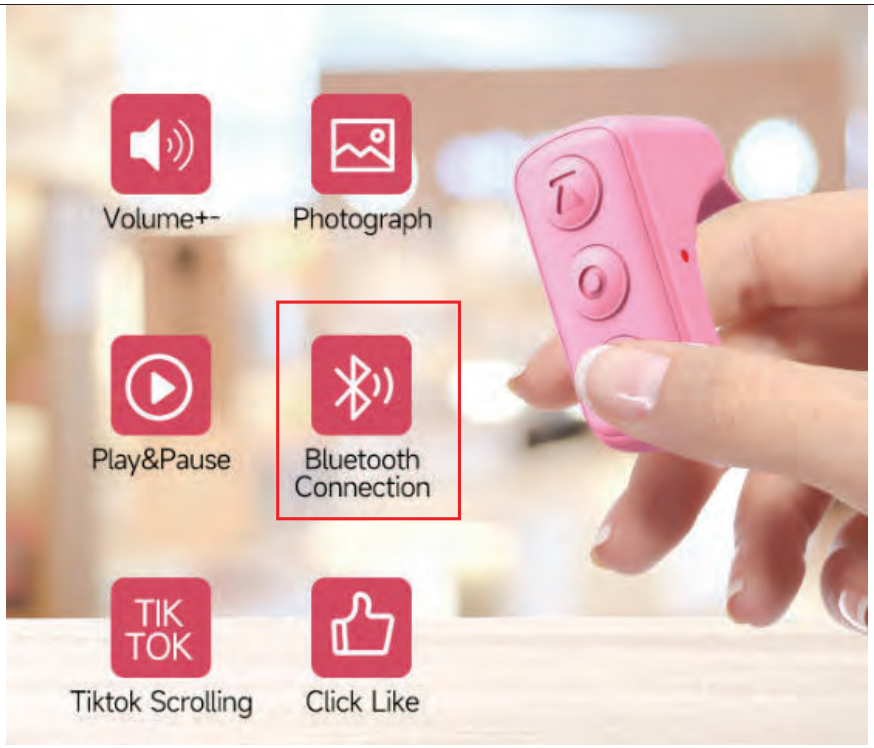
560

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

561

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

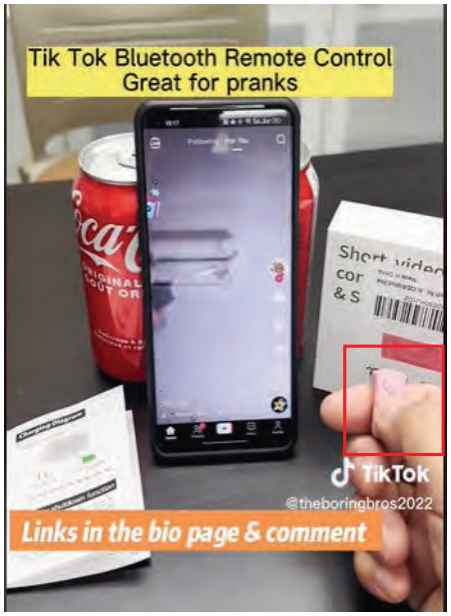
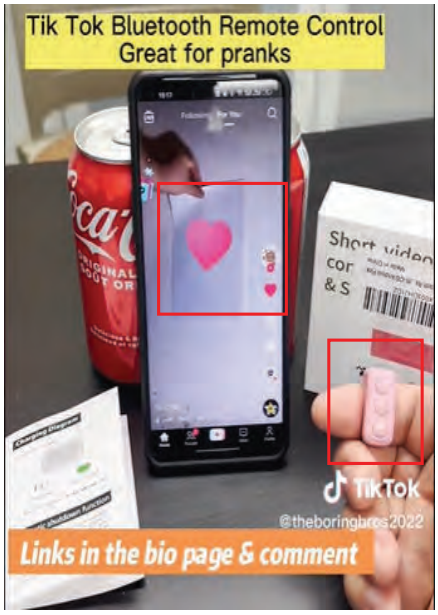
563

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|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

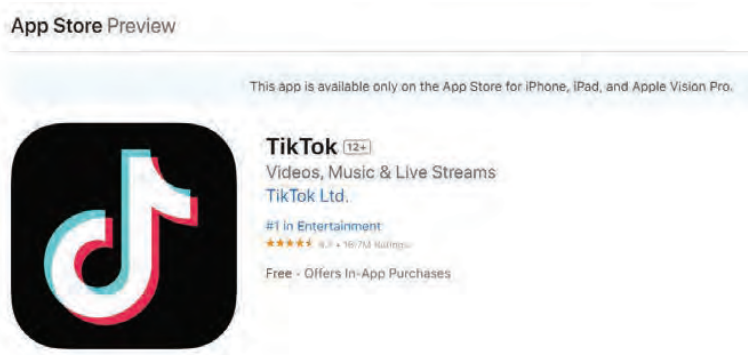
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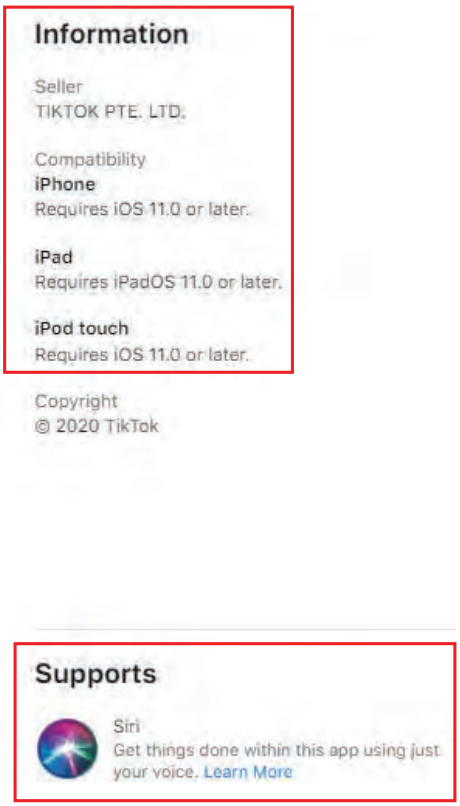
LifeScan, Inc. Ex. 1036
Page 1198 of 2225
IPR2025-00102

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.10] a mobile client application for the short-range wireless enabled cellular phone comprising executable instructions that, when | Defendant provides a mobile client application for the short-range wireless enabled cellular phone comprising executable instructions.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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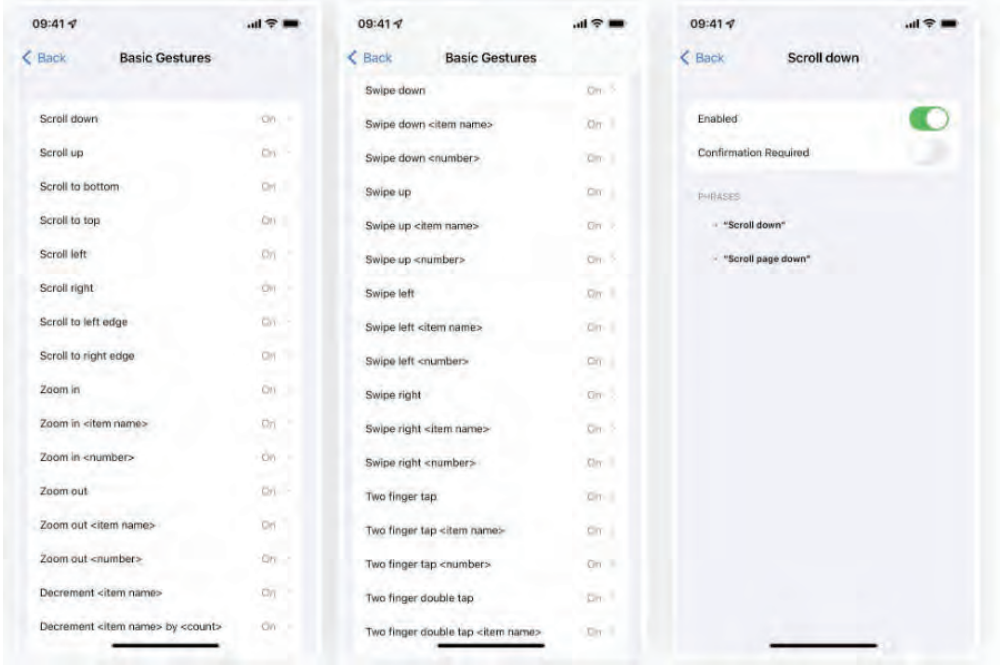
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| executed by a second processor of the short-range wireless enabled cellular phone controls the second processor to: | For example, the TikTok app ("mobile client application") is installed in the mobile device ("short-range wireless enabled cellular phone") and can be remotely controlled through Bluetooth devices such as AirPods, earphones, or Bluetooth remotes. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to receive and execute the inputs (using executable instructions) provided by the user through the Bluetooth devices and perform corresponding functions such as 'scrolling'/'liking' the video.<br><br>For example, the TikTok app for iOS allows a user to configure gestures for phrases such that when the user provides an audio command corresponding to the phrase, a gesture is automatically performed on the user interface of the TikTok app causing a functionality such as 'liking' or 'scrolling' of a video in the app. The custom phrases and corresponding gestures for the TikTok app are set in the Voice Control settings of iOS. For example, when the phrase "double tap" and a custom gesture causing a double tap on the screen is configured for the TikTok app, then the audio command "double tap" provided by the user on the Bluetooth device (such as AirPods) causes the double tapping gesture to be performed in the TikTok app leading to 'liking' of the video.<br><br>  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

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Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

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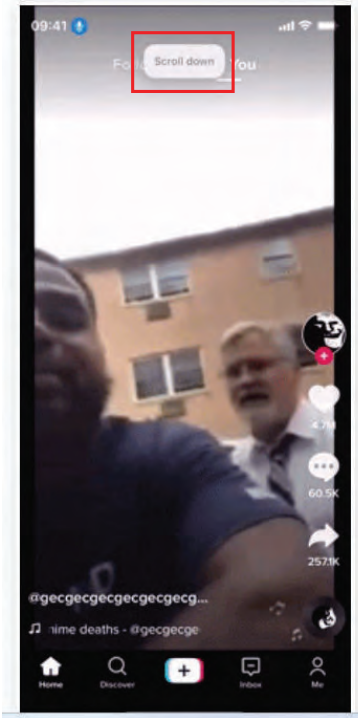

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/#

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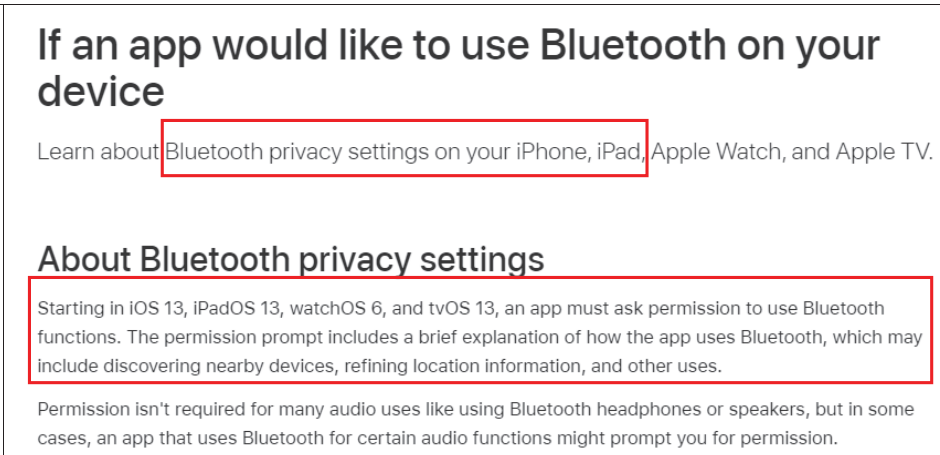


LifeScan, Inc. Ex. 1036
Page 1202 of 2225
IPR2025-00102

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

570



## If an app would like to use Bluetooth on your device

Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.

### About Bluetooth privacy settings

Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.

Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.

Source: https://support.apple.com/en-us/HT210578

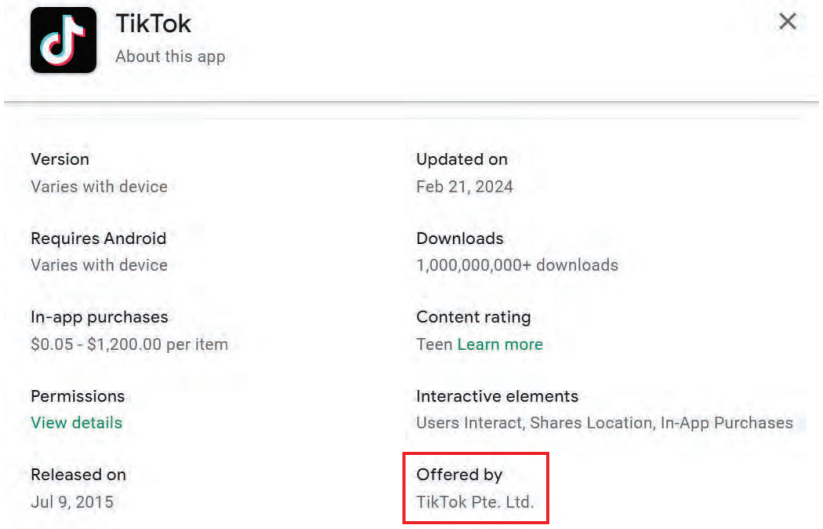
571

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>For example, the TikTok app when installed on an Android phone such as Pixel 6a (used herein as an exemplary Android-based device), allows the user to turn on Voice Access feature in the Android phone's Accessibility settings to perform multiple functionalities such as 'liking' the content and 'scrolling' the videos while accessing the TikTok app. When an audio command corresponding to the desired functionality is provided through the Bluetooth device, Pixel 6a receives the command and the TikTok app processes the executed |

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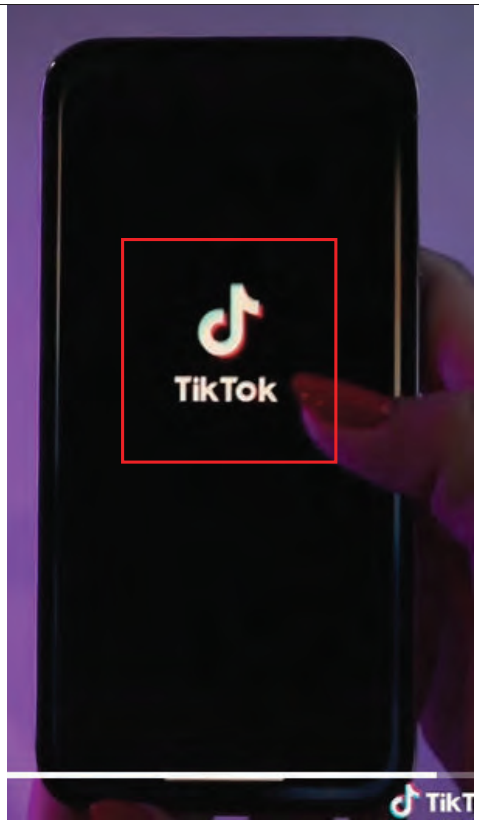
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| | command and performs the corresponding functionality such as scrolling/liking the video. For example, when Voice Access is enabled while surfing the TikTok app and the user provides an audio input “Scroll down” on the Bluetooth device such as an earphone, the TikTok app scrolls down to load the next video.<br>  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

573




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

574




Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21

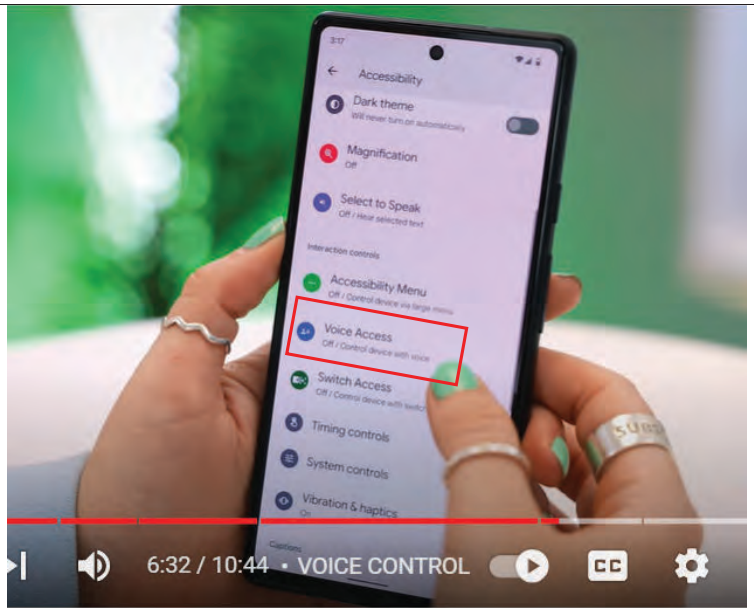
575



LifeScan, Inc. Ex. 1036
Page 1209 of 2225
IPR2025-00102

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| | **Step 3: Start using Voice Access**<br>To turn on Voice Access, follow these steps:<br>1. Open your device's Settings app.<br>2. Tap **Accessibility**, then tap **Voice Access.**<br>3. Tap **Use Voice Access**.<br>4. Start Voice Access in one of these ways:<br>• If "Hey Google" detection is on, you can say "Hey Google, Voice Access."<br>• Open your notification shade and tap **Touch to start**.<br>• On your Home screen, tap the Voice Access app.<br>• Tap the Voice Access activation button. (You can set up the activation button in Settings > **Accessibility** > **Voice Access** > **Settings** > **Activation button**.)<br>5. Say a command, such as "Open Gmail." Learn more Voice Access commands.<br>The first time you turn on Voice Access, two extra steps help you get started:<br>• A guide to "Hey Google" settings helps set you up for a good hands-free experience.<br>• An interactive tutorial teaches you how Voice Access works.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

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| |  <br>Source: https://www.youtube.com/watch?v=Ec52kzzqVRM, at 6:32 |

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Here is how to scroll through TikTok hands-free on Android:

- Install Google's Voice Access app from Play Store.
- Go to **Settings** › **Accessibility**; find and select the Voice Access app.
- Tap on **Use service** to enable Voice Access.
- When prompted, grant permissions to the Voice Access app.
- Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.
- Once done, you will see a blue floating icon on your screen.
- Tap on the floating icon to activate Voice Access. You are all set!
- Now, open TikTok and say "**scroll down**" to see the magic.

Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/

- **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:
  1. Connect your keyboard or switch to your device:
     - Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices.

Source: https://support.google.com/accessibility/android/answer/6151848?hl=en

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

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| | Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>For example, TikTok app is also configured to receive data from third-party Bluetooth remotes. These Bluetooth remotes connect to the mobile device via Bluetooth and allow the user to scroll through videos or 'like' a video using designated buttons on the remote (for example, a user can "like" a particular video on the TikTok app by double clicking a designated button). |

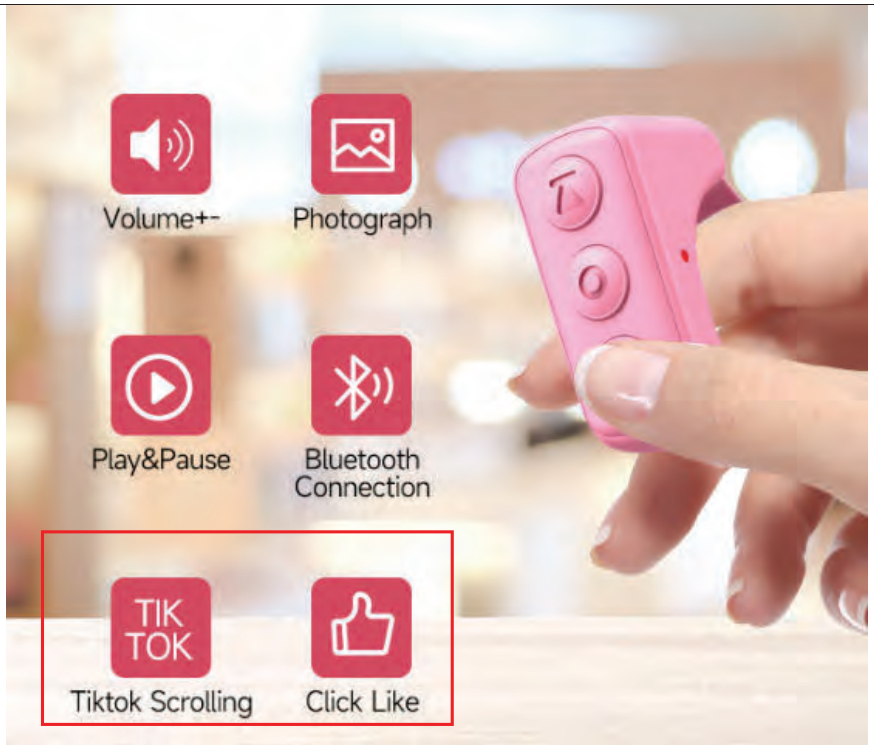
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

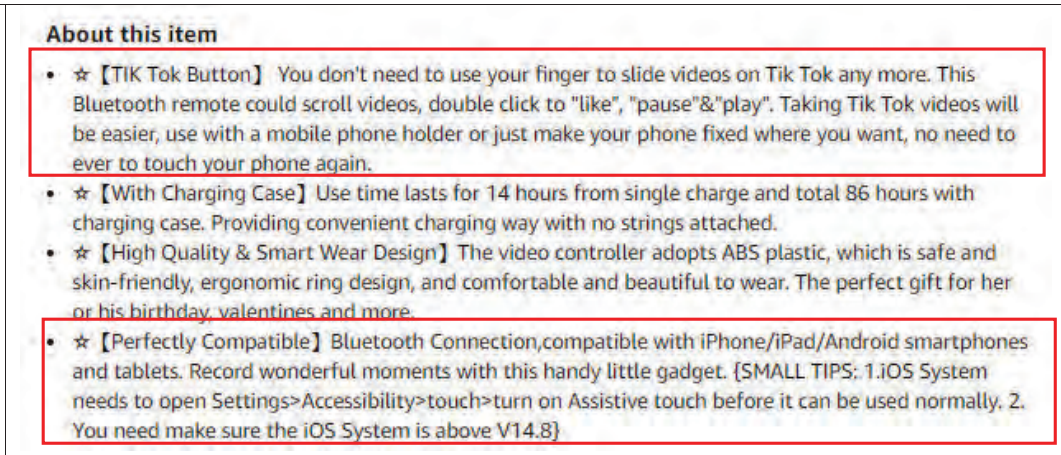
580

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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**About this item**

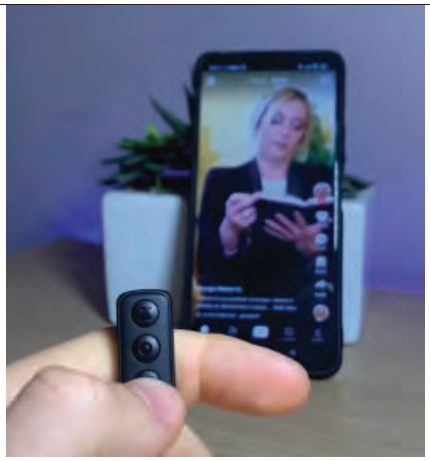
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.youtube.com/shorts/rz7SWRCzdMg<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63 |

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| | BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>**Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.11] receive a request through a graphical user interface (GUI) of the cryptographically authenticated short-range wireless enabled cellular phone for new-data and send a data transfer | Defendant provides a mobile client application that receive a request through a graphical user interface (GUI) of the cryptographically authenticated short-range wireless enabled cellular phone for new-data and send a data transfer request to the short-range wireless enabled data capture device, over the established short-range paired wireless connection, wherein the data transfer request is for the acquired new-data that was acquired by the short-range wireless enabled data capture device before receiving the data transfer request.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents |

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| request to the short-range wireless enabled data capture device, over the established short-range paired wireless connection, wherein the data transfer request is for the acquired new-data that was acquired by the short-range wireless enabled data capture device before receiving the data transfer request; | For example, the TikTok app installed on the mobile device ("short-range wireless enabled cellular phone") comprises a graphical user interface ("GUI") which allows the user to access the content such as videos ("new-data") that are uploaded on the TikTok app.<br><br>For example, when the user sends a command to like a video on the TikTok app through the Bluetooth device ("short-range wireless enabled data capture device") and the like is not updated on the TikTok video, the user refreshes the TikTok app's interface, by tapping on the 'Refresh your For You feed' in the settings. Upon information and belief, a request is received through the GUI of the TikTok app to update the TikTok videos and display the updated liked videos in the liked folder.<br><br>**Transfer Bluetooth data**<br><br>After you have successfully connected to a Bluetooth device, each one has a connected `BluetoothSocket`. You can now share information between devices. Using the `BluetoothSocket`, the general procedure to transfer data is as follows:<br><br>1. Get the `InputStream` and `OutputStream` that handle transmissions through the socket using `getInputStream()` and `getOutputStream()`, respectively.<br>2. Read and write data to the streams using `read(byte[])` and `write(byte[])`.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth/transfer-data |

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| | A new Data Channel PDU is a Data Channel PDU sent for the first time by the Link Layer. A last Data Channel PDU is a Data Channel PDU that is resent by the Link Layer. When resending a Data Channel PDU, the LLID field, the SN field and the payload of the sent Data Channel PDU shall be equal to those of the last Data Channel PDU sent by the Link Layer.<br><br>For each new Data Channel PDU that is sent, the SN bit of the Header shall be set to *transmitSeqNum*. If a Data Channel PDU is resent, then the SN bit shall not be changed.<br><br>Upon reception of a Data Channel PDU, the SN bit shall be compared to *nextExpectedSeqNum*. If the bits are different, then this is a resent Data Channel PDU, and *nextExpectedSeqNum* shall not be changed. If the bits are the same, then this is a new Data Channel PDU, and *nextExpectedSeqNum* may be incremented by one (see Section 4.5.9.1).<br><br>When a Data Channel PDU is sent, the NESN bit of the Header shall be set to *nextExpectedSeqNum*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649 |

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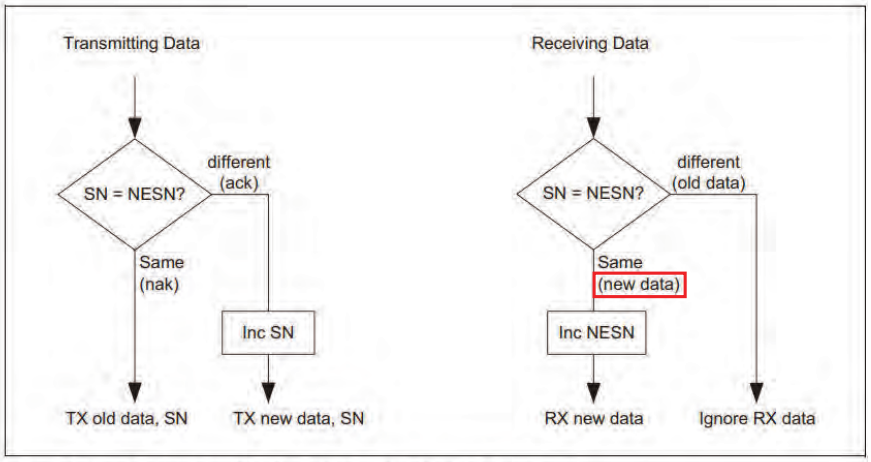



*Figure 4.39: Transmit and Receive SN and NESN flow diagram*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2649

Connectionless Slave Broadcast packets are transmitted at each scheduled Connectionless Slave Broadcast Instant. If no new data is available, the Connectionless Slave Broadcast Transmitter shall transmit a packet with the last available data in the payload.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 441

589

| Value | Parameter Description |
|---|---|
| Variable | Data to send in future Connectionless Slave Broadcast packets. This data will be repeated in future Connectionless Slave Broadcast instants until new data is provided |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1030

If Operation indicates the start of new data (values 0x01 or 0x03), then any existing partial or complete advertising data shall be discarded. If the Advertising_Data_Length parameter is zero and Operation is 0x03, any existing partial or complete data shall be deleted (with no new data provided).

If Operation is 0x04, the behavior is the same as if the current advertising data had been sent again; this can be used to cause the Advertising DID value to be updated (see [Vol 6] Part B, Section 4.4.2.11).

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1345

Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

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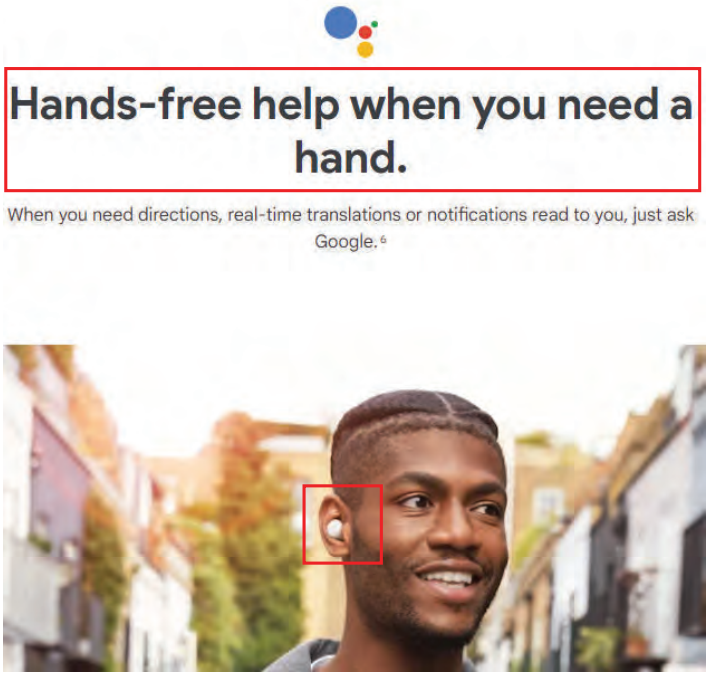
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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

592

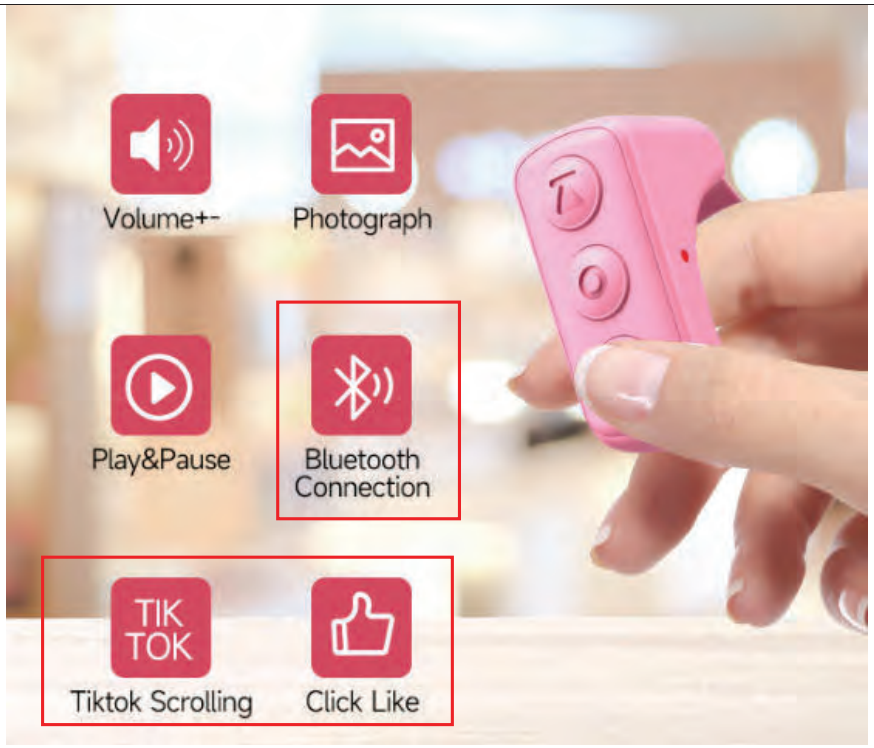
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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>**How to refresh your For You feed**<br><br>To refresh your For You feed:<br>1. In the TikTok app, tap **Profile** at the bottom.<br>2. Tap the **Menu** button at the top.<br>3. Tap **Settings and privacy**, then tap **Content Preferences**.<br>4. Tap **Refresh your For You feed** and follow the instructions provided to finish. Once you refresh the feed, it can't be undone.<br><br>A few things to know about refreshing your For You feed<br>• Only your For You feed is refreshed—other areas of TikTok are not affected, such as your Following feed, profile, and inbox.<br>• As you interact with the new videos on the For You feed, your personalized profile will be refreshed to show you more varied content than before. We'll continue to use the personalized profile that previously shaped your For You feed to bring you personalized content in other areas of TikTok such as ads and other feeds.<br><br>Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/refresh-your-for-you-feed |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

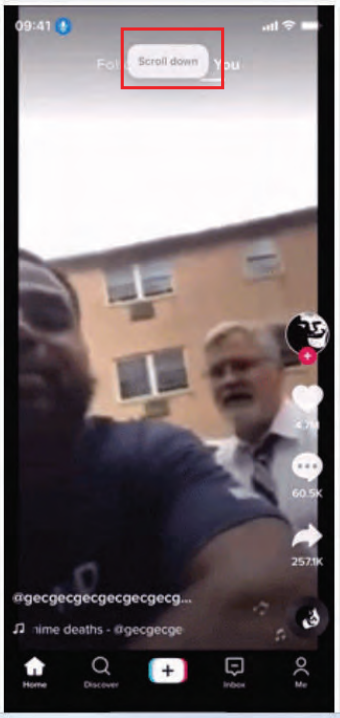
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

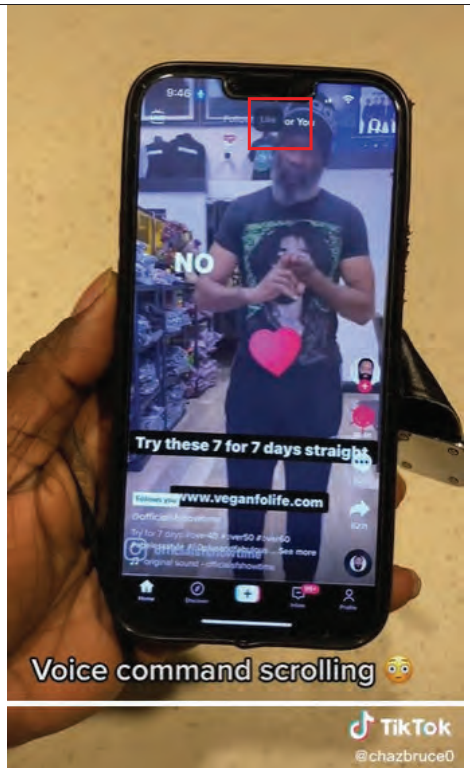
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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

Exhibit 5

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

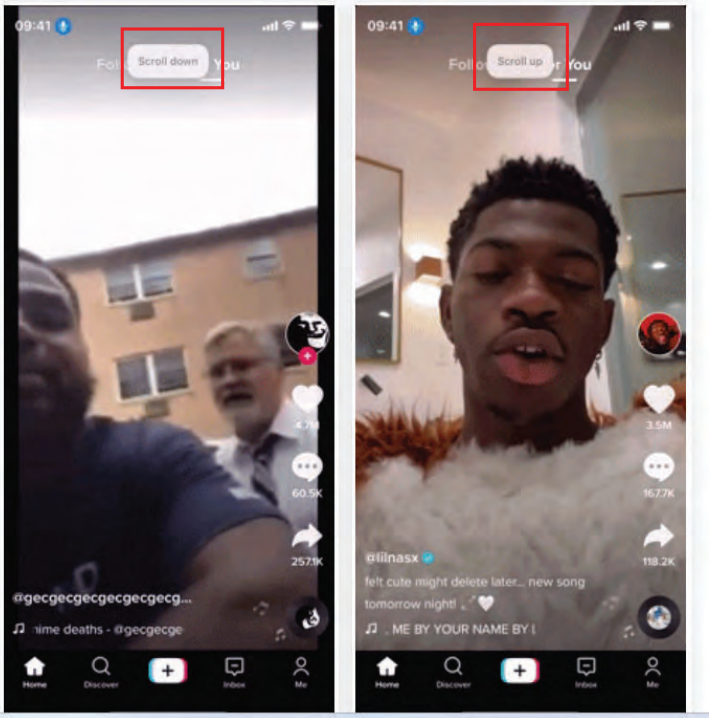
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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |

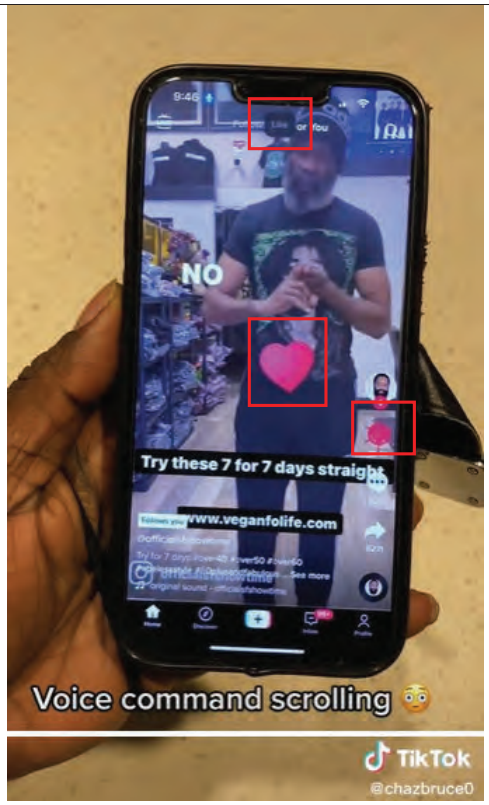
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| [13.12] receive the new-data object from the short-range wireless enabled data capture device, over the established short-range paired wireless connection; store the new-data received over the established short-range paired wireless connection, in a second memory device of the short-range wireless enabled cellular phone; and | Defendant provides a mobile client application that receive the new-data object from the short-range wireless enabled data capture device, over the established short-range paired wireless connection; store the new-data received over the established short-range paired wireless connection, in a second memory device of the short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth device captures the user's command and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device, from the Bluetooth device, receives the user command in the form of signal notification that comprises the information related to the command ("receive the new-data object"). Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" (signal to notify and acquired new-data) on AirPods or earphones, the TikTok app receives the user's command in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command in order to like or scroll the subsequent video.<br><br>For example, the TikTok app stores the user's activity (liked and watched videos) including the commands ("received new-data") at least temporarily in the cache memory ("second memory device") of the mobile device (in which the TikTok app is installed). |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

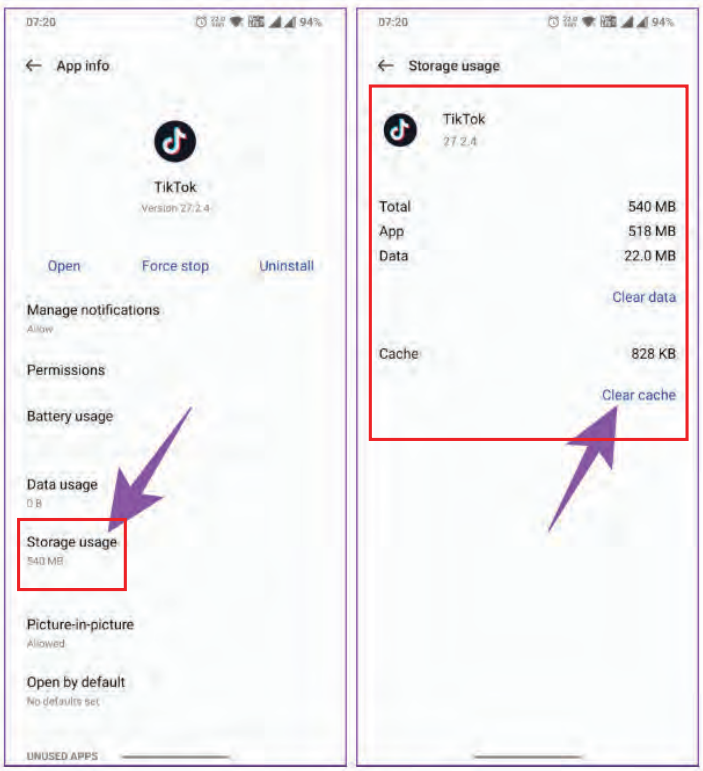
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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br><br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

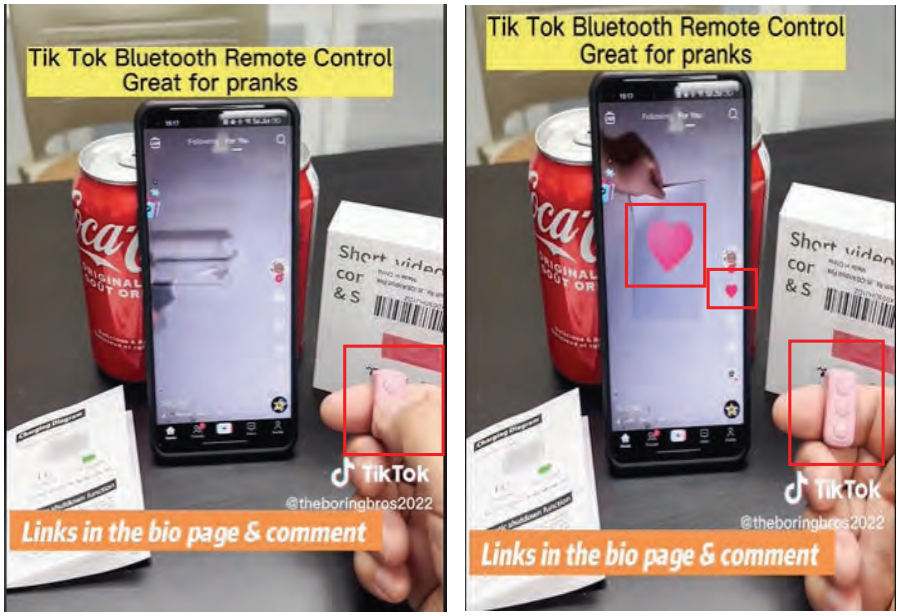
604

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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09 |

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>However, some have been noticing that the app is taking up a huge amount of space on their devices, sometimes gigabytes worth of storage. If you're looking to make more space on your device, here's how to reduce the amount of room TikTok is using on your phone.<br><br>Source: https://www.dexerto.com/entertainment/tiktok-storage-free-up-space-1775839/<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/ |

609



LifeScan, Inc. Ex. 1036
Page 1243 of 2225
IPR2025-00102

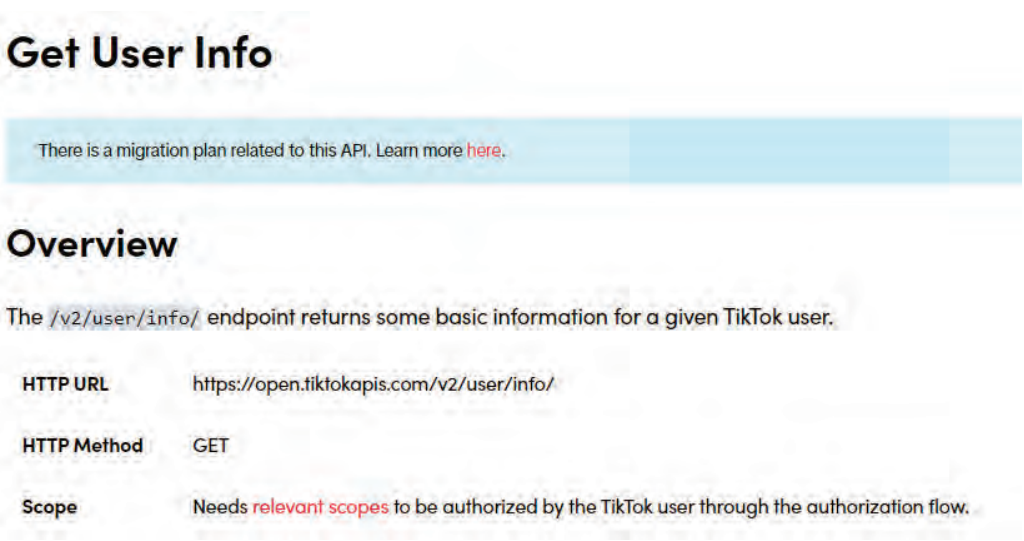
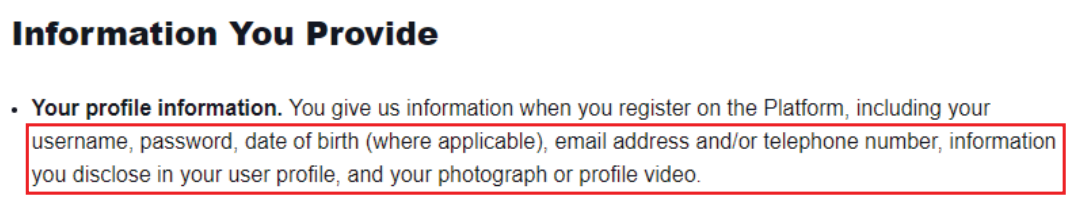
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| | **There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13.13] use HTTP to upload the new-data along with user information to a user data publishing website over the cellular data network, wherein the user | Defendant provides mobile client application that use HTTP to upload the new-data along with user information to a user data publishing website over the cellular data network, wherein the user information corresponds to a user identifier that uniquely identifies a particular user of the user data publishing website and is used by the user data publishing website to publish the new-data for private consumption.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

610



LifeScan, Inc. Ex. 1036
Page 1244 of 2225
IPR2025-00102

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| information corresponds to a user identifier that uniquely identifies a particular user of the user data publishing website and is used by the user data publishing website to publish the new-data for private consumption. | For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok App for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app. Additionally, the TikTok app provides the functionality to the user to hide their liked videos from their profile ("publish the new-data for private consumption").<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>**File upload**<br><br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br><br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint. |

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| | Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide<br>  <br><br>Source: https://developers.tiktok.com/doc/tiktok-api-v2-get-user-info<br>  <br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |

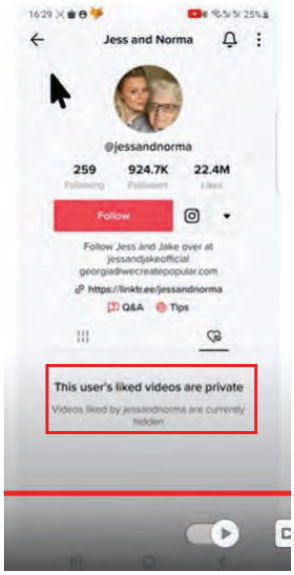
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| | You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information<br><br>**How to manage who can view your liked videos**<br><br>You can choose to show or hide your liked videos on your profile. Your liked videos are hidden from your profile by default when you create an account.<br><br>To hide or show your liked videos on your profile:<br>1. In the TikTok app, tap **Profile** at the bottom.<br>2. Tap the **Menu** button at the top.<br>3. Tap **Settings and privacy**, then tap **Privacy**.<br>4. Tap **Liked videos** and select **Everyone** (public accounts only), **Followers** (private accounts only) or **Only me**.<br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking |

613



LifeScan, Inc. Ex. 1036
Page 1247 of 2225
IPR2025-00102




Source: https://www.youtube.com/watch?v=JzlTDsCIOQA&t=68s, at 1:10

If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**

As you watch videos, the app size increases and data is stored on your device and cached with other downloads.

Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [14] The system of claim 13, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing. | Defendant provides the system of claim 13, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app installed in the mobile device using Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes which comprises Bluetooth ("short-range paired wireless connection"). Using Bluetooth ("Bluetooth paired wireless connection"), the Bluetooth devices pairs with the mobile device. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video.<br><br>**Connectivity** Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

615

## Connectivity

Each earbud: Bluetooth 5.0

Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

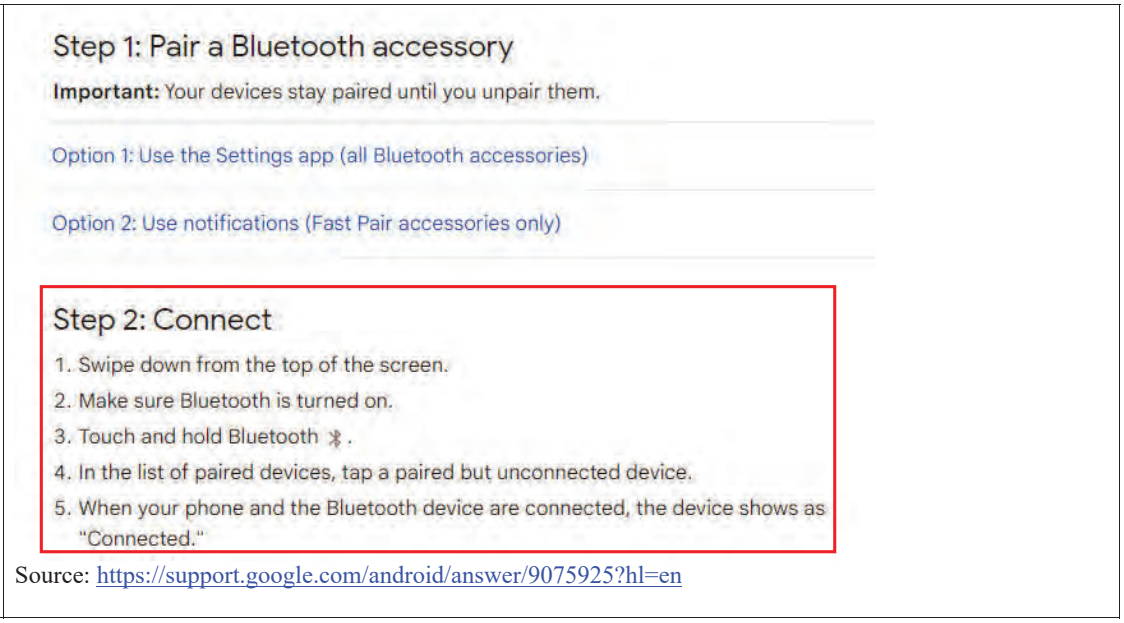
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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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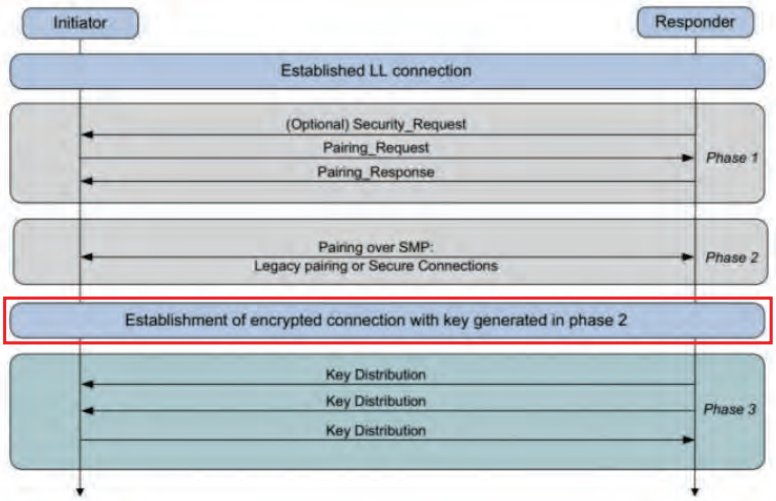



Source: https://support.google.com/android/answer/9075925?hl=en

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth<br><br>In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

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Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

620

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

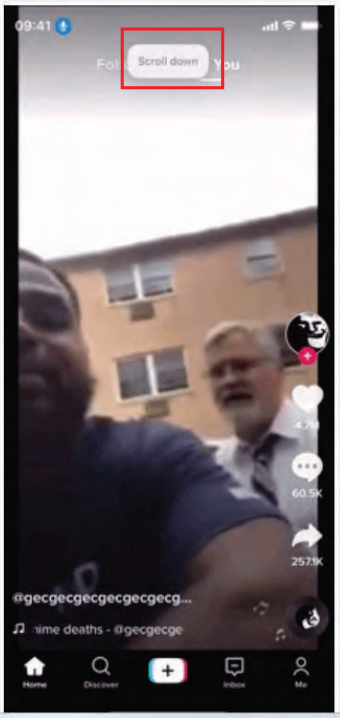
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| | **About this item**<br>• ☆【TIK Tok Button】You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15] The system of claim 13, wherein the new-data comprises one or more of audio data, video data, image data, text data, digital data, and data associated with the new-data. | Defendant provides the system of claim 13, wherein the new-data comprises one or more of audio data, video data, image data, text data, digital data, and data associated with the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command ("audio data") provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and |

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| | information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with a signal notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("new-data") on AirPods or earphones, the TikTok app receives the user's command in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as a signal notification in order to like or scroll the subsequent video.<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results. |

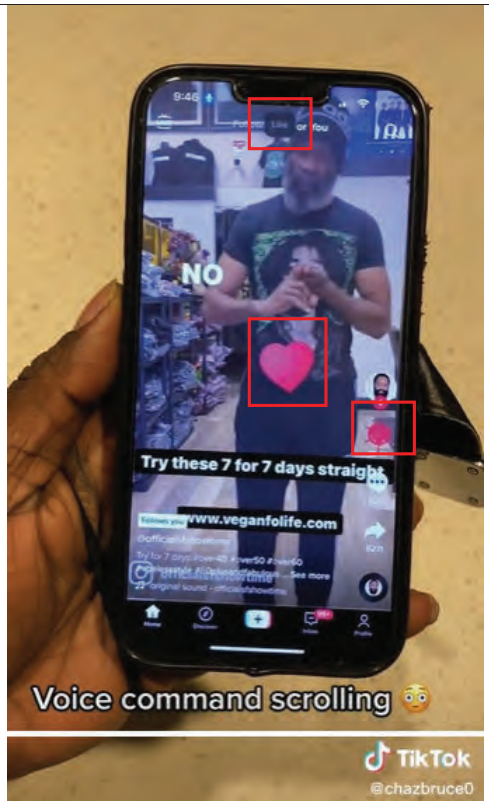
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| | Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

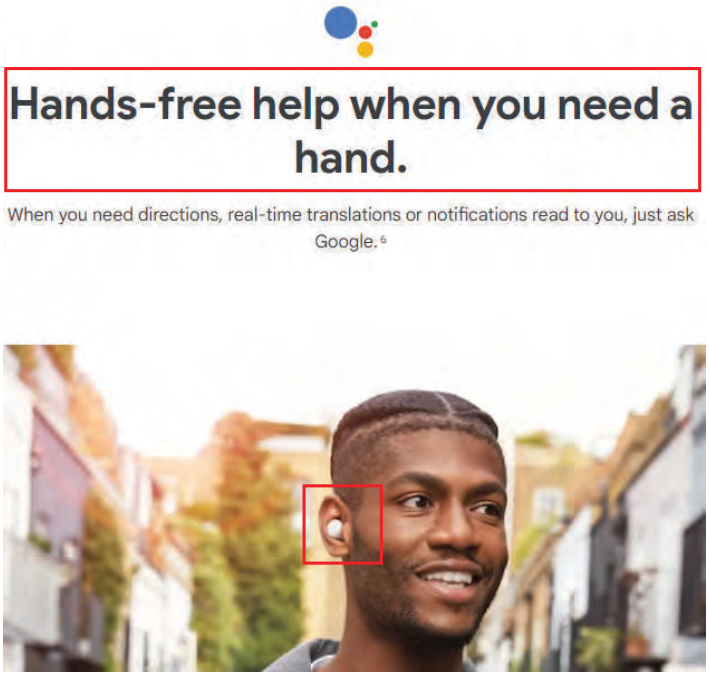
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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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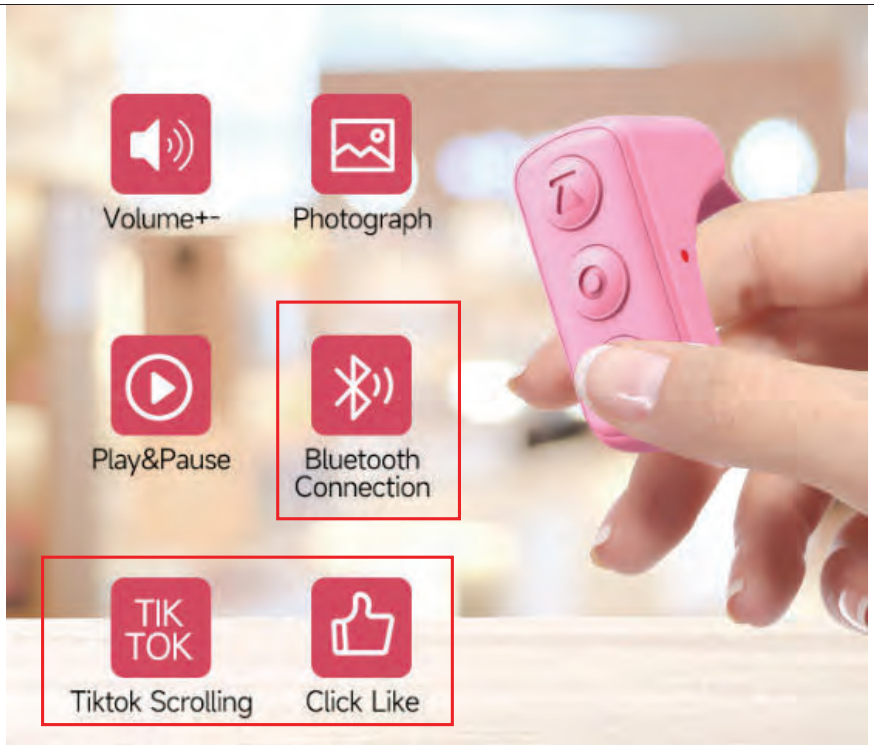



Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

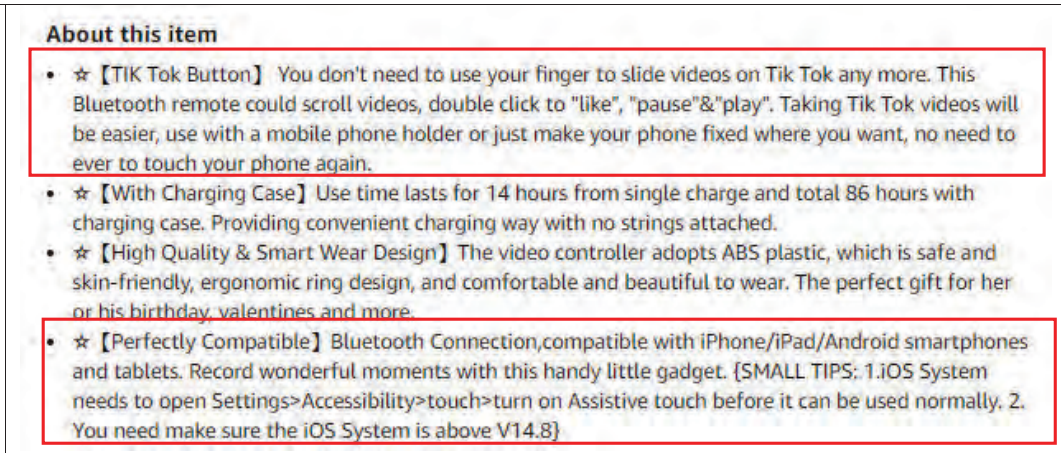
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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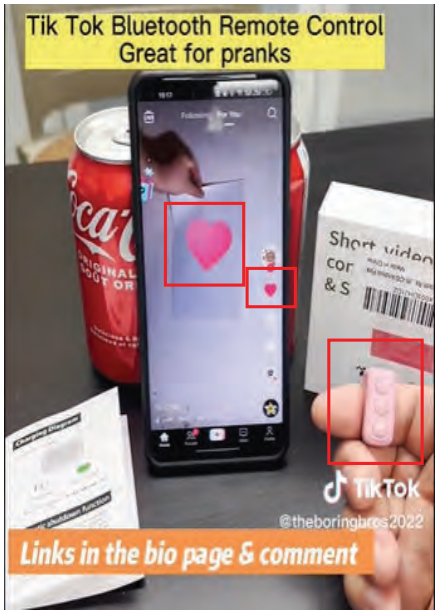


**About this item**

- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |

**2. List of References**


1. https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320, last accessed on February 27, 2024
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3. https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, last accessed on February 27, 2024
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Exhibit 7 to the PICs for Cellspin to ByteDance/TikTok

# U.S. Patent No.11,234,121 v. ByteDance
# Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

[574 pages]



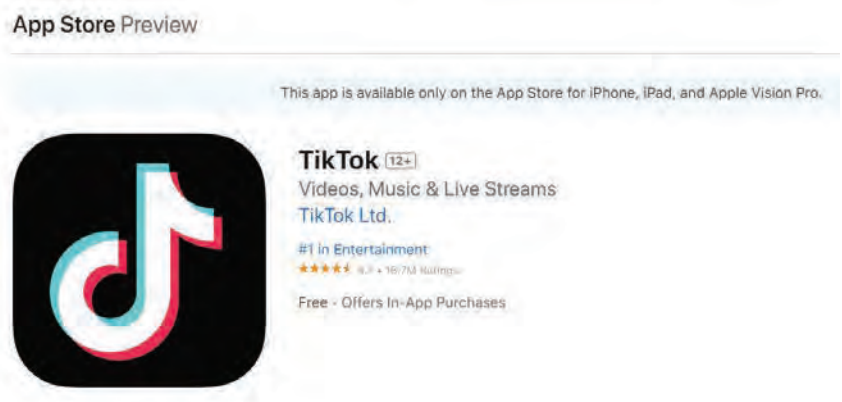


LifeScan, Inc. Ex. 1036
Page 1270 of 2225
IPR2025-00102

## 1. Claim Chart

| Claim | Analysis |
|---|---|
| [1.P] A short-range wireless enabled data capture device, comprising: | ByteDance ("Defendant") makes, uses, sells, and/or offers to sell a short-range wireless enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, Defendant provides TikTok[1] app which includes the functionality of TikTok Shop that enables merchants to sell products and allows users to buy products from within the TikTok app. For example, TikTok app enables merchants to sell products including, but not limited to, Bluetooth-enabled earphones, AirPods, and Bluetooth remotes[2] ("a short-range wireless enabled data capture device") to TikTok app's users.<br><br>For example, the TikTok app is installed in a mobile device such as an iPhone or an Android phone and remotely controlled through Bluetooth devices such as Bluetooth enabled earphones, AirPods and Bluetooth remotes. The TikTok app utilizes the Bluetooth technology of the Bluetooth devices and the mobile device to perform functions such as 'scrolling'/'liking' a video based on inputs provided to the Bluetooth devices. |

[1] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.
[2] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

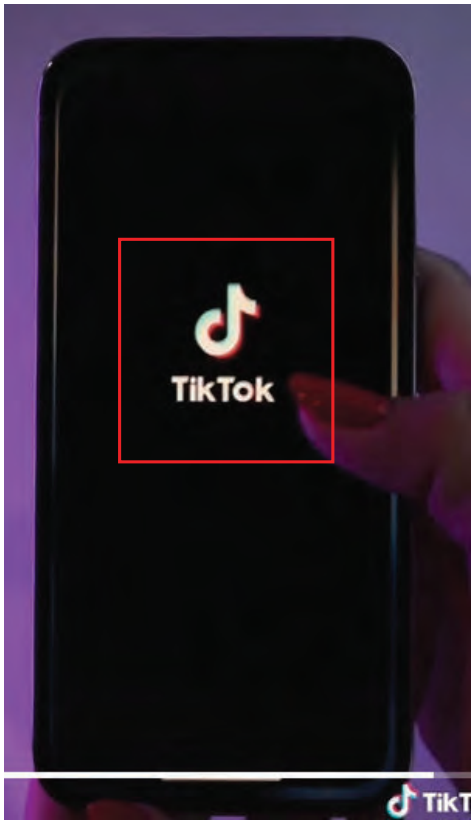


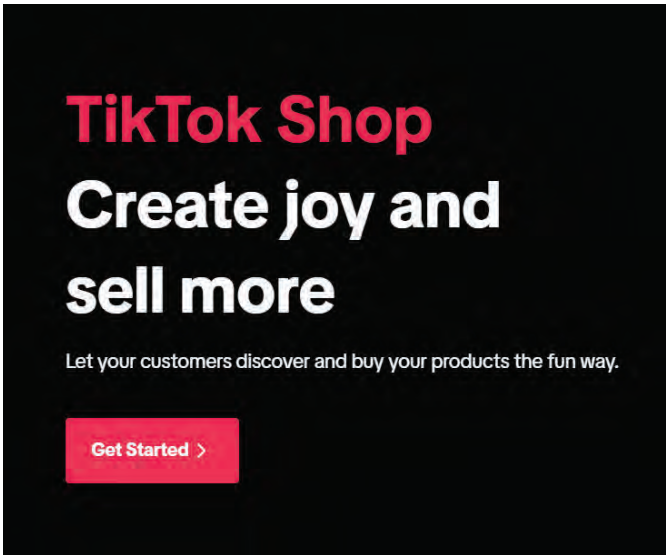

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320



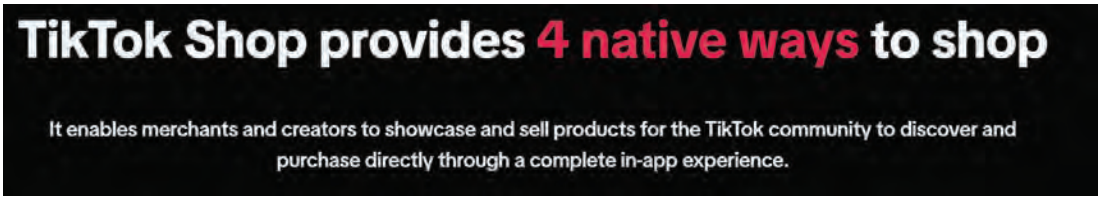

Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

3

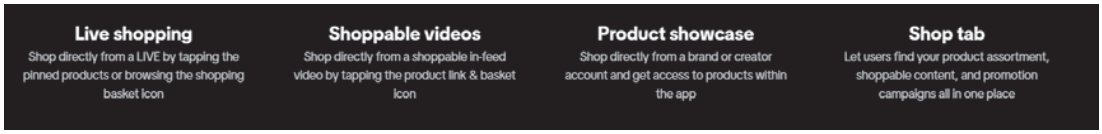
| | |
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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

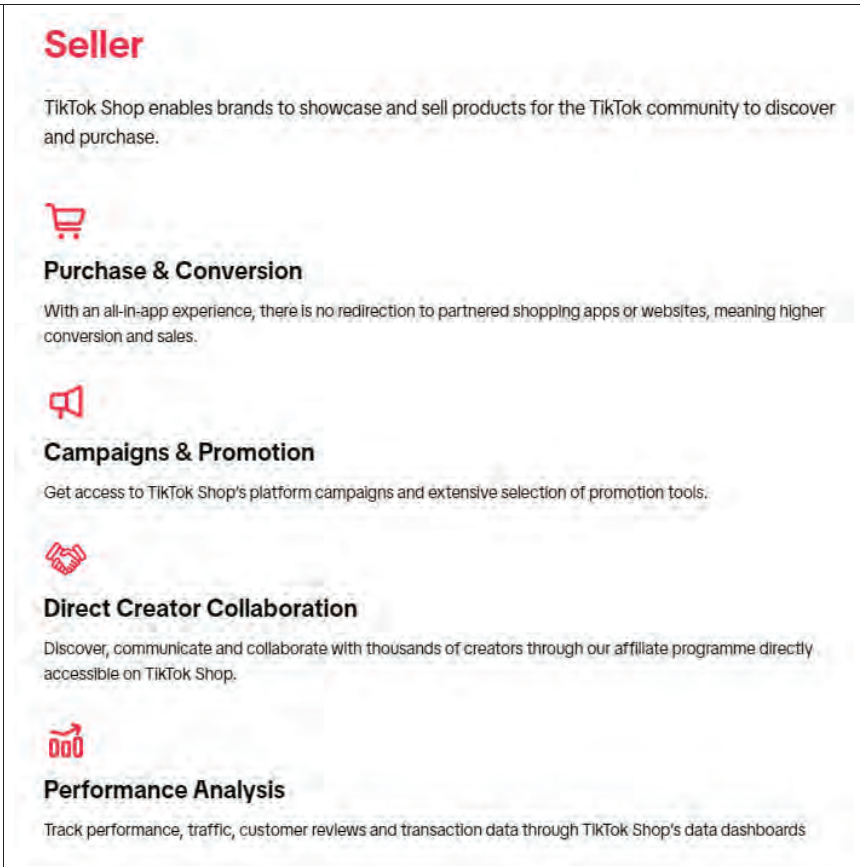



Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en

| | |
|---|---|
| |  <br>Source: https://shop.tiktok.com/business/en |




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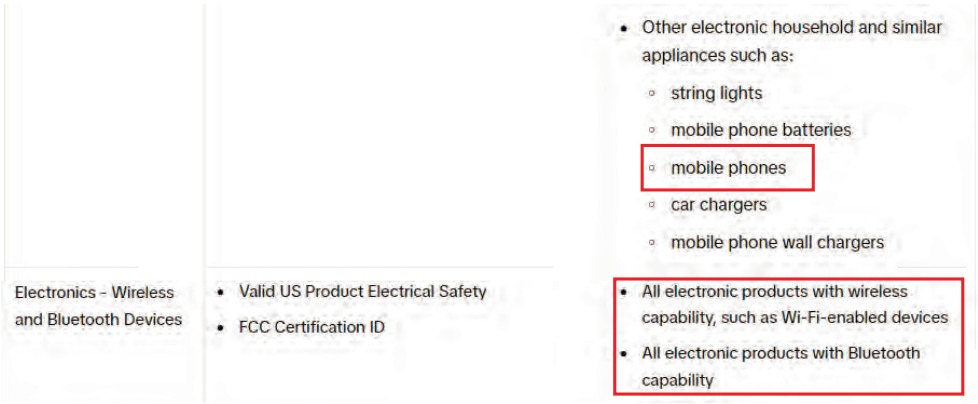
| | |
|---|---|
| | **How does TikTok Commerce work?**<br><br>TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en<br><br>**About TikTok Shop**<br><br>TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.<br><br>Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.<br><br>• See TikTok Shop and Showcase<br>• See How to Add Product Links to TikTok Videos<br><br>With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en |

## Electrical Products and Electronics

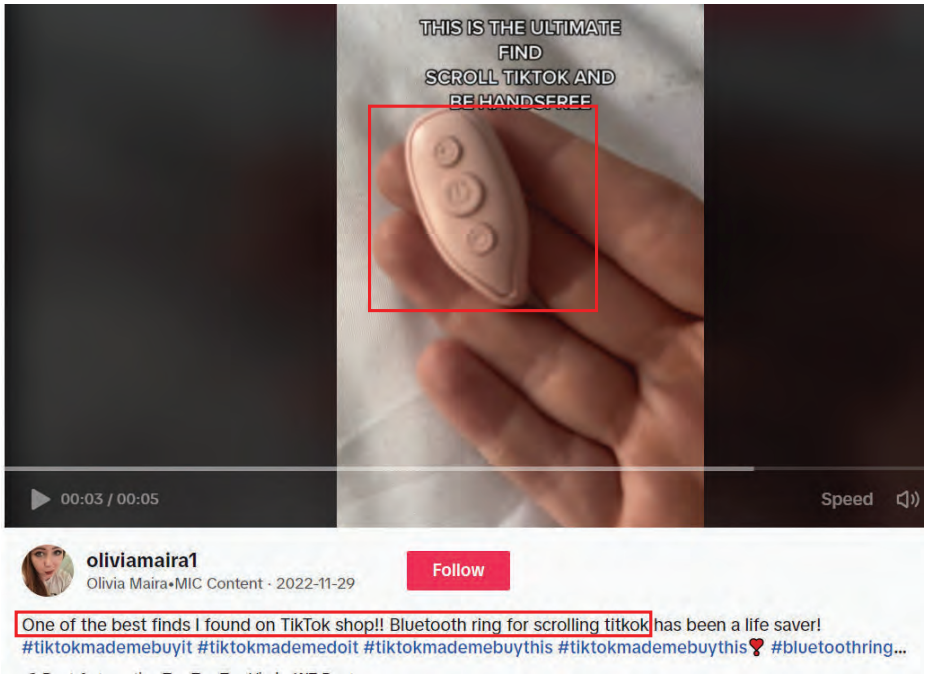
Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.

Electrical and electronic products include but are not limited to:

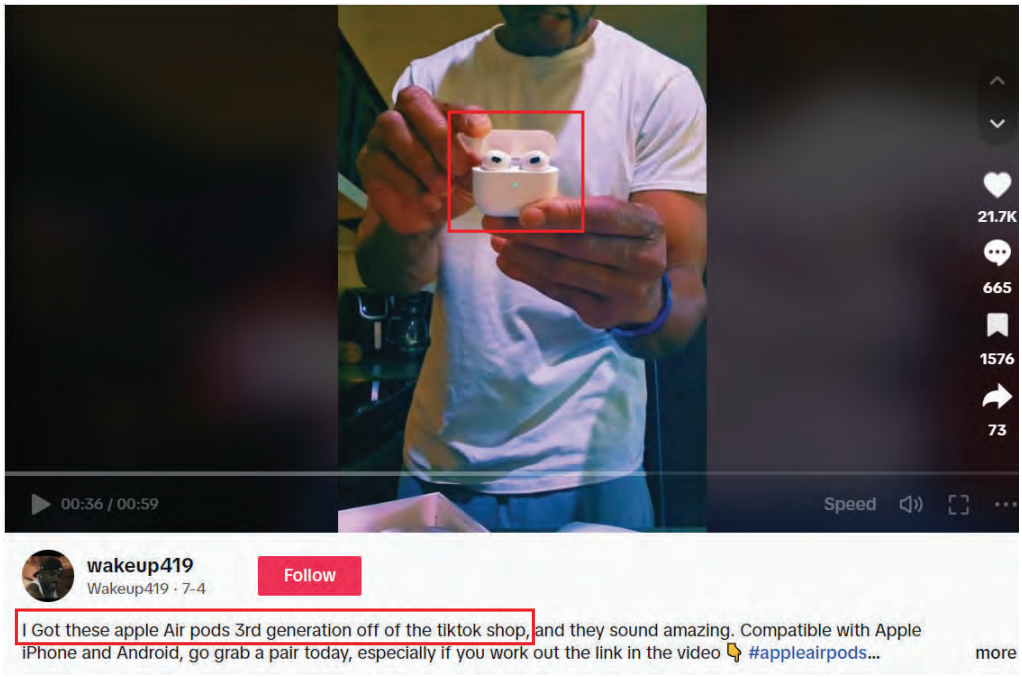
Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy



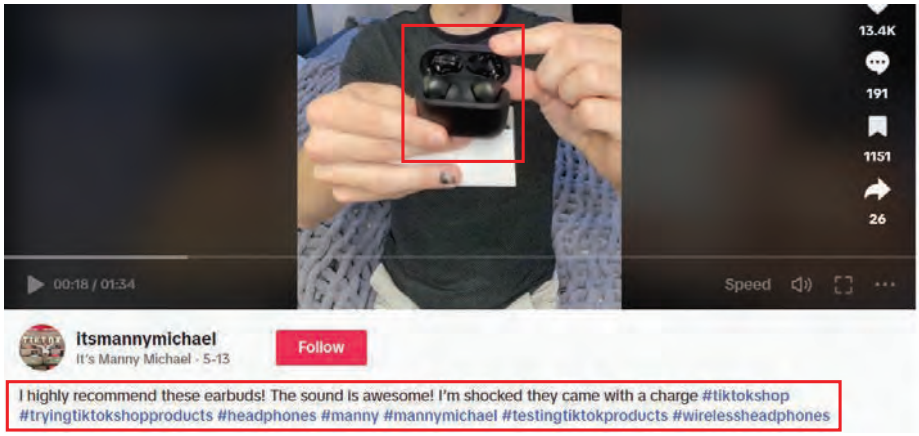

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy



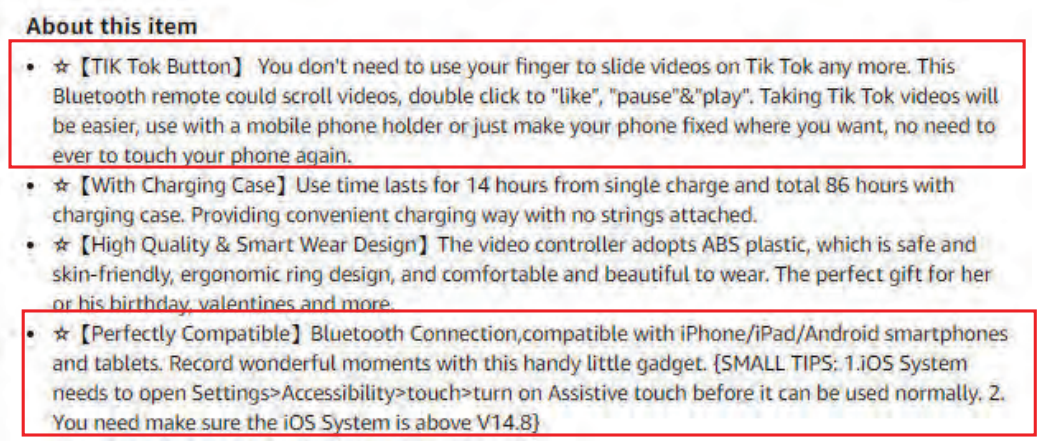

Source: https://www.tiktok.com/@oliviamaira1/video/7171162583678946566, at 0:03



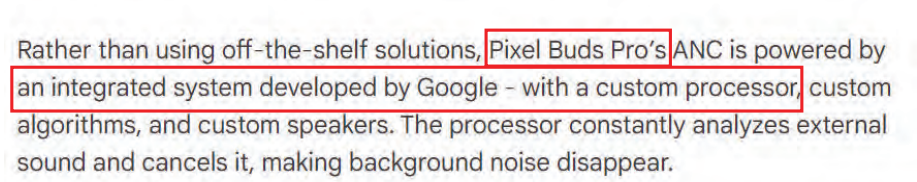

Source: https://www.tiktok.com/@wakeup419/video/7251981896937213226, at 0:36

| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@itsmannymichael/video/7232432938531671342, at 0:18 |

| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

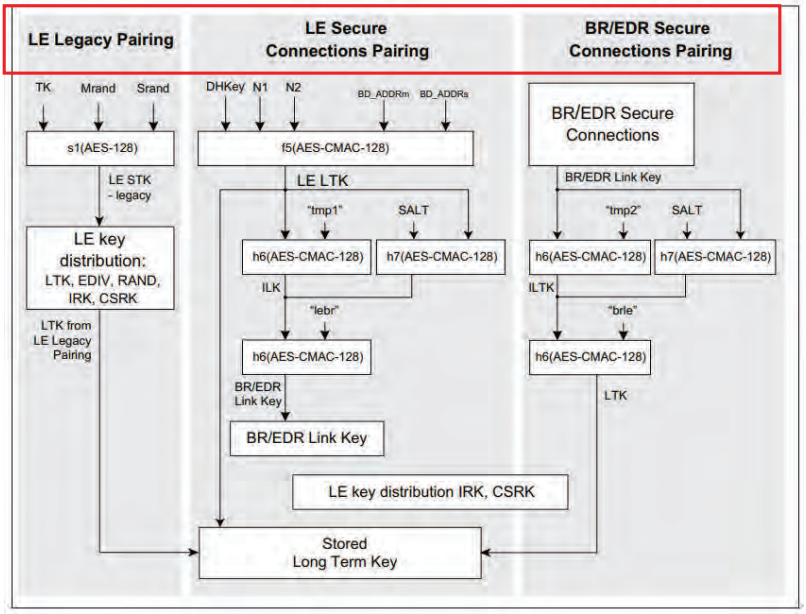
| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.1] a memory device; a processor coupled to the memory device; | Defendant provides a memory device; a processor coupled to the memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, AirPods and Bluetooth enabled earphones that comprises a memory ("memory device") and a processor coupled to the memory. The memory is used for temporary storage of audio data locally in the Bluetooth device such as AirPods and Bluetooth enabled earphones. The processor processes the user's data and sends it for execution to the mobile device, where the TikTok app is installed. |

| | |
|---|---|
| | For example, the users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, Bluetooth remote that upon information and belief comprises a memory ("memory device") and a processor coupled to the memory. The memory is used for temporary storing the user's selection of the clicked button locally. The processor processes the user's data and sends it for execution to the mobile device, where the TikTok app is installed.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>  <br>Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471 |

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| |  <br>Source: https://store.google.com/product/pixel_buds_pro<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.2] a short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled data capture device and a short-range wireless enabled cellular phone, wherein establishing the short-range paired wireless connection comprises the short-range wireless enabled data capture device cryptographically authenticating identity of the short-range wireless enabled cellular phone; | Defendant provides a short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled data capture device and a short-range wireless enabled cellular phone, wherein establishing the short-range paired wireless connection comprises the short-range wireless enabled data capture device cryptographically authenticating identity of the short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app installed in the mobile device ("short-range wireless enabled cellular phone") using Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("short-range wireless enabled data capture device") which comprises Bluetooth ("short-range wireless communication device"). Using Bluetooth, the Bluetooth devices pairs with the mobile device. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the Bluetooth device and the mobile device are connected through an encrypted connection created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB). |

| | |
|---|---|
| | **Connectivity** Bluetooth 5.0 wireless technology<br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>**Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US<br><br>  <br>**SPECIFICATION**<br>• Bluetooth version:Bluetooth Ver.5.0<br>• Bluetooth name: D01<br>• Control Distance: 10 meters<br>• Transmit power: classII(- 6dBm~ + 4dBm)<br>• Battery Capacity: 200+25mAh<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1 |

| | |
|---|---|
| | The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

| | | |
|---|---|---|
| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master trans-mits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

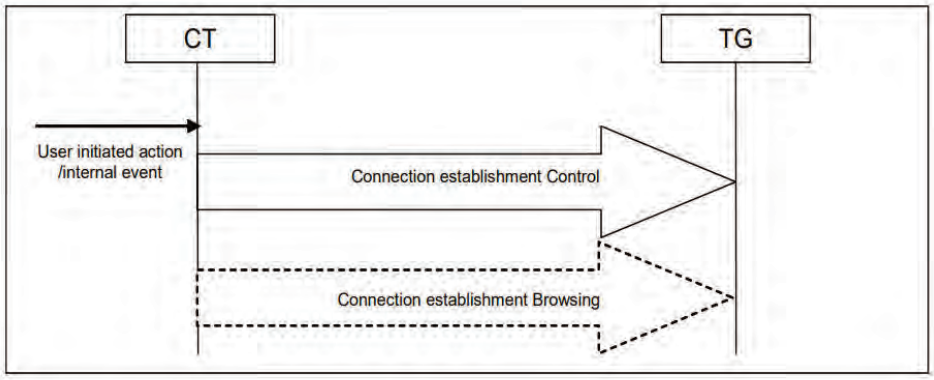



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

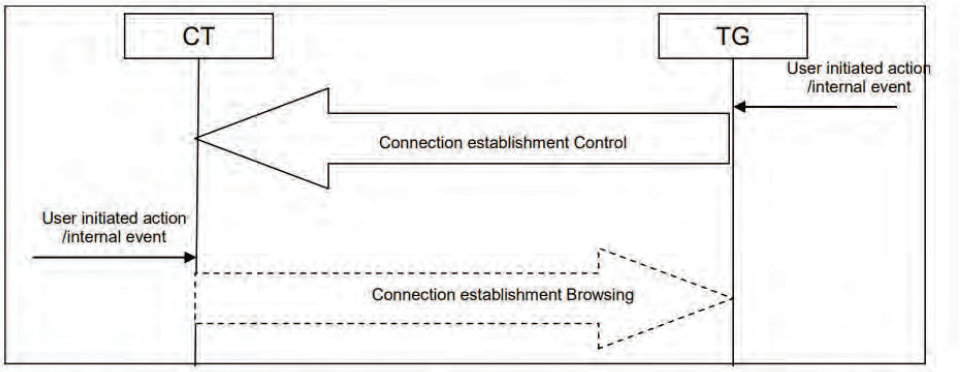



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

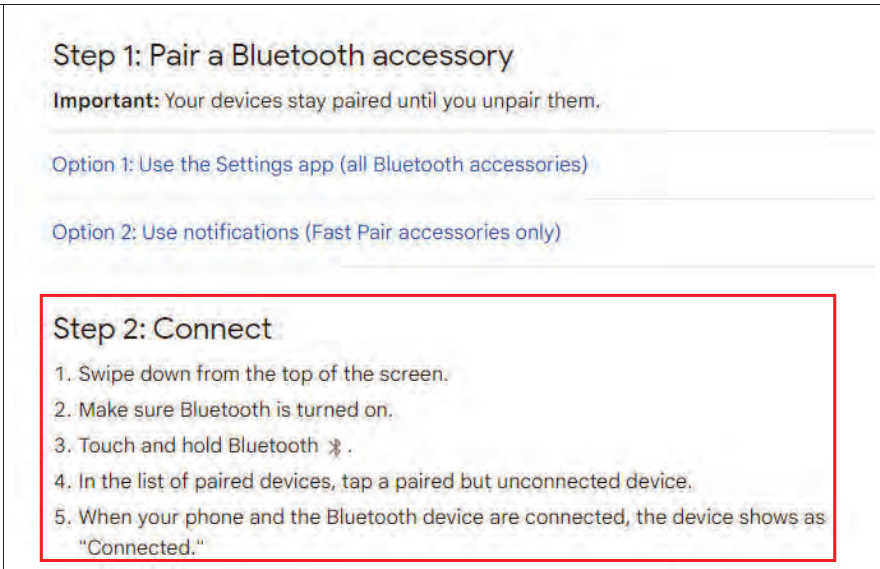
android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

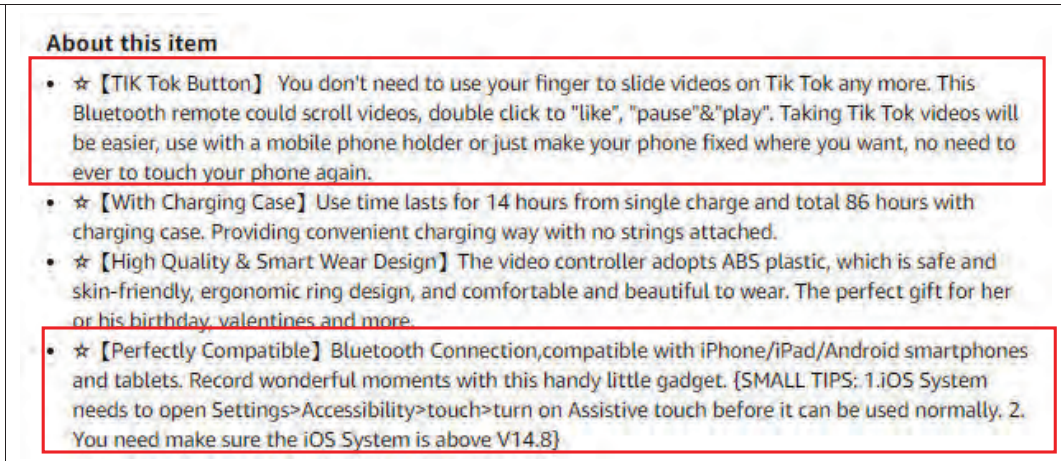
| | |
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| | Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>**Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web |




Source: https://support.google.com/android/answer/9075925?hl=en

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

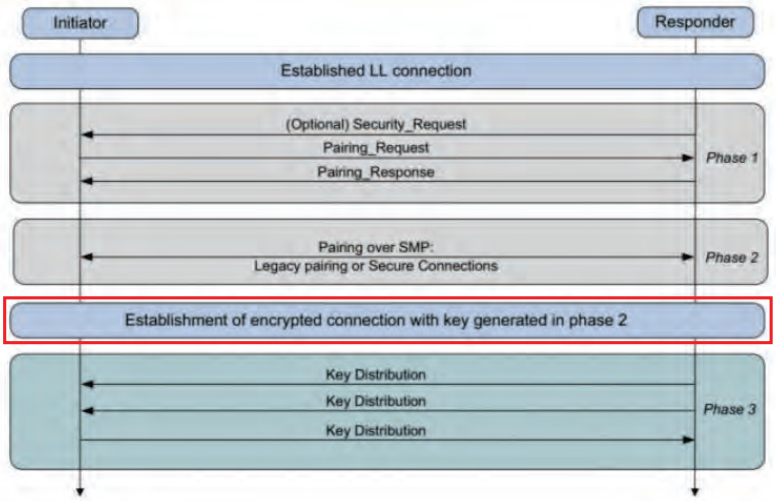
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

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| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

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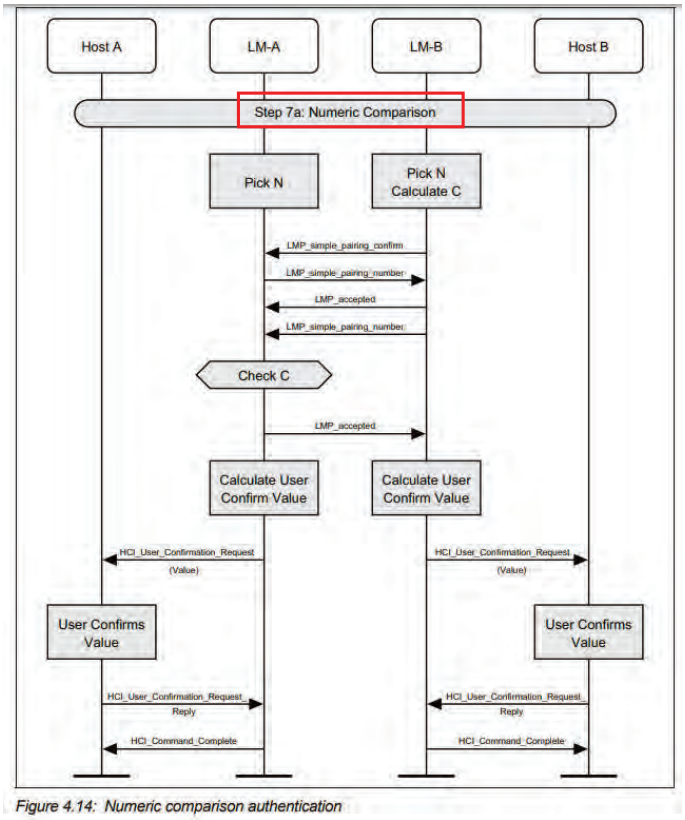



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

29

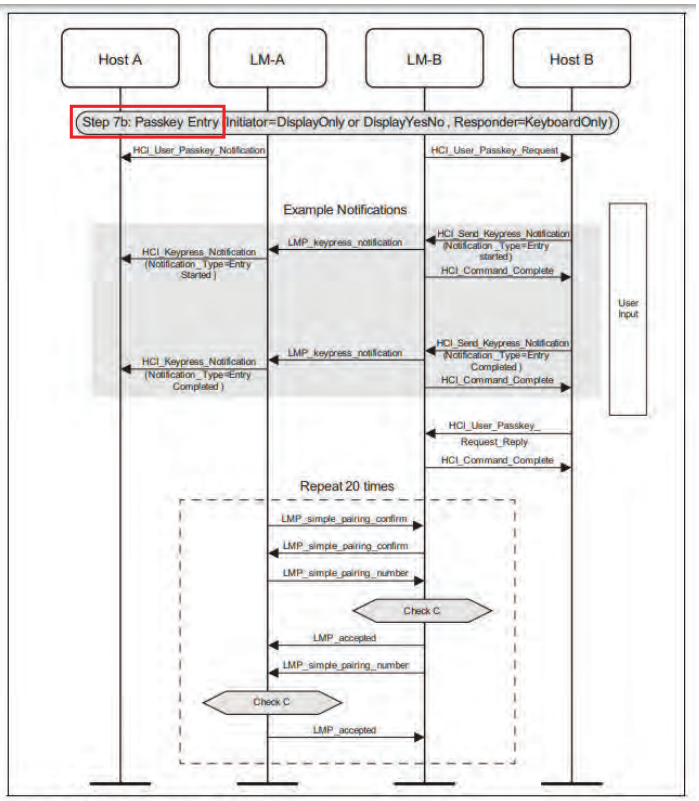



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

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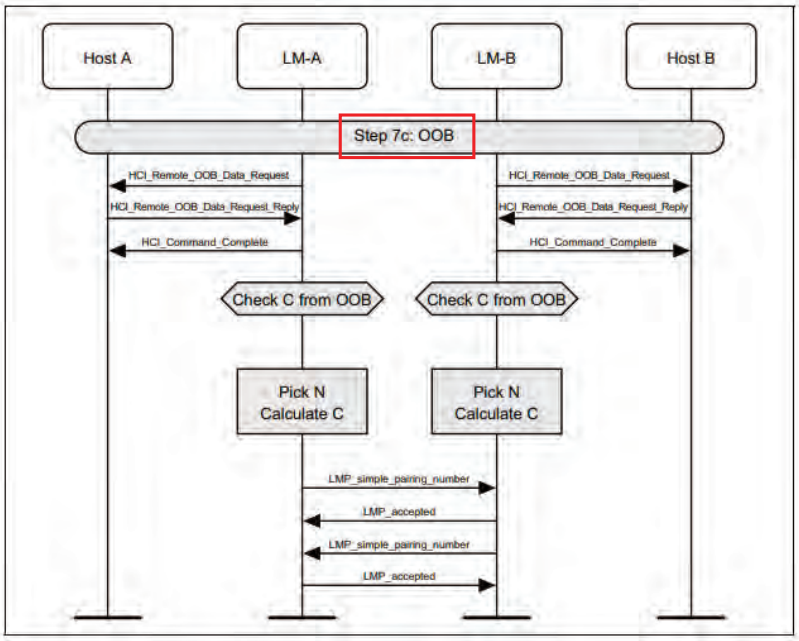
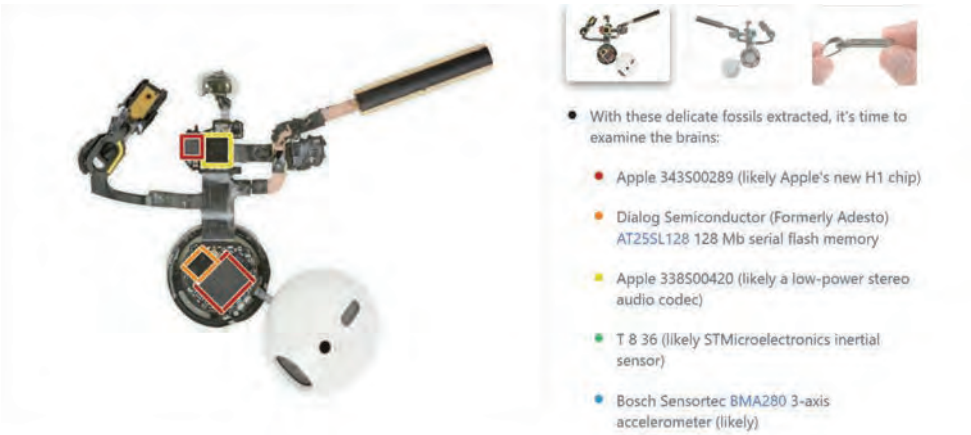



*Figure 4.20: OOB authentication (P-192)*

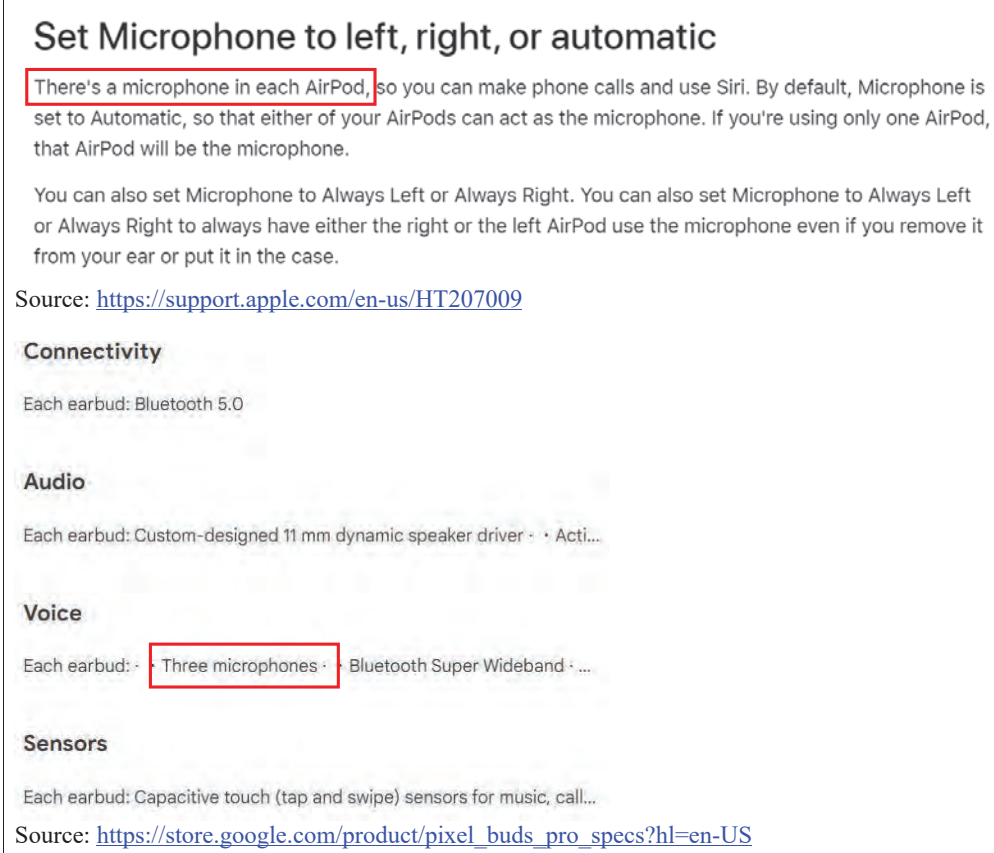
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

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| | **Encryption Key Size Control Enhancements**<br>New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.<br>Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.<br>Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.3] a data capture circuitry; | Defendant provides a data capture circuitry.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as AirPods and Bluetooth-enabled earphones. The Bluetooth devices comprises microphone, sensors, chips, and controls among other components ("data capture circuitry") to capture user's audio commands.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as Bluetooth remote. The Bluetooth remote comprises buttons and sensors ("data capture circuitry") to capture the user's selection of the clicked button. |

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| |  <br>Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471 |

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| | **Audio Technology**<br>▪ Custom high-excursion Apple driver<br>▪ Custom high dynamic range amplifier<br>▪ Active Noise Cancellation<br>▪ Adaptive Transparency<br>▪ Vent system for pressure equalization<br>▪ Personalized Spatial Audio with dynamic head tracking[1]<br>▪ Adaptive EQ<br>**Sensors**<br>▪ Dual beamforming microphones<br>▪ Inward-facing microphone<br>▪ Skin-detect sensor<br>▪ Motion-detecting accelerometer<br>▪ Speech-detecting accelerometer<br>▪ Touch control<br>**Chip**<br>▪ Apple H2 headphone chip<br>▪ Apple U1 chip in MagSafe Charging Case<br>**Controls**<br>▪ Press once to play, pause, or answer a phone call<br>▪ Press twice to skip forward<br>▪ Press three times to skip back<br>▪ Press and hold to switch between Active Noise Cancellation and Adaptive Transparency<br>▪ Swipe up or down to adjust volume<br>▪ Say "Hey Siri" to do things like play a song, make a call, or get directions<br>Source: https://support.apple.com/kb/SP880?locale=en_US |



## Set Microphone to left, right, or automatic

There's a microphone in each AirPod, so you can make phone calls and use Siri. By default, Microphone is set to Automatic, so that either of your AirPods can act as the microphone. If you're using only one AirPod, that AirPod will be the microphone.

You can also set Microphone to Always Left or Always Right. You can also set Microphone to Always Left or Always Right to always have either the right or the left AirPod use the microphone even if you remove it from your ear or put it in the case.

Source: https://support.apple.com/en-us/HT207009

**Connectivity**

Each earbud: Bluetooth 5.0

**Audio**

Each earbud: Custom-designed 11 mm dynamic speaker driver · · Acti...

**Voice**

Each earbud: · · Three microphones · · Bluetooth Super Wideband · ...

**Sensors**

Each earbud: Capacitive touch (tap and swipe) sensors for music, call...

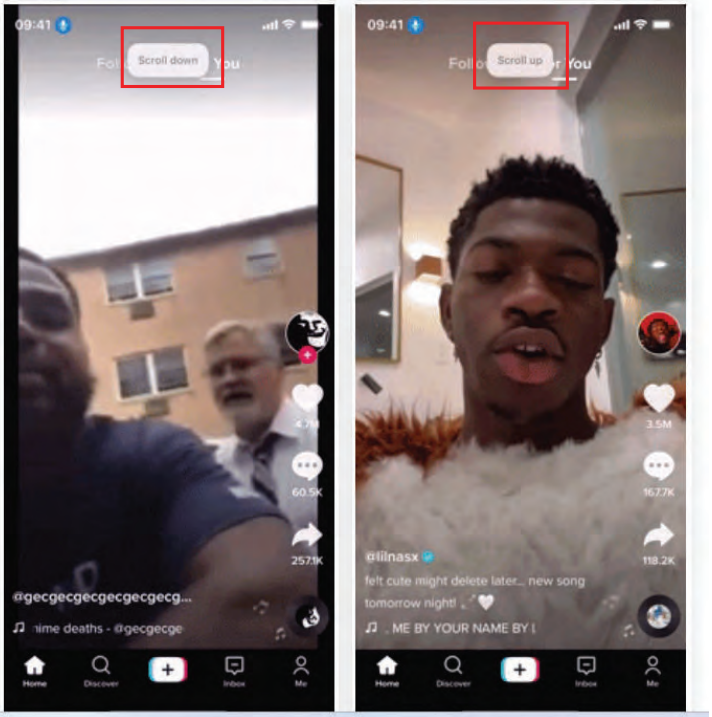
Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US

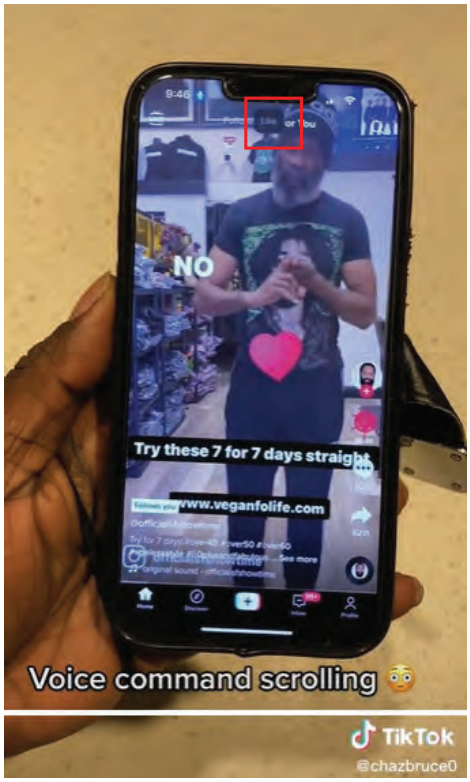
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.4] said processor configured to acquire | Defendant provides a processor configured to acquire new-data in the short-range wireless enabled data capture device using the data capture circuitry, wherein the new-data is data acquired after establishing the short-range |

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| new-data in the short-range wireless enabled data capture device using the data capture circuitry, wherein the new-data is data acquired after establishing the short-range paired wireless connection between the short-range wireless enabled data capture device and the short-range wireless enabled cellular phone; | paired wireless connection between the short-range wireless enabled data capture device and the short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth device captures the user's command ("new-data") using its data capture circuitry, processes it and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is processed and transferred to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down", the Bluetooth devices such as AirPods or earphones capture the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button, the Bluetooth remote captures the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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| | Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br><br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br><br>  <br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

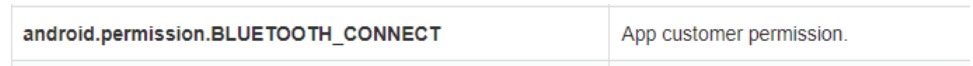
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



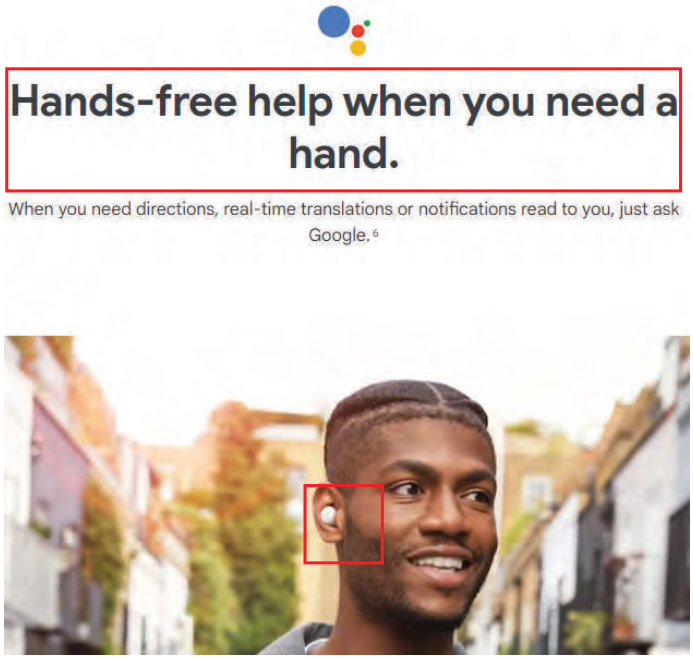

Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| |  <br><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

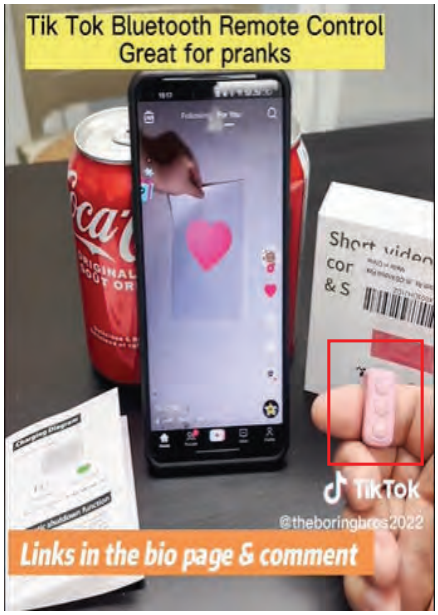
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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |




Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.5] said processor further configured to store the new-data in the memory device; | Defendant provides a processor further configured to store the new-data in the memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device captures the user's command ("new-data"), processes it, temporarily stores it before buffering and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user, temporarily stores the audio data locally, processes, and transfers the command to the mobile device on which the TikTok app is installed. Similarly, the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote, upon information and belief, temporarily stores the user's selection of the clicked button locally prior to buffering and transfer the command to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the audio command is stored, at least temporally, processed and sent for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, upon information and belief, the user's selection is stored locally prior to buffering, processed and sent for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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LifeScan, Inc. Ex. 1036
Page 1319 of 2225
IPR2025-00102



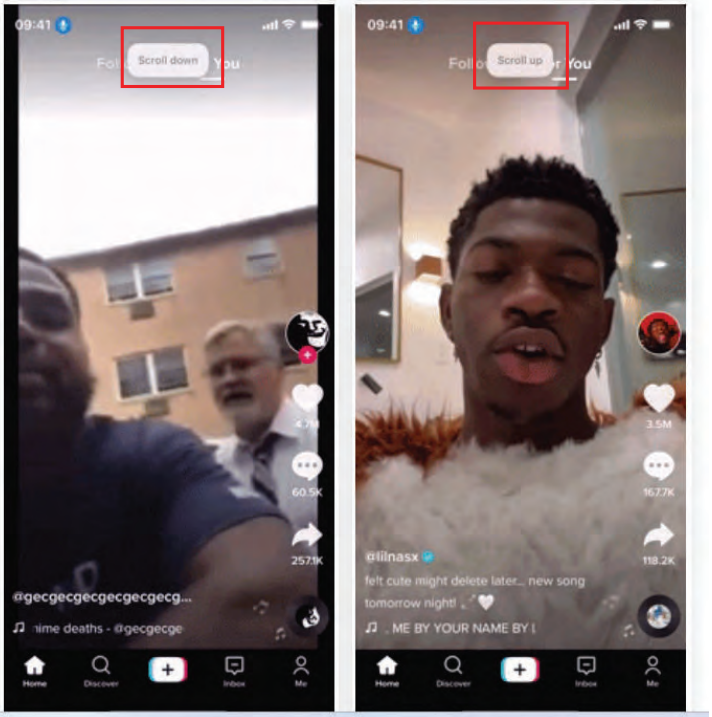

Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471

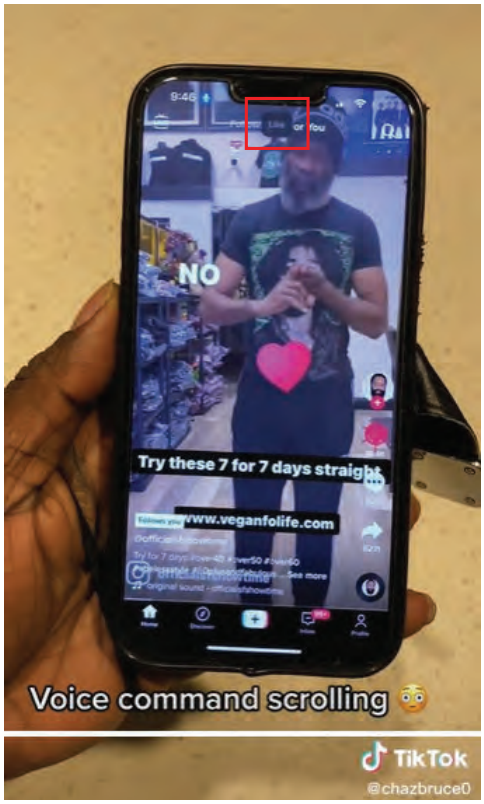
Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.

Source: https://store.google.com/product/pixel_buds_pro

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

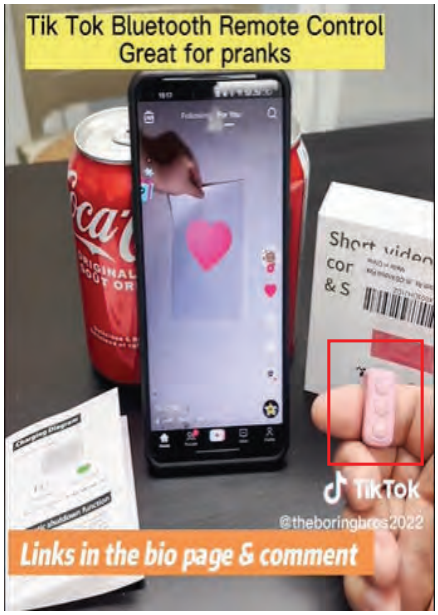
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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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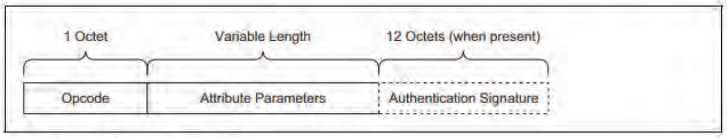
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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.6] said processor further configured to send an event notification and the acquired new-data to the cryptographically | Defendant provides processor configured to send an event notification and the acquired new-data to the cryptographically authenticated short-range wireless enabled cellular phone over the established short-range paired wireless connection automatically, wherein the event notification corresponds to the acquired new-data and comprises sending a signal to the cryptographically authenticated short-range wireless enabled cellular phone. |

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| authenticated short-range wireless enabled cellular phone over the established short-range paired wireless connection automatically, wherein the event notification corresponds to the acquired new-data and comprises sending a signal to the cryptographically authenticated short-range wireless enabled cellular phone, | wherein the cryptographically authenticated short-range wireless enabled cellular phone is configured to listen to the event notification and receive the new-data over the established short-range paired wireless connection,<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device, such as AirPods, earphones and Bluetooth remote, the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command in the form of event notification that comprises the information related to the command. Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the Bluetooth device automatically sends event notification, including the captured data (audio command and information corresponding to button press) ("acquired new-data"), along with the information of the captured data and a signal to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("signal to notify and acquired new-data") on AirPods or earphones, the Bluetooth device sends event notification, including the user's command, along with a signal to the mobile device on which the TikTok app is installed in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the Bluetooth remote sends event notification, including the user's selection of the clicked button, along with a signal to the mobile device on which the TikTok app is installed.in order to like or scroll the subsequent video.<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of |

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| | BLE functionality. GATT defines a framework for organizing and exchanging data between the BLE devices. When a GATT server (e.g., a Bluetooth device), has new data or an event to notify the GATT client (e.g., a mobile device), it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br><br>  <br>*Figure 2.3: Attribute Protocol PDU*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |

61

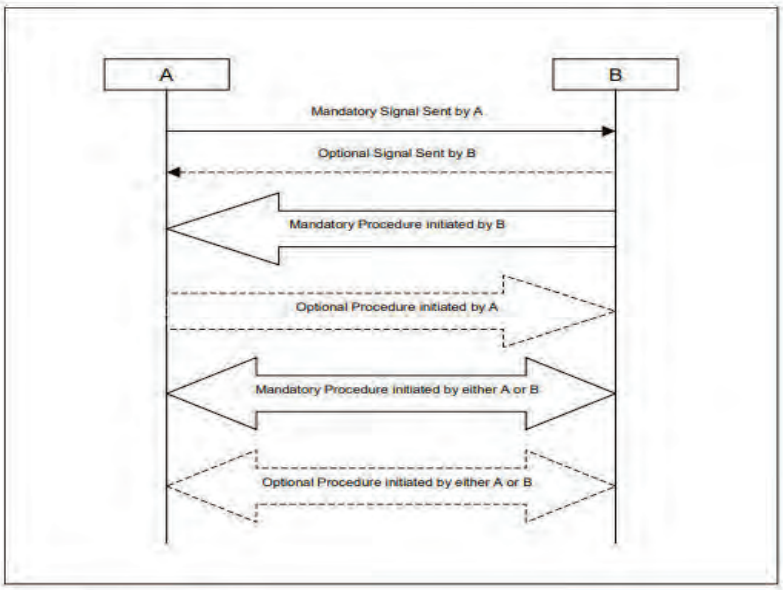



*Figure 1.2: Signaling conventions*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11

62

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

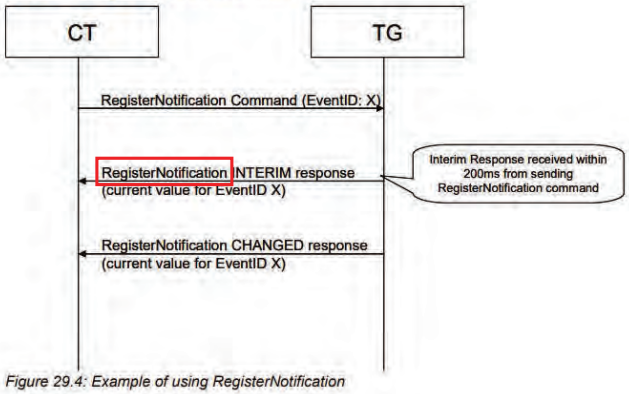



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

64

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

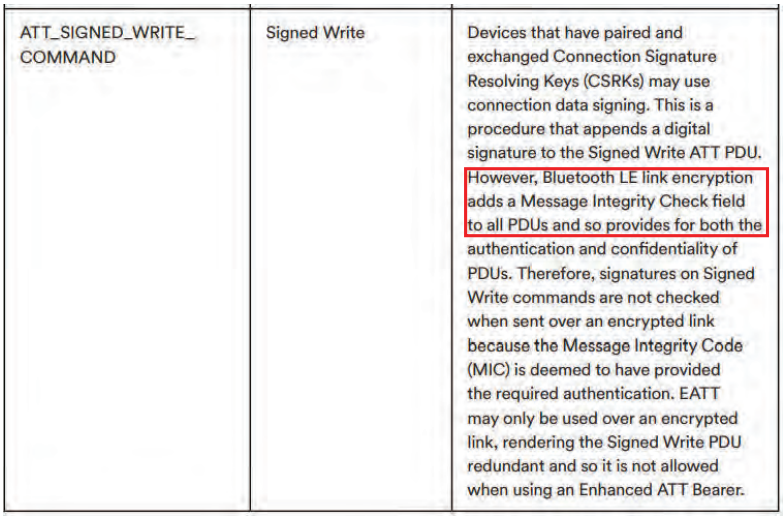
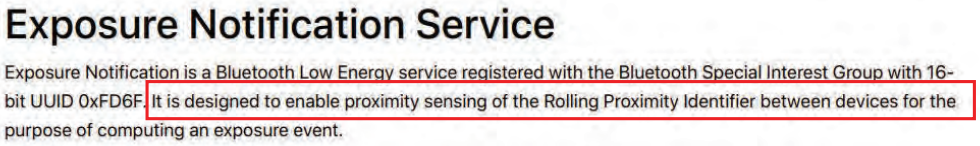
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

## 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

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| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

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|---|---|
| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

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| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified. This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

69

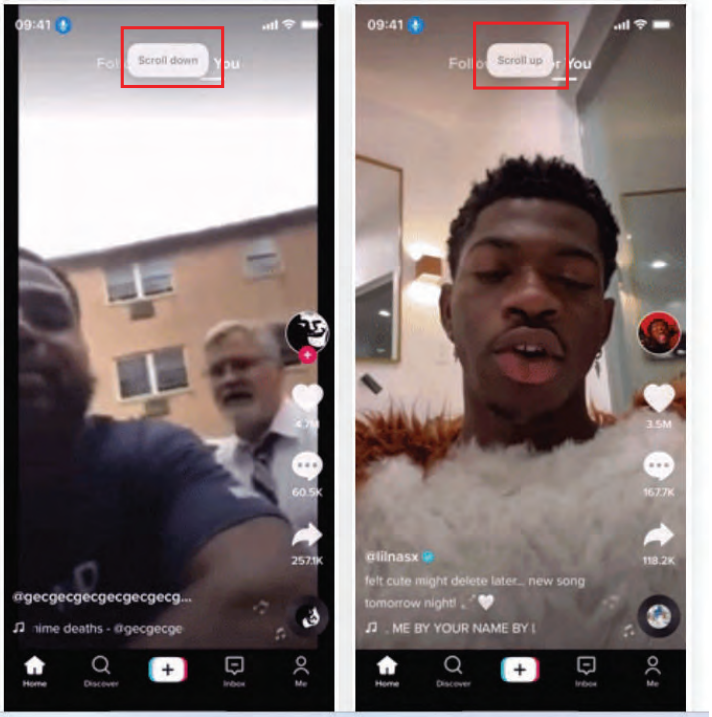


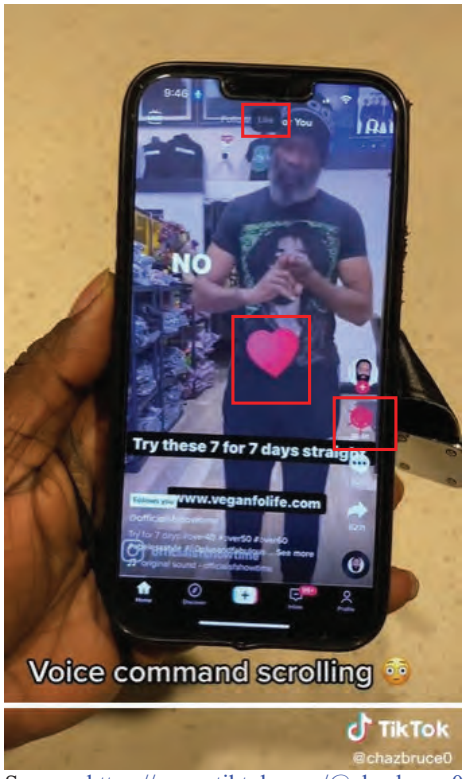

Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/

Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.

Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/

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|---|---|
| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

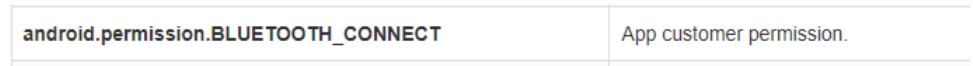
| | |
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



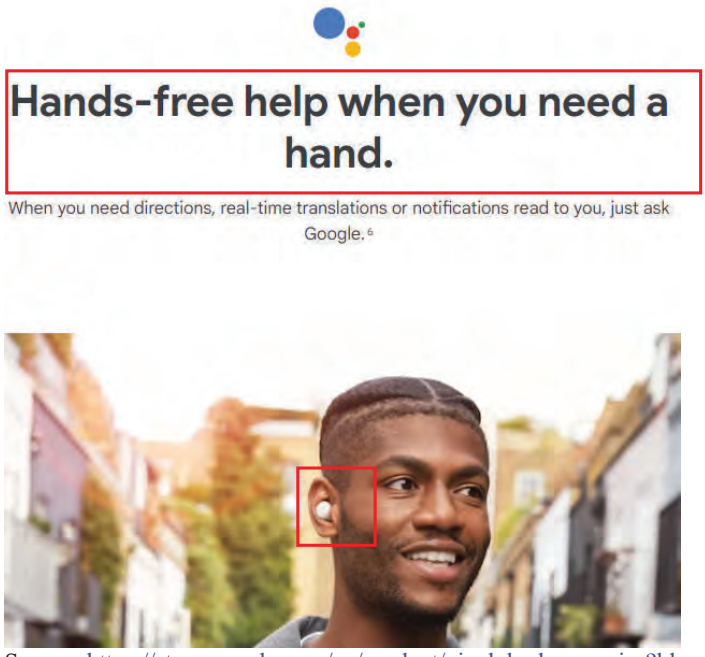

Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| |  <br><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

| | |
|---|---|
| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63





LifeScan, Inc. Ex. 1036
Page 1345 of 2225
IPR2025-00102

| | |
|---|---|
| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

77

| | |
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





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Page 1347 of 2225
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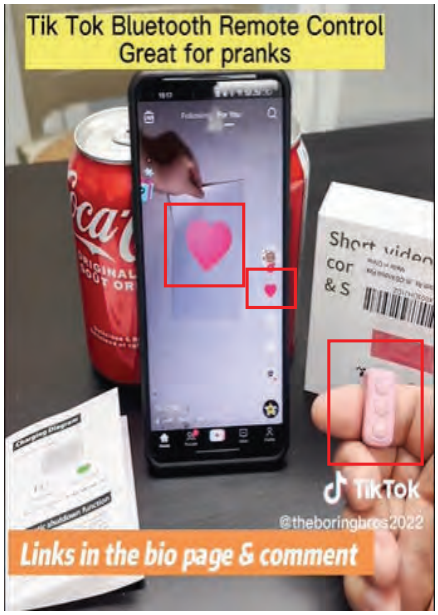

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa



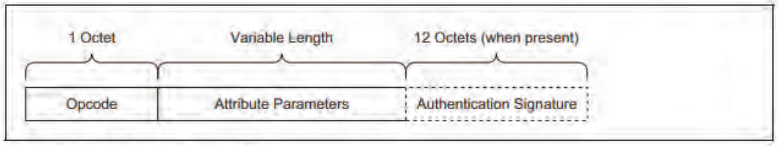


LifeScan, Inc. Ex. 1036
Page 1348 of 2225
IPR2025-00102

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.7] wherein the cryptographically authenticated short-range wireless enabled cellular phone is configured to | Defendant provides cryptographically authenticated short-range wireless enabled cellular phone is configured to listen to the event notification and receive the new-data over the established short-range paired wireless connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| listen to the event notification and receive the new-data over the established short-range paired wireless connection, | For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device, the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. The mobile device on which the TikTok app is installed listens for the event notification that includes the user command and the information related to the command. Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>Further, after establishing Bluetooth connection, when an audio command is sent through the Bluetooth devices, such as AirPods or earphones, or when a button is pressed on the Bluetooth remote control, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client (e.g., a mobile device) establishes a connection with a GATT server (e.g., a Bluetooth device), it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/ |

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| | **Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br>  <br>*Figure 2.3: Attribute Protocol PDU*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043 , Page 2225 |

83

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

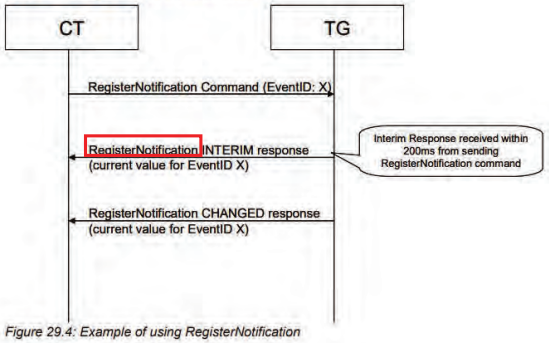



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139

84

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

85

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

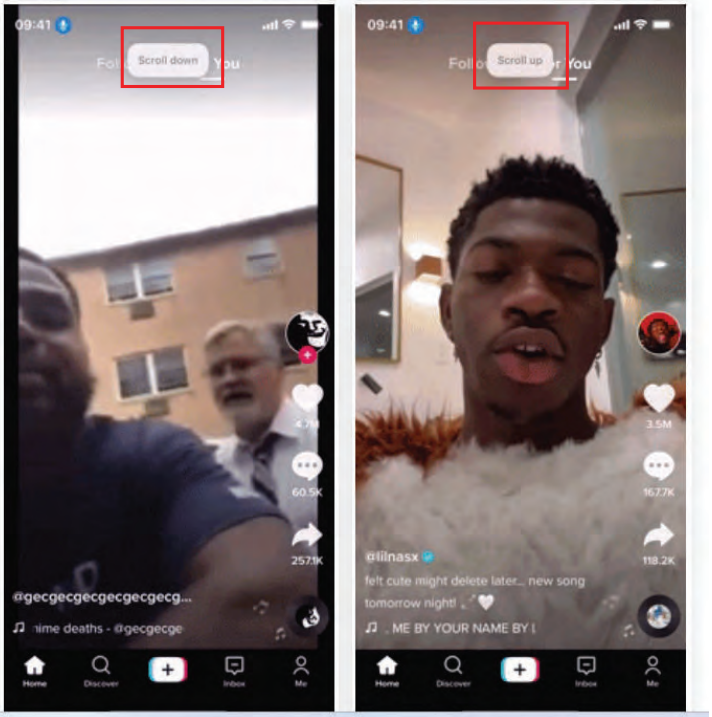
### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

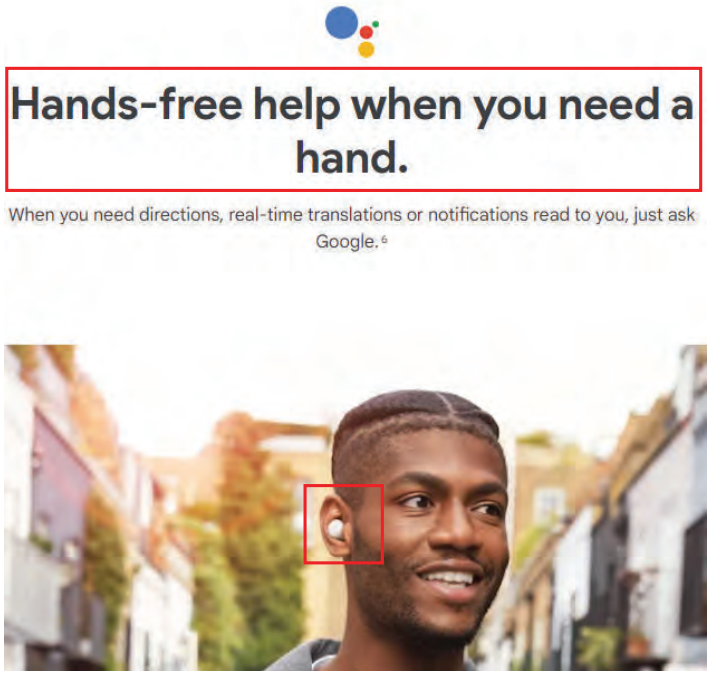
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|---|---|
| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

89

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

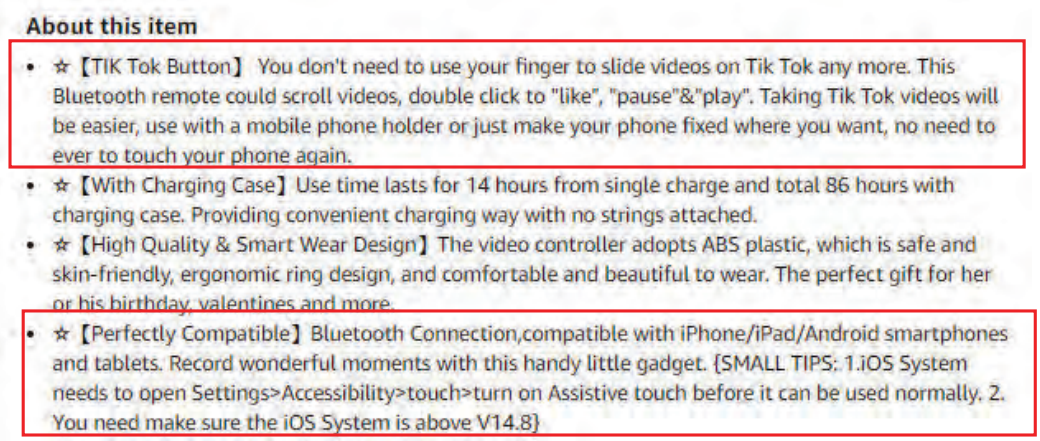



Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

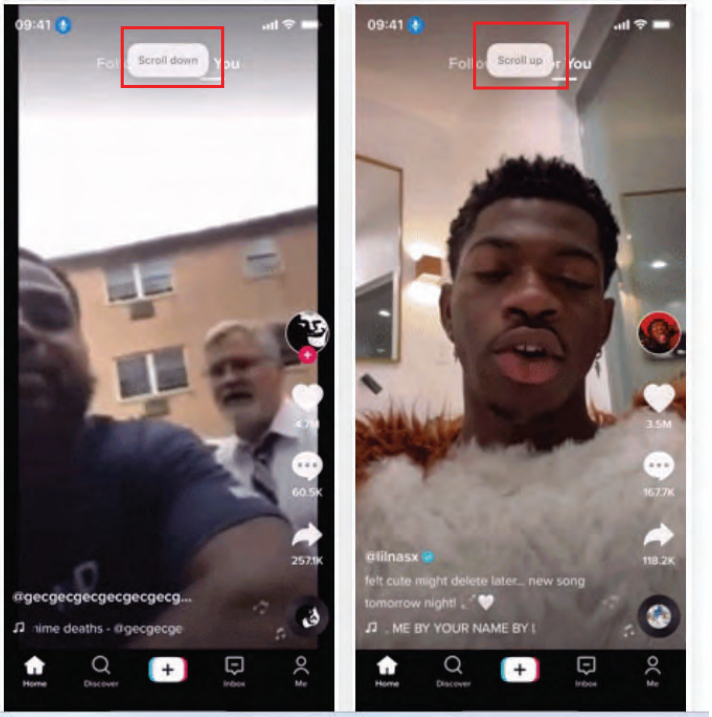
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

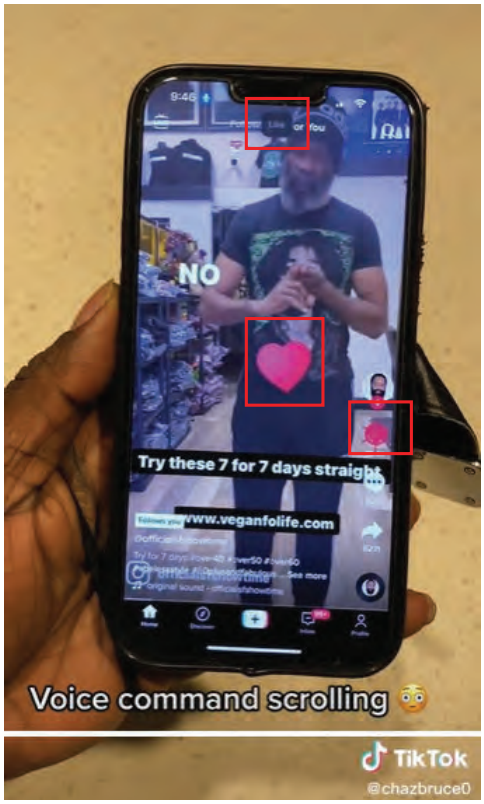
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.8] wherein a single mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone is configured to process the event notification and store the received new-data in a memory device of the cryptographically | Defendant provides a single mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone that is configured to process the event notification and store the received new-data in a memory device of the cryptographically authenticated short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app in the mobile device receives the user command (provided through the Bluetooth devices) in the form of event notification that comprises the information related to the command. Further, the TikTok app processes the received notification to perform the corresponding functionality. For example, when the user provides the audio command such as “Double Tap” or “Scroll Down” on AirPods or earphones, the TikTok app receives the user’s command and processes it to ‘like’ or ‘scroll down’ the subsequent video. |

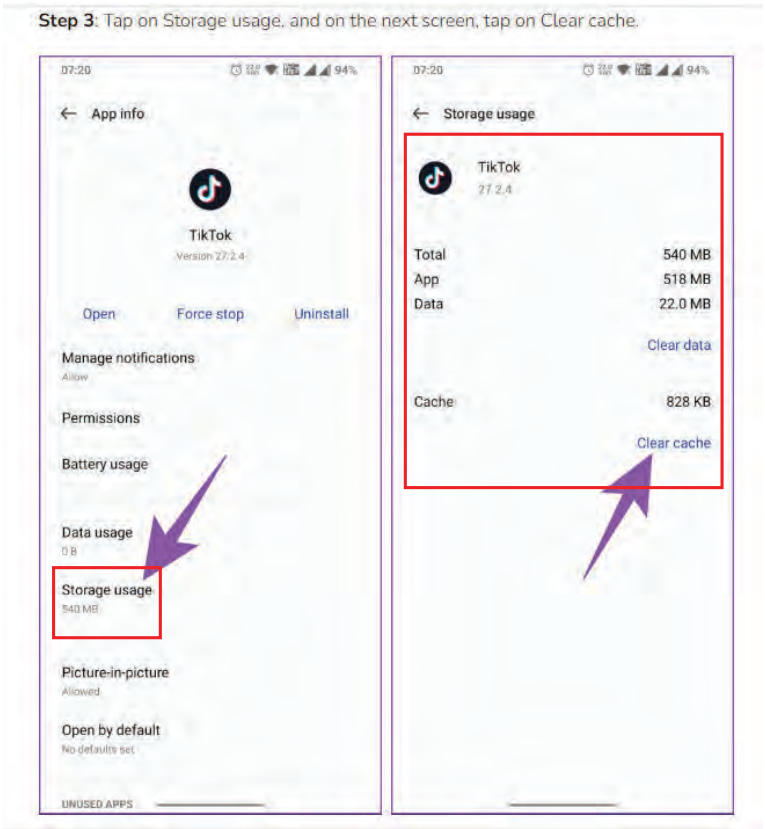
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| authenticated short-range wireless enabled cellular phone, | Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command and processes it to like or scroll the subsequent video.<br><br>For example, the TikTok app stores the user's activity (liked and watched videos) including the commands ("received new-data") at least temporarily in the cache memory of the mobile device (in which the TikTok app is installed) along with the user credentials.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

97

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| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings › Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br><br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

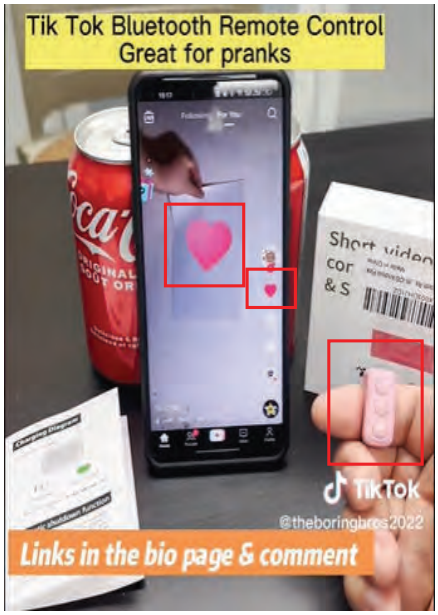
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| |  <br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





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Page 1369 of 2225
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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09 |

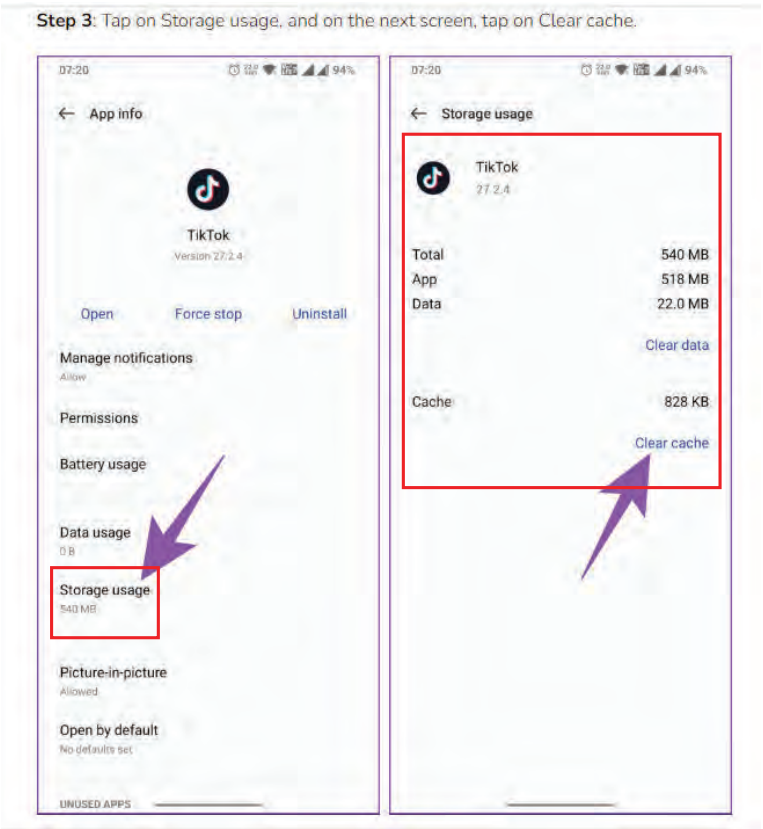
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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>However, some have been noticing that the app is taking up a huge amount of space on their devices, sometimes gigabytes worth of storage. If you're looking to make more space on your device, here's how to reduce the amount of room TikTok is using on your phone.<br><br>Source: https://www.dexerto.com/entertainment/tiktok-storage-free-up-space-1775839/<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/ |

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| | **There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.9] wherein the single mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone stores a user | Defendant provides single mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone that stores a user authentication credential in the memory device of the cryptographically authenticated short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

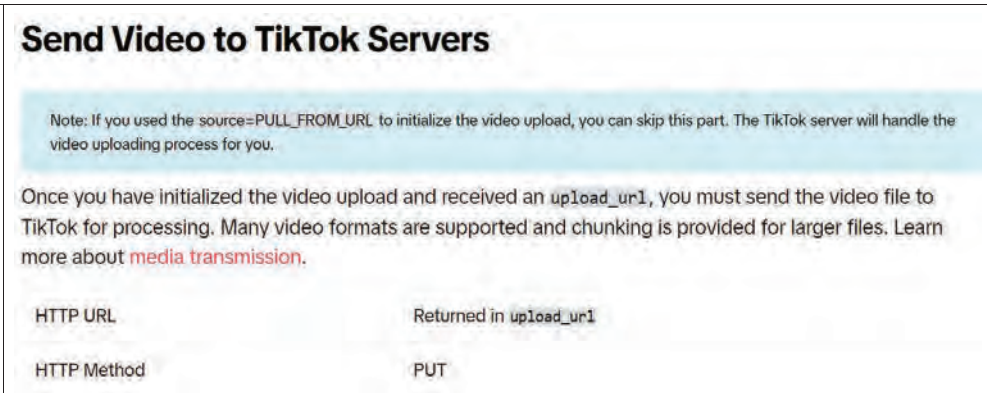
| | |
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| authentication credential in the memory device of the cryptographically authenticated short-range wireless enabled cellular phone, | For example, the TikTok app ("single mobile client application") in the mobile device ("short-range wireless enabled cellular phone") stores the user's login credentials ("user authentication credential") such as the username and password within the mobile device's memory, facilitating automatic authentication upon subsequent logins to their TikTok app's account.<br><br>**Information You Provide**<br><br>• **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.<br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en<br><br>You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

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| |  <br>Source: https://www.tiktok.com/@akirasashmi/video/7129576154465422619<br><br>**Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps |

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| |  <br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.10] wherein the single mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone is configured to use HTTP to upload the received new-data and the user authentication credential to a user data publishing website over a cellular data network, wherein the upload is based on a timer | Defendant provides the single mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone is configured to use HTTP to upload the received new-data and the user authentication credential to a user data publishing website over a cellular data network, wherein the upload is based on a timer setting on the single mobile client application, wherein the timer setting is no wait automatic or wait X minutes automatic.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app ("single mobile client application") in the mobile device ("short-range wireless enabled cellular phone") utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user authentication credential") associated with the user's account of TikTok app for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of |

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| setting on the single mobile client application, wherein the timer setting is no wait automatic or wait X minutes automatic, | the TikTok app by logging into the app. Further, the data provided by the user is uploaded automatically ("timer setting is no wait automatic") on the TikTok app's cloud.<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>**File upload**<br><br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br><br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide |



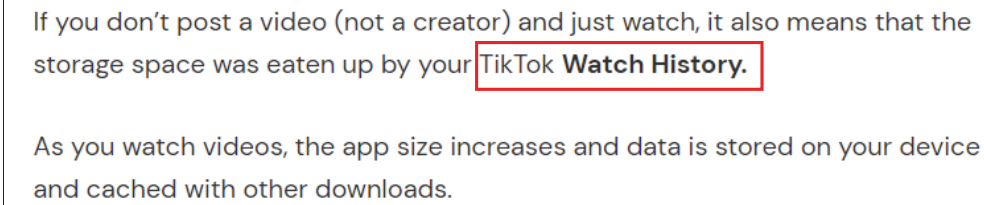
## Send Video to TikTok Servers

Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.

Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.

| | |
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| HTTP URL | Returned in `upload_url` |
| HTTP Method | PUT |

Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/



If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**

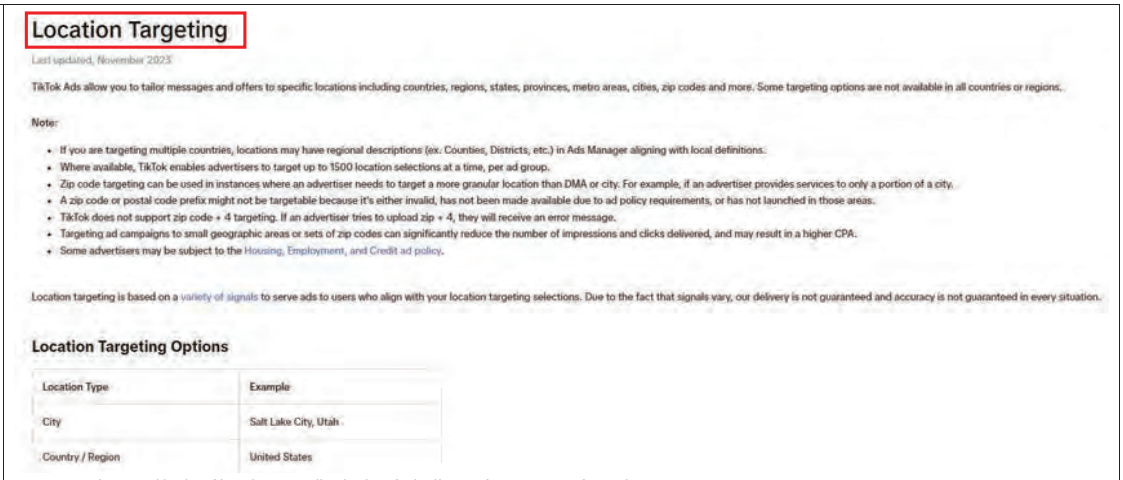
As you watch videos, the app size increases and data is stored on your device and cached with other downloads.

Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br><br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance |

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.11] wherein the single mobile client application for the short-range wireless enabled cellular phone is further configured to use the HTTP to send a user preference to the user data publishing website over the cellular data network, wherein the user preference comprises global positioning system information, | Defendant provides single mobile client application for the short-range wireless enabled cellular phone that is further configured to use the HTTP to send a user preference to the user data publishing website over the cellular data network, wherein the user preference comprises global positioning system information.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app (“single mobile client application”) in the mobile device (“short-range wireless enabled cellular phone”) utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data such as user's precise location, utilizing the mobile device's Global Positioning System (GPS) (“user preference”) functionality over the cellular data network to the Defendant’s servers.<br><br>**Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |

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| | **How TikTok collects location information**<br><br>TikTok collects your approximate location information based on your device or network information, such as SIM card and IP address.<br><br>In regions where Location Services are available for the TikTok app, and when you turn it on, TikTok will also collect your location information based on your device's GPS. Learn more about your device's location settings in the Android Help Center and Apple Support. Note: Location Services may not be available in all regions, including the U.S. and South Korea.<br><br>Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok<br><br>• **Location Information.** We collect information about your approximate location, including location information based on your SIM card and/or IP address. With your permission, we may also collect precise location data (such as GPS). In addition, we collect location information (such as tourist attractions, shops, or other points of interest) if you choose to add location information to your User Content.<br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |



## Location Targeting

Last updated, November 2023

TikTok Ads allow you to tailor messages and offers to specific locations including countries, regions, states, provinces, metro areas, cities, zip codes and more. Some targeting options are not available in all countries or regions.

Note:

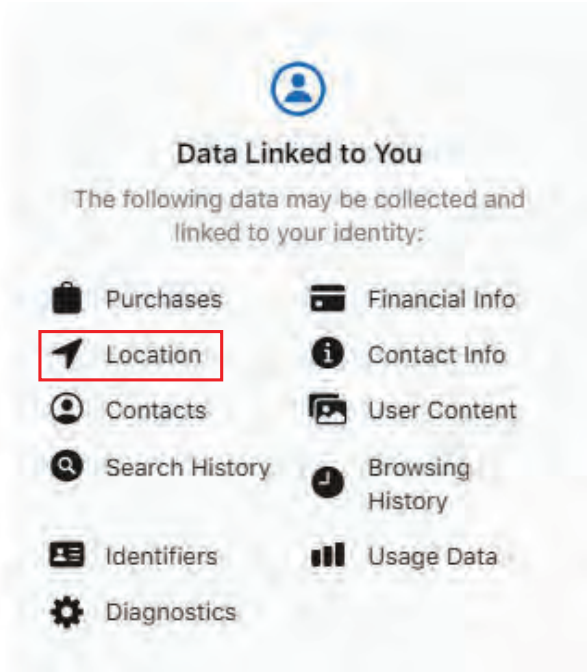
- If you are targeting multiple countries, locations may have regional descriptions (ex. Counties, Districts, etc.) in Ads Manager aligning with local definitions.
- Where available, TikTok enables advertisers to target up to 1500 location selections at a time, per ad group.
- Zip code targeting can be used in instances where an advertiser needs to target a more granular location than DMA or city. For example, if an advertiser provides services to only a portion of a city.
- A zip code or postal code prefix might not be targetable because it's either invalid, has not been made available due to ad policy requirements, or has not launched in those areas.
- TikTok does not support zip code + 4 targeting. If an advertiser tries to upload zip + 4, they will receive an error message.
- Targeting ad campaigns to small geographic areas or sets of zip codes can significantly reduce the number of impressions and clicks delivered, and may result in a higher CPA.
- Some advertisers may be subject to the Housing, Employment, and Credit ad policy.

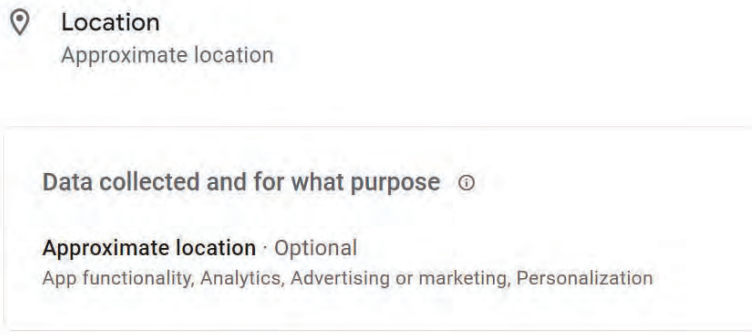
Location targeting is based on a variety of signals to serve ads to users who align with your location targeting selections. Due to the fact that signals vary, our delivery is not guaranteed and accuracy is not guaranteed in every situation.

### Location Targeting Options

| Location Type | Example |
|---|---|
| City | Salt Lake City, Utah |
| Country / Region | United States |

Source: https://ads.tiktok.com/help/article/location-targeting?lang=en

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| |  <br>Source: https://apps.apple.com/us/app/tiktok/id835599320 |

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| |  <br>Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

<table>
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## Ad Targeting

TikTok Ads Manager supports the following targeting dimensions:

| | | |
|---|---|---|
| **Audience** | Include | Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account) |
| | Exclude | Exclude Lookalike or Custom Audiences |
| **Demographics** | Gender | Male, Female |
| | Age | 13-17, 18-24, 25-34, 35-44, 45-54, 55+ |
| | Location | Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only) |

Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en

Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant.
</td></tr>
<tr><td>[1.12] and wherein the single mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone provides a touch</td><td>Defendant provides the single mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone that provides a touch based GUI for the received new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.</td></tr>
</table>

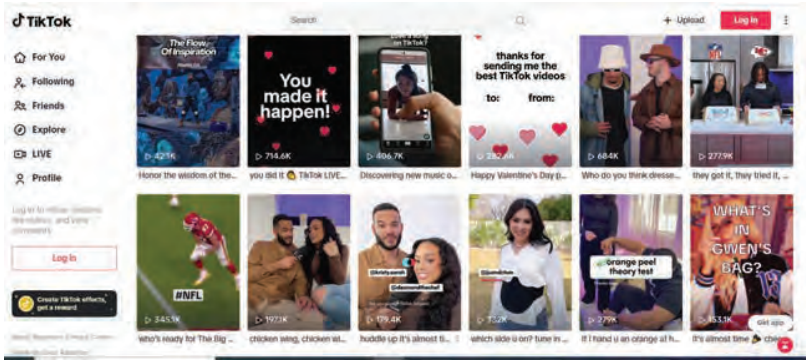
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| based GUI for the received new-data. | For example, the TikTok app (“single mobile client application”) installed on the mobile device (“short-range wireless enabled cellular phone”) comprises touch based graphical user interface (“GUI”) which allows the user to access the liked and watched videos (“new-data”).<br>  <br><br>Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber |

## Onboarding - It starts with a Swipe

The process of getting hooked to TikTok starts right away in the users onboarding experience. TikTok asks users to choose their interests. This information is used for personalizing each user's feed. This is a common practice for products with curated content and used by many different apps.

But TikTok's user onboarding is really smart. It encourages users to scroll through the feed and tells them that the content will become more relevant and personalized the more they use it. While this is true for many algorithms, many apps don't tell users this explicitly. By doing so, TikTok encourages users to continue using the app for a better experience

Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber




Source: https://www.tiktok.com/@tiktok

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [2] The short-range wireless enabled data capture device of claim 1, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing. | Defendant provides the short-range wireless enabled data capture device of claim 1, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app installed in the mobile device using Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("short-range wireless enabled data capture device") which comprises Bluetooth ("short-range paired wireless connection"). Using Bluetooth ("Bluetooth paired wireless connection"), the Bluetooth devices pairs with the mobile device. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video.<br><br>**Connectivity** Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>**Connectivity**<br><br>Each earbud: Bluetooth 5.0<br><br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US |



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

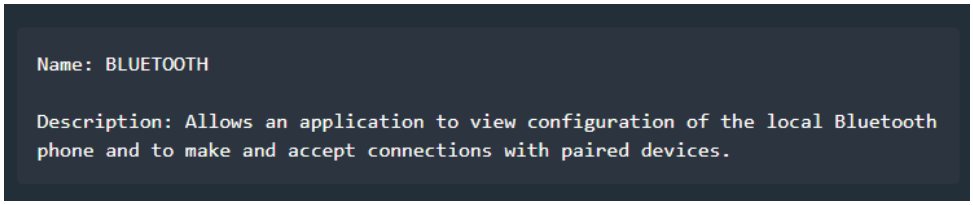
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

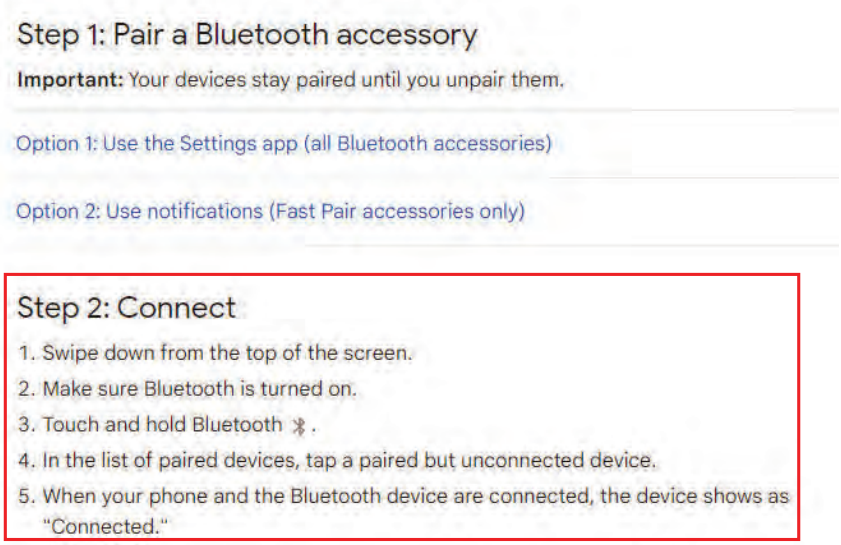
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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

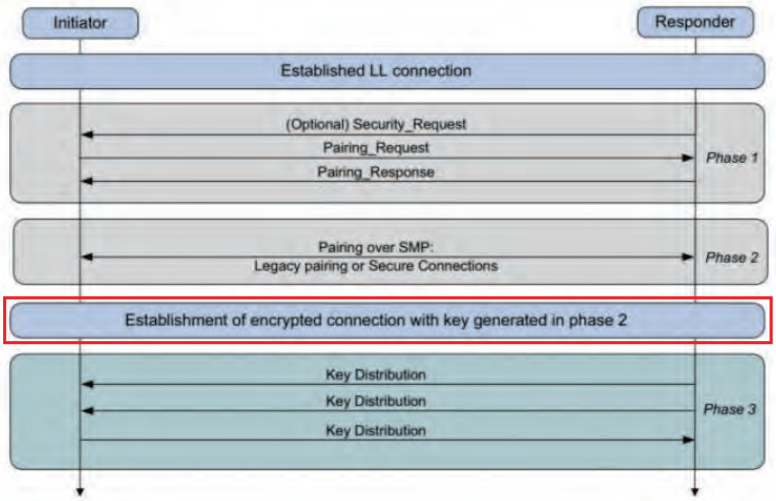
Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://support.google.com/android/answer/9075925?hl=en |

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device,* makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth<br><br>In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

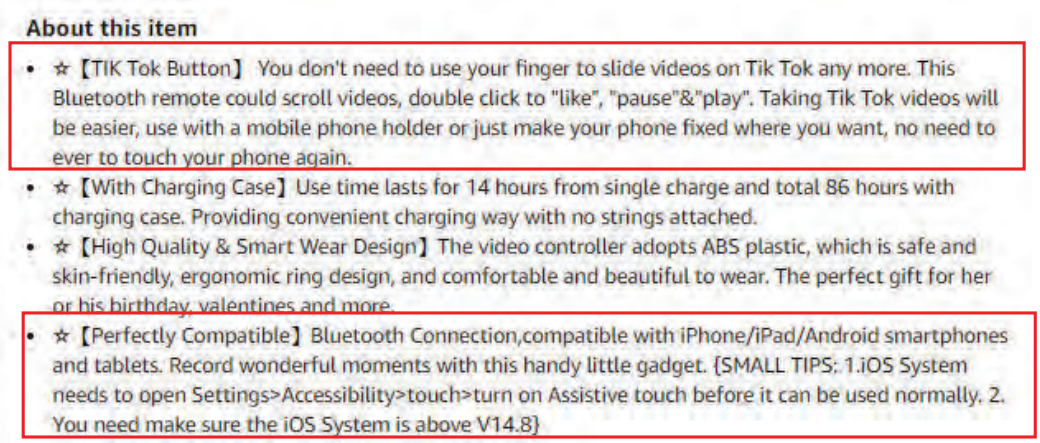
The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

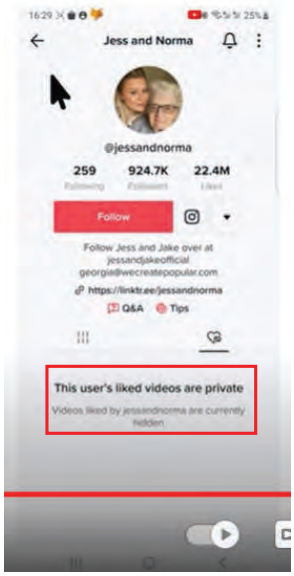
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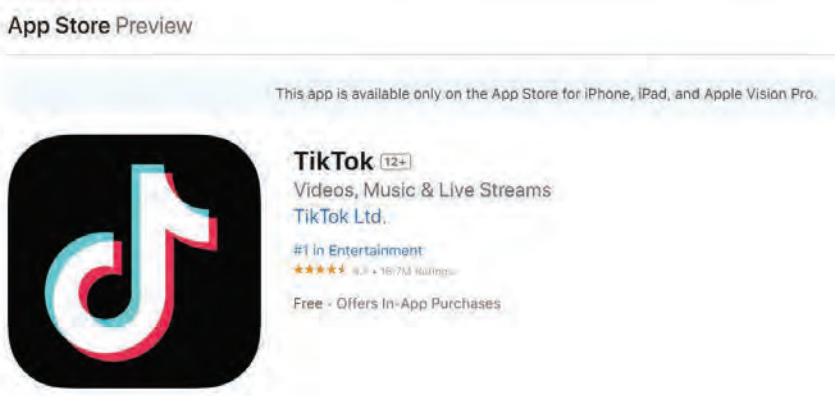
| | |
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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [3] The short-range wireless enabled data capture device of claim 1, wherein the user authentication credential sent by the single mobile client application is used to authenticate a user on the user data publishing website and publish the new-data for private use | Defendant provides the short-range wireless enabled data capture device of claim 1, wherein the user authentication credential sent by the single mobile client application is used to authenticate a user on the user data publishing website and publish the new-data for private use on the user data publishing website.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app (“single mobile client application”) in the mobile device uses the user credentials such as username and password (“user authentication credential”) associated with the user’s account of the TikTok app for uploading the commands such as ‘like’ or ‘scroll down’. Further, the uploaded data such as liked/watched videos can be accessed by the user of the TikTok app by logging their account into the app. |

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| on the user data publishing website. | Additionally, the TikTok app provides the functionality to the user to hide their liked videos from their profile ("publish the new-data for private use on the user data publishing website").<br><br>**Information You Provide**<br><br>• **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.<br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en<br><br>You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

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| | **How to manage who can view your liked videos**<br><br>You can choose to show or hide your liked videos on your profile. Your liked videos are hidden from your profile by default when you create an account.<br><br>To hide or show your liked videos on your profile:<br>1. In the TikTok app, tap **Profile** at the bottom.<br>2. Tap the **Menu** button at the top.<br>3. Tap **Settings and privacy**, then tap **Privacy**.<br>4. Tap **Liked videos** and select **Everyone** (public accounts only), **Followers** (private accounts only) or **Only me**.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking |

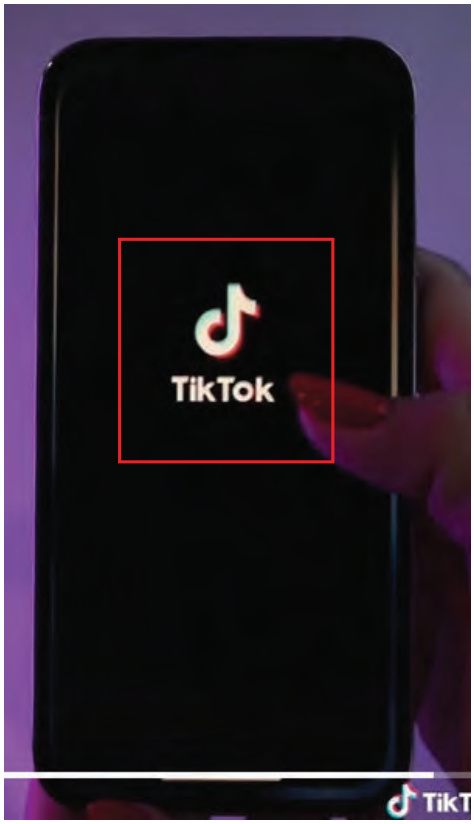
| | |
|---|---|
| |  <br>Source: https://www.youtube.com/watch?v=JzlTDsCIOQA&t=68s, at 1:10<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.P] A system, comprising:<br>a short-range wireless enabled data capture device, comprising: | ByteDance ("Defendant") makes, uses, sells, and/or offers to sell a system comprising: short-range wireless enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, Defendant provides TikTok[3] app which includes the functionality of TikTok Shop that enables merchants to sell products and allows users to buy products from within the TikTok app. For example, TikTok app enables merchants to sell products including, but not limited to, Bluetooth-enabled earphones, AirPods, and Bluetooth remotes[4] ("a short-range wireless enabled data capture device") to TikTok app's users.<br><br>For example, the TikTok app can be installed in a mobile device such as an iPhone or an Android phone and remotely controlled through Bluetooth devices such as Bluetooth enabled earphones, AirPods and Bluetooth remotes. The TikTok app utilizes the Bluetooth technology of the Bluetooth devices and the mobile device to perform functions such as 'scrolling'/'liking' a video based on inputs provided to the Bluetooth devices.<br><br>  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

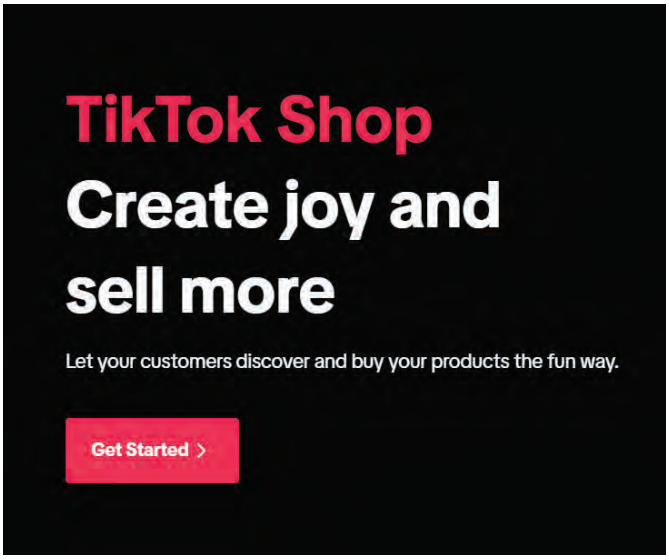
[3] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

[4] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

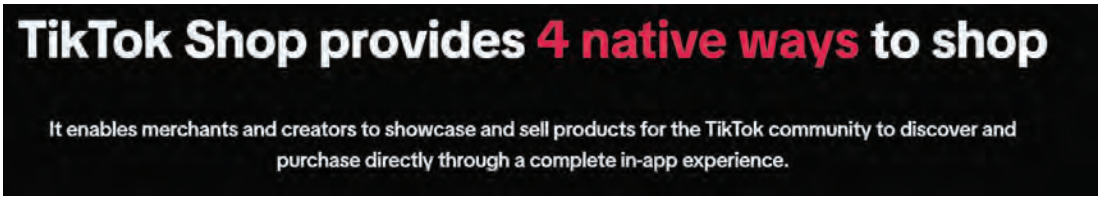
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| |  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

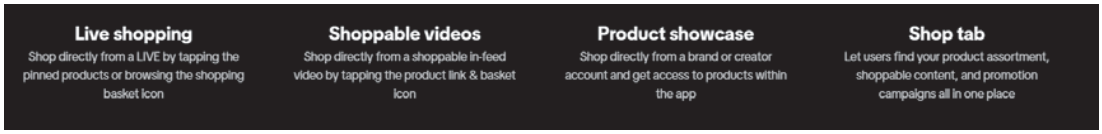
133



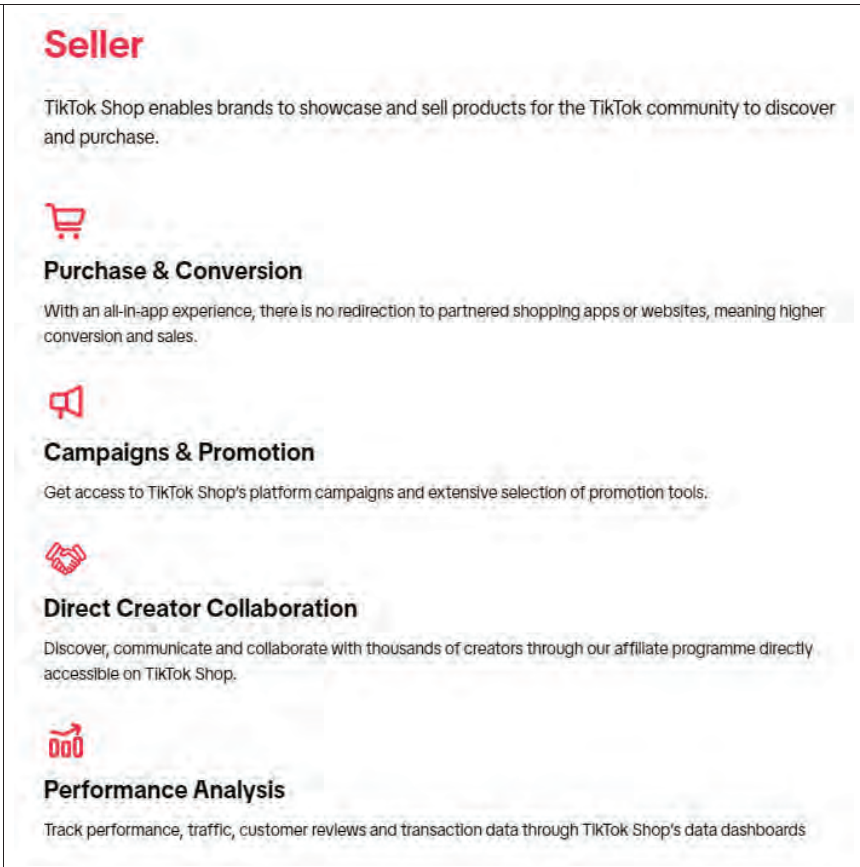

Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en

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| |  <br>Source: https://shop.tiktok.com/business/en |

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Source: https://shop.tiktok.com/business/en

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| | **How does TikTok Commerce work?**<br><br>TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en<br><br>**About TikTok Shop**<br><br>TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.<br><br>Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.<br><br>• See TikTok Shop and Showcase<br>• See How to Add Product Links to TikTok Videos<br><br>With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en |

## Electrical Products and Electronics

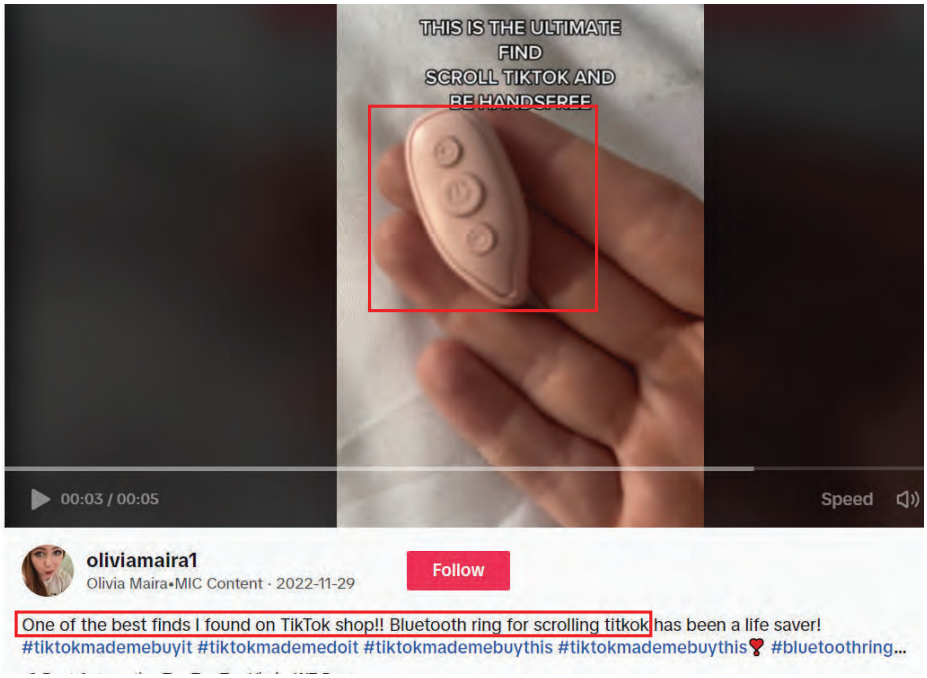
Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.

Electrical and electronic products include but are not limited to:

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy

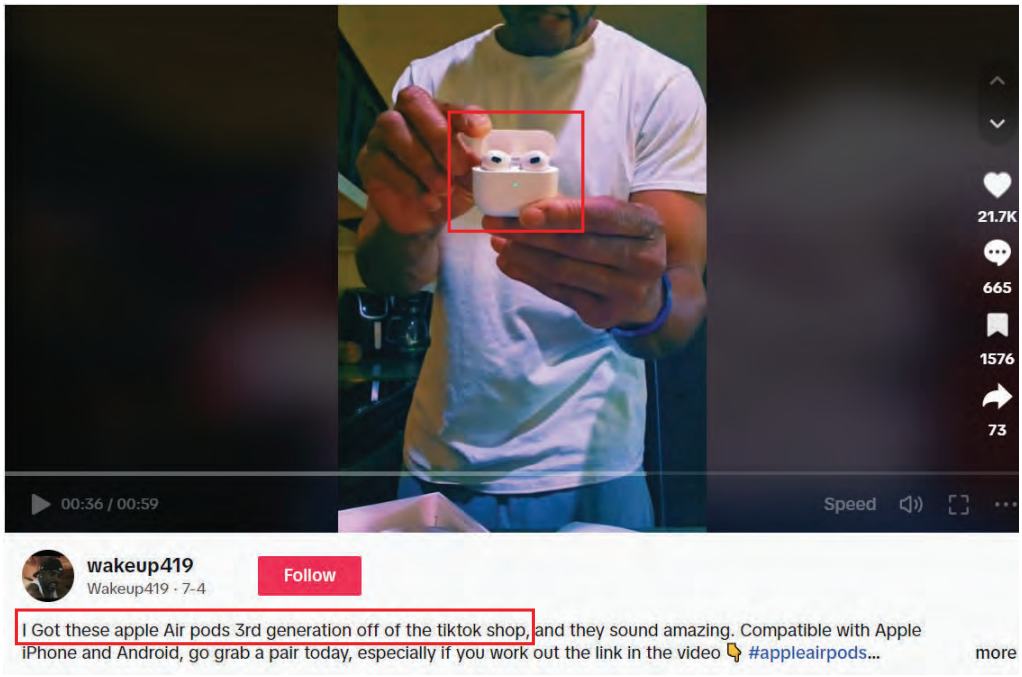
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| | | • Other electronic household and similar appliances such as:<br>◦ string lights<br>◦ mobile phone batteries<br>◦ mobile phones<br>◦ car chargers<br>◦ mobile phone wall chargers |
| Electronics - Wireless and Bluetooth Devices | • Valid US Product Electrical Safety<br>• FCC Certification ID | • All electronic products with wireless capability, such as Wi-Fi-enabled devices<br>• All electronic products with Bluetooth capability |

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy



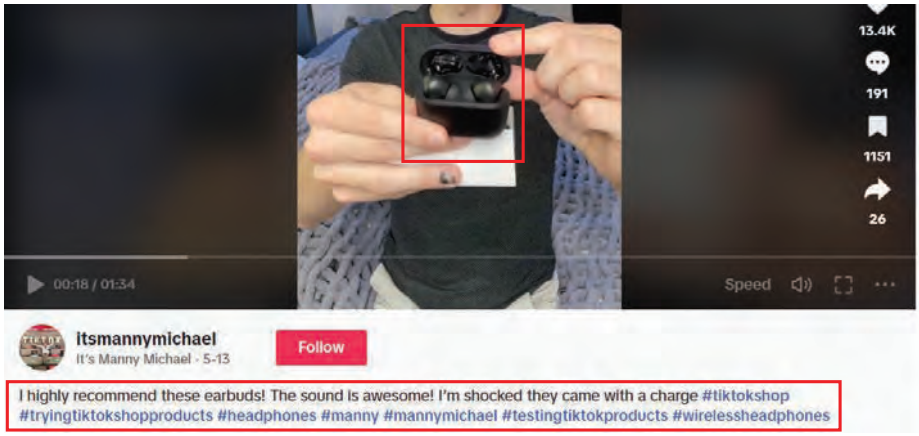

Source: https://www.tiktok.com/@oliviamaira1/video/7171162583678946566, at 0:03

139

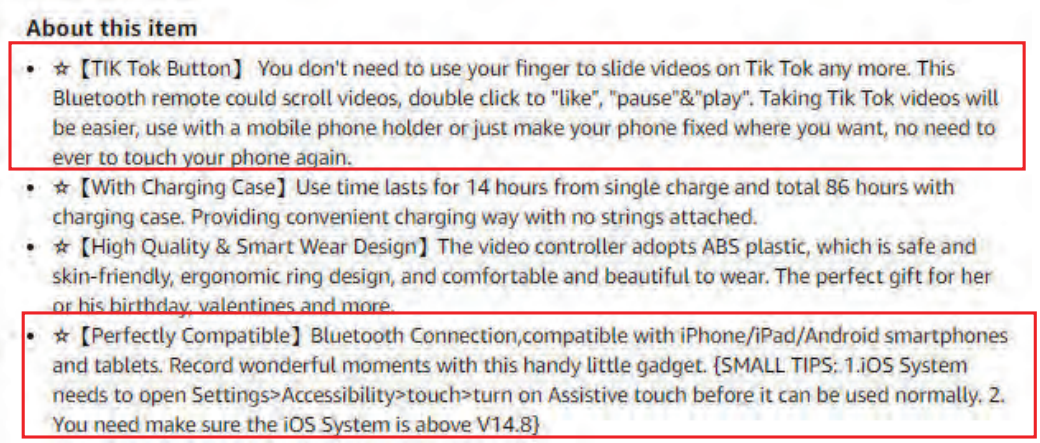


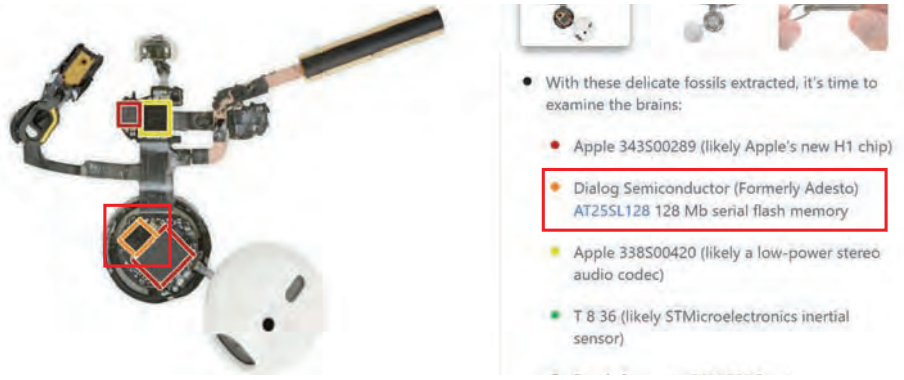

Source: https://www.tiktok.com/@wakeup419/video/7251981896937213226, at 0:36

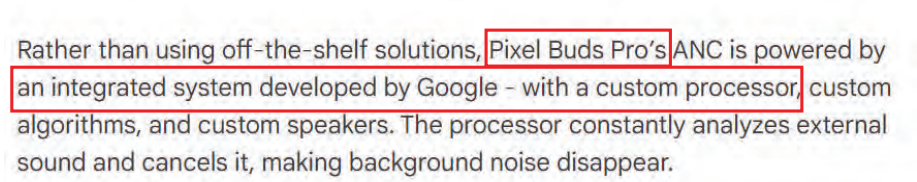
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| |  <br>Source: https://www.tiktok.com/@itsmannymichael/video/7232432938531671342, at 0:18 |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.1] a first memory device;<br>a first processor coupled to the first memory device; | Defendant provides a first memory device; a first processor coupled to the first memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, AirPods and Bluetooth enabled earphones that comprises a memory (“first memory device”) and a processor coupled to the memory (“first processor coupled to the first memory”). The memory is used for temporary storage of audio data locally in the Bluetooth device such as AirPods and Bluetooth enabled earphones. The processor processes the user’s data and sends it for execution to the mobile device, where the TikTok app is installed. |

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| | For example, the users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, Bluetooth remote that upon information and belief comprises a memory ("first memory device") and a processor coupled to the memory ("a first processor coupled to the first memory device"). The memory is used for temporary storing the user's selection of the clicked button locally. The processor processes the user's data and sends it for execution to the mobile device, where the TikTok app is installed.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>  <br>Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471 |

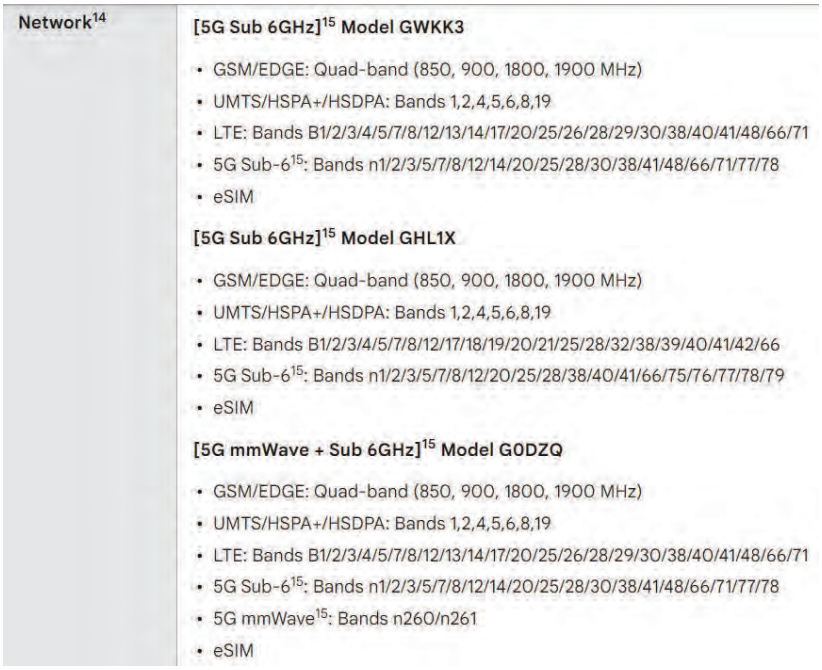
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| |  <br>Source: https://store.google.com/product/pixel_buds_pro<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.2] a first short-range wireless communication device configured to establish a short-range paired wireless connection with a short-range wireless enabled cellular phone, wherein the short-range wireless enabled cellular phone is internet enabled, wherein establishing the short-range paired wireless connection comprises, the short-range wireless enabled data capture device cryptographically authenticating identity of the short-range wireless enabled cellular phone; | Defendant provides a first short-range wireless communication device configured to establish a short-range paired wireless connection with a short-range wireless enabled cellular phone, wherein the short-range wireless enabled cellular phone is internet enabled, wherein establishing the short-range paired wireless connection comprises, the short-range wireless enabled data capture device cryptographically authenticating identity of the short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app installed in the mobile device ("short-range wireless enabled cellular phone") using Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("short-range wireless enabled data capture device") which comprises Bluetooth ("first short-range wireless communication device"). Using Bluetooth, the Bluetooth devices pairs with the mobile device. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices. Further, the mobile device comprises built-in wireless connectivity features, such as Wi-Fi and cellular capabilities that enable access to the internet and allows the user to use TikTok app, that requires internet to function.<br><br>For example, the Bluetooth device and the mobile device are connected through an encrypted connection created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of |

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| | the devices such that a Bluetooth-paired connection is established between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>**Connectivity** Bluetooth 5.0 wireless technology<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>**Connectivity**<br><br>Each earbud: Bluetooth 5.0<br><br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US<br><br>  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1 |

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| | **Check Internet connection**<br><br>Weak data or Wi-Fi signal can also impact your experience on TikTok. Try switching from Wi-Fi to mobile data to troubleshoot whether or not the issue is related to connectivity.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>If iPhone is connected to the internet using the cellular data network, an icon identifying the cellular network appears in the status bar.<br><br>5G, LTE, 4G, and 3G service on GSM cellular networks support simultaneous voice and data communications. For all other cellular connections, you can't use internet services while you're talking o the phone unless iPhone also has a Wi-Fi connection to the internet. Depending on your network connection, you may not be able to receive calls while iPhone transfers data over the cellular network—when downloading a webpage, for example.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Choose cellular data options for data usage, performance, battery life, and more**<br><br>To turn Cellular Data on or off, go to Settings > Cellular.<br><br>To set options when Cellular Data is on, go to Settings > Cellular > Cellular Data Options, then do any of the following:<br><br>• *Reduce cellular usage:* Turn on Low Data Mode, or tap Data Mode, then choose Low Data Mode. This mode pauses automatic updates and background tasks when iPhone isn't connected to Wi-Fi.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios |

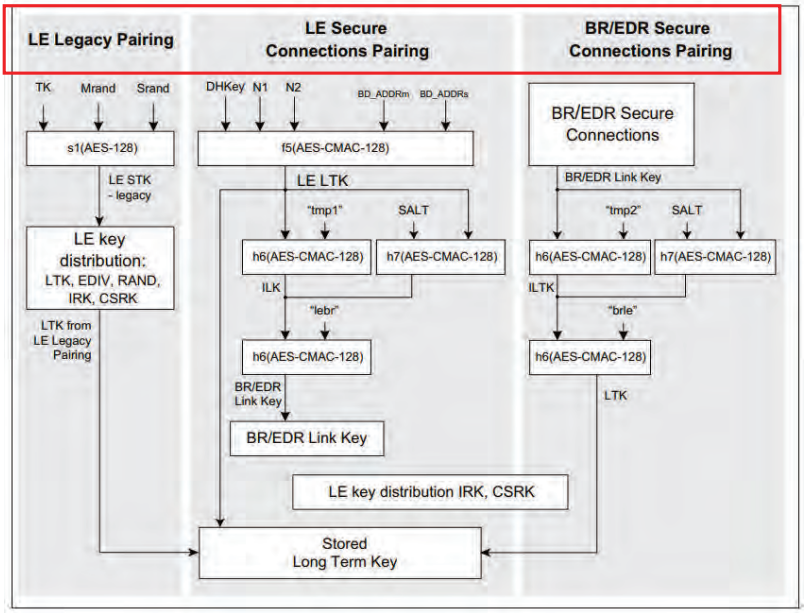
147

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| |  **Cell signal.** The number of bars indicates the signal strength of your cellular service. If there's no signal, "No Service" appears.<br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0<br>  **LTE.** Your carrier's LTE network is available, and iPhone can connect to the internet over that network (not available in all countries or regions). See View or change cellular data settings on iPhone.<br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0 |

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| |  <br>**Network[14]**<br>**[5G Sub 6GHz][15] Model GWKK3**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78<br>• eSIM<br>**[5G Sub 6GHz][15] Model GHL1X**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/17/18/19/20/21/25/28/32/38/39/40/41/42/66<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/20/25/28/38/40/41/66/75/76/77/78/79<br>• eSIM<br>**[5G mmWave + Sub 6GHz][15] Model G0DZQ**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78<br>• 5G mmWave[15]: Bands n260/n261<br>• eSIM<br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en |

149

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| | **Connect to mobile networks on a Pixel phone**<br>You can adjust how your phone uses data by changing your mobile network settings.<br>Depending on your carrier and service plan, your phone may connect automatically to your carrier's fastest available data network. Or you may need to add a SIM or pick settings for a specific carrier.<br>Pixel 4a (5G) and later phones work with 5G service. Learn about 5G on Pixel phones.<br>Source: https://support.google.com/pixelphone/answer/2926415?hl=en<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

151

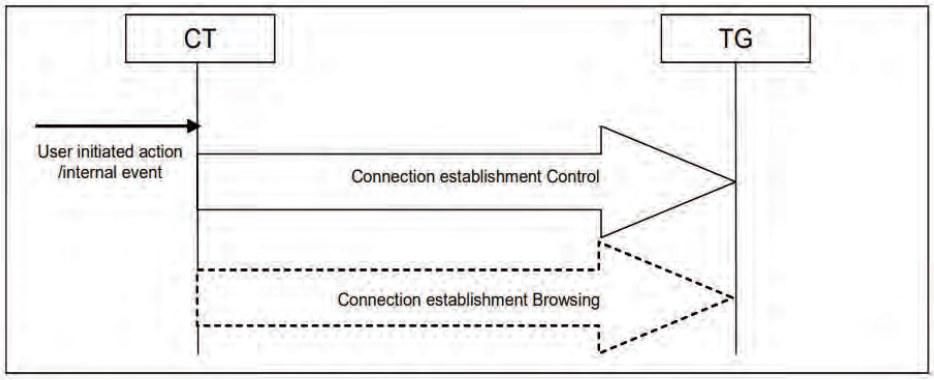



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

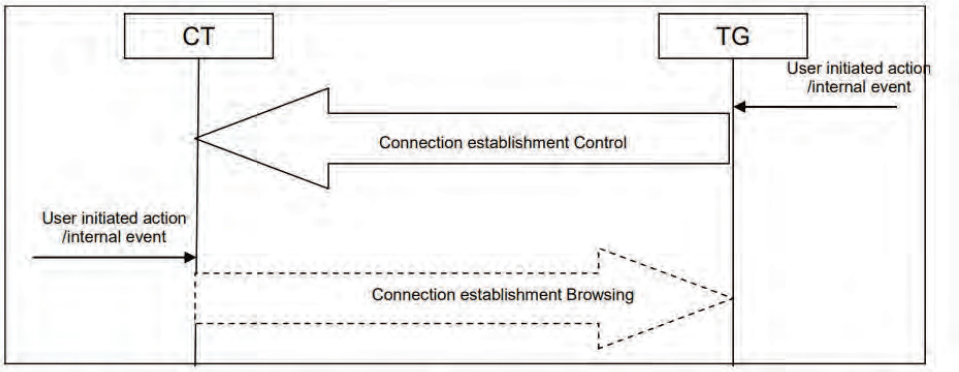



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

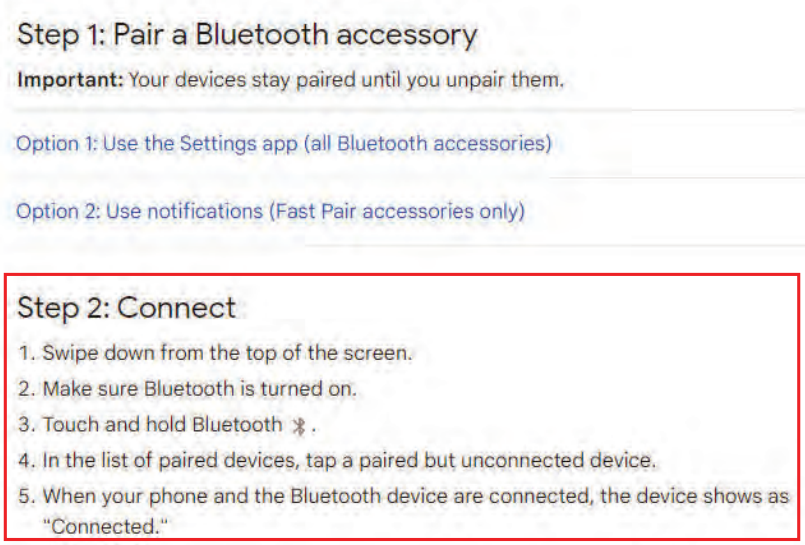
Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
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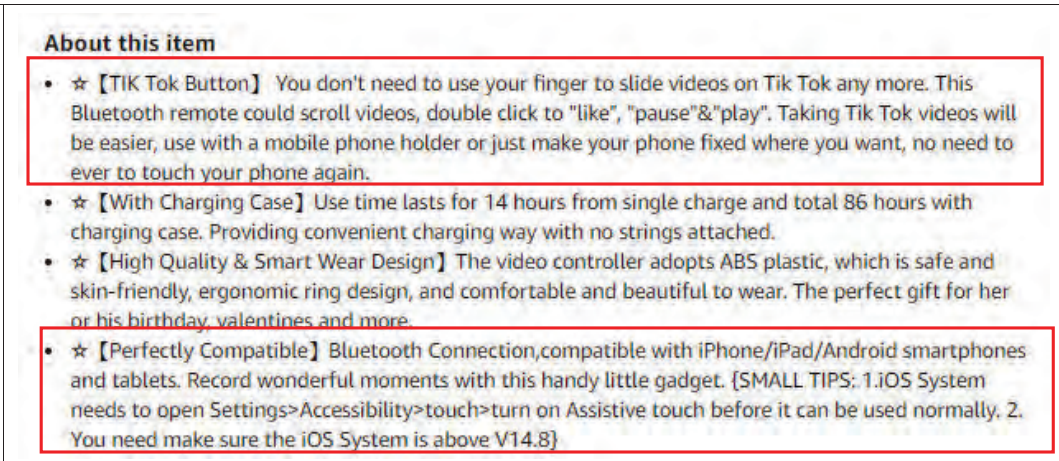
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| | Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>**Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web |

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| |  <br>Source: https://support.google.com/android/answer/9075925?hl=en |

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

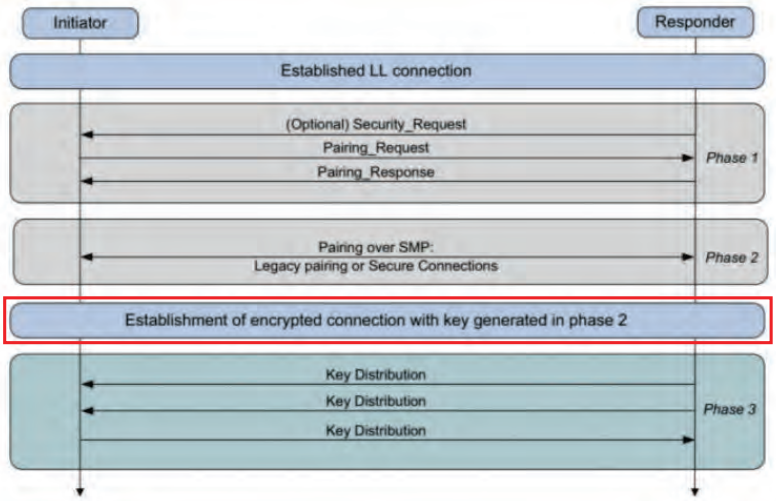
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

159

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| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

160

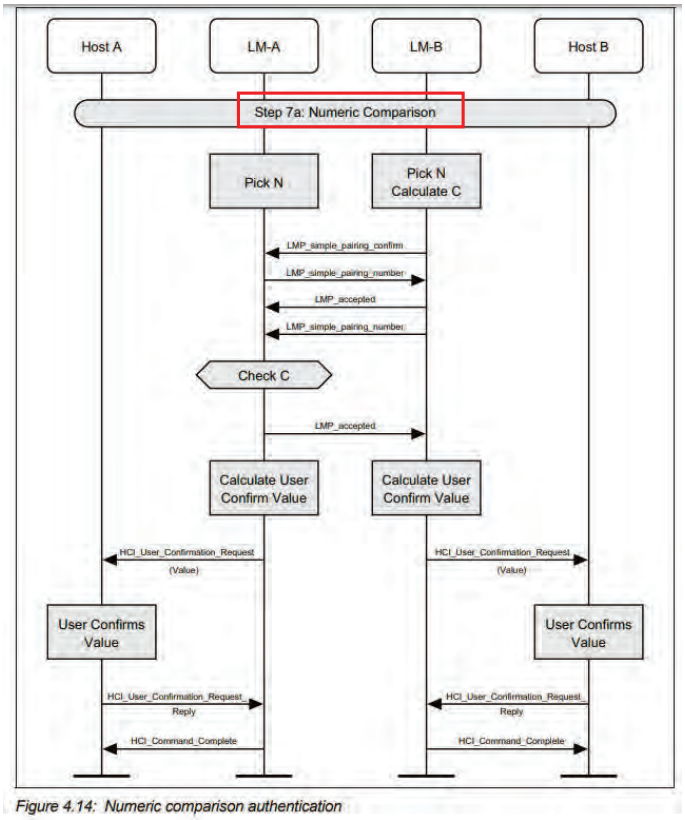



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

161

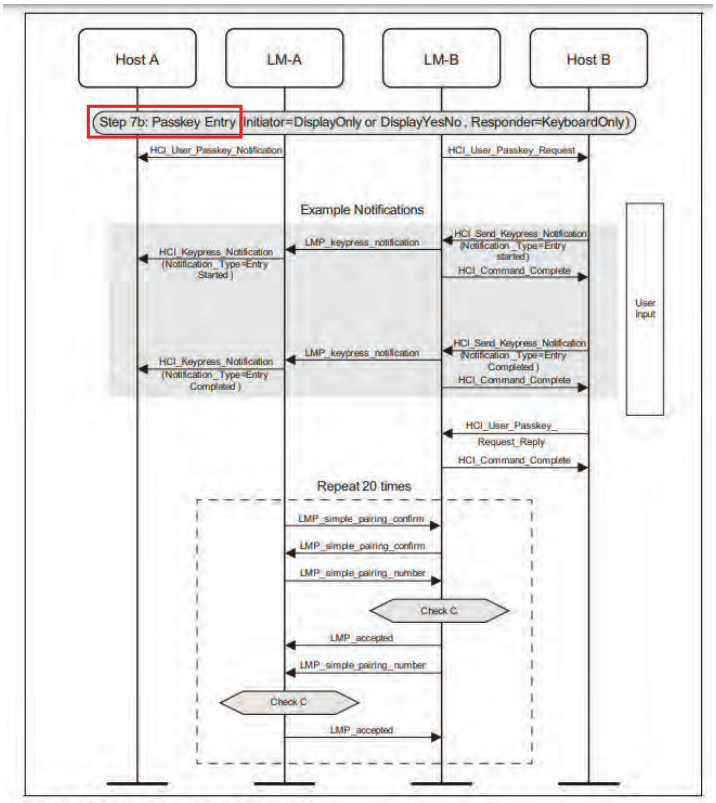



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

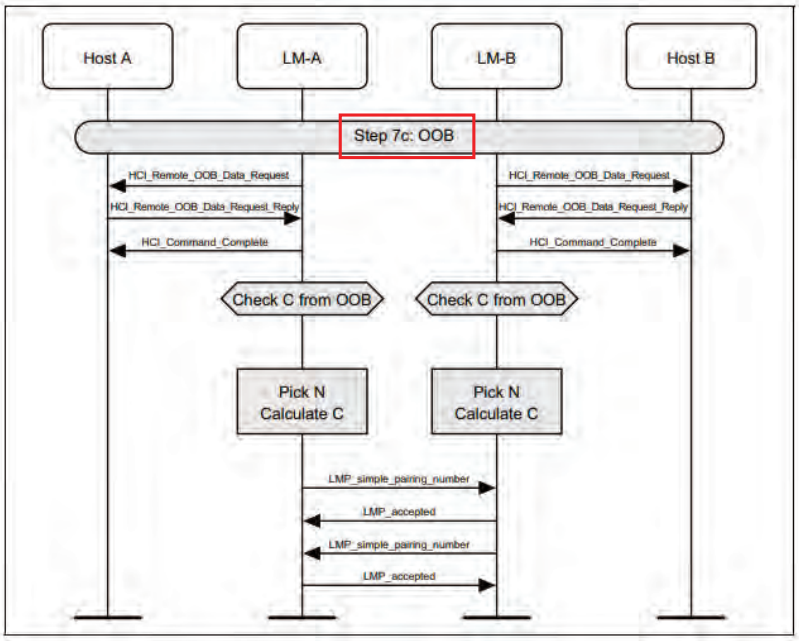
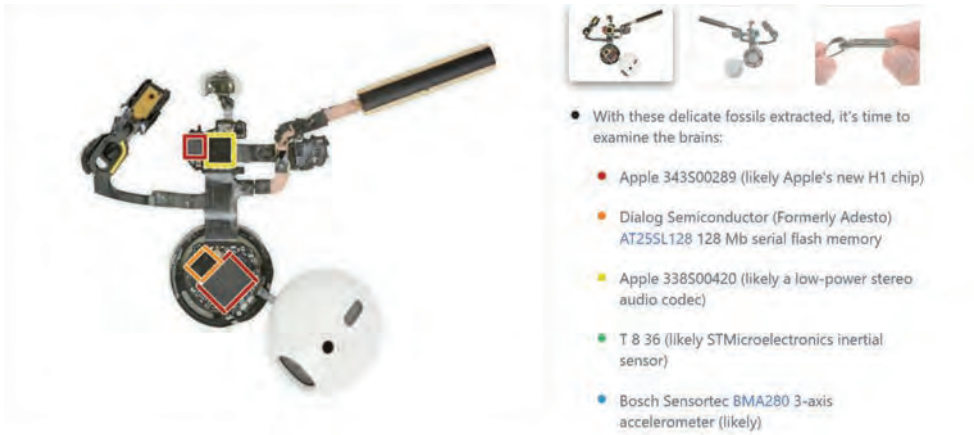



*Figure 4.20: OOB authentication (P-192)*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

163

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| | **Encryption Key Size Control Enhancements**<br>New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.<br>Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.<br>Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.3] a data capture circuitry; | Defendant provides a data capture circuitry.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the Tik Tok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as AirPods and Bluetooth-enabled earphones. The Bluetooth devices comprises microphone, sensors, chips, and controls among other components (“data capture circuitry”) to capture user’s audio commands.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as Bluetooth remote. The Bluetooth remote comprises buttons and sensors (“data capture circuitry”) to capture the user’s selection of the clicked button. |




Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471

165

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| | **Audio Technology**<br>▪ Custom high-excursion Apple driver<br>▪ Custom high dynamic range amplifier<br>▪ Active Noise Cancellation<br>▪ Adaptive Transparency<br>▪ Vent system for pressure equalization<br>▪ Personalized Spatial Audio with dynamic head tracking[1]<br>▪ Adaptive EQ<br>**Sensors**<br>▪ Dual beamforming microphones<br>▪ Inward-facing microphone<br>▪ Skin-detect sensor<br>▪ Motion-detecting accelerometer<br>▪ Speech-detecting accelerometer<br>▪ Touch control<br>**Chip**<br>▪ Apple H2 headphone chip<br>▪ Apple U1 chip in MagSafe Charging Case<br>**Controls**<br>▪ Press once to play, pause, or answer a phone call<br>▪ Press twice to skip forward<br>▪ Press three times to skip back<br>▪ Press and hold to switch between Active Noise Cancellation and Adaptive Transparency<br>▪ Swipe up or down to adjust volume<br>▪ Say "Hey Siri" to do things like play a song, make a call, or get directions<br>Source: https://support.apple.com/kb/SP880?locale=en_US |

## Set Microphone to left, right, or automatic

There's a microphone in each AirPod, so you can make phone calls and use Siri. By default, Microphone is set to Automatic, so that either of your AirPods can act as the microphone. If you're using only one AirPod, that AirPod will be the microphone.

You can also set Microphone to Always Left or Always Right. You can also set Microphone to Always Left or Always Right to always have either the right or the left AirPod use the microphone even if you remove it from your ear or put it in the case.

Source: https://support.apple.com/en-us/HT207009

**Connectivity**

Each earbud: Bluetooth 5.0

**Audio**

Each earbud: Custom-designed 11 mm dynamic speaker driver · · Acti...

**Voice**

Each earbud: · · Three microphones · · Bluetooth Super Wideband · ...

**Sensors**

Each earbud: Capacitive touch (tap and swipe) sensors for music, call...

Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US

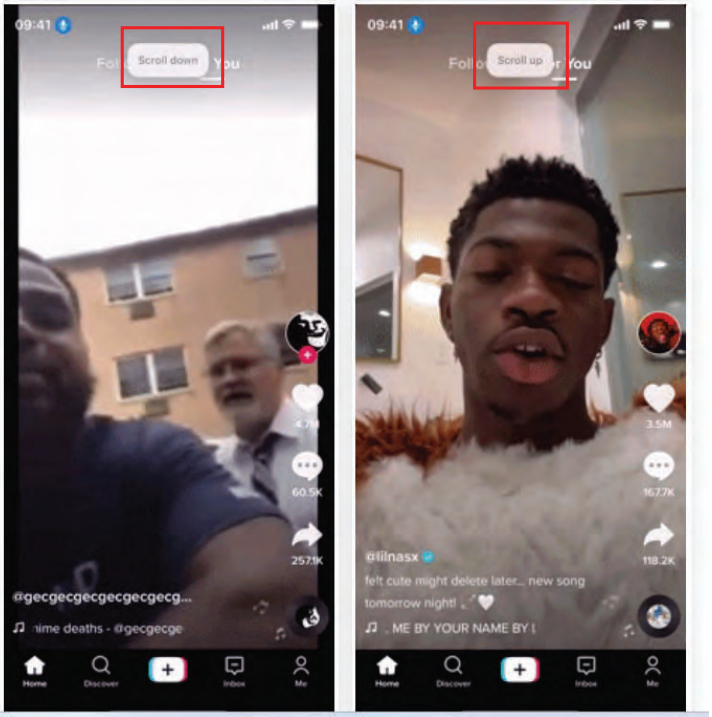
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |

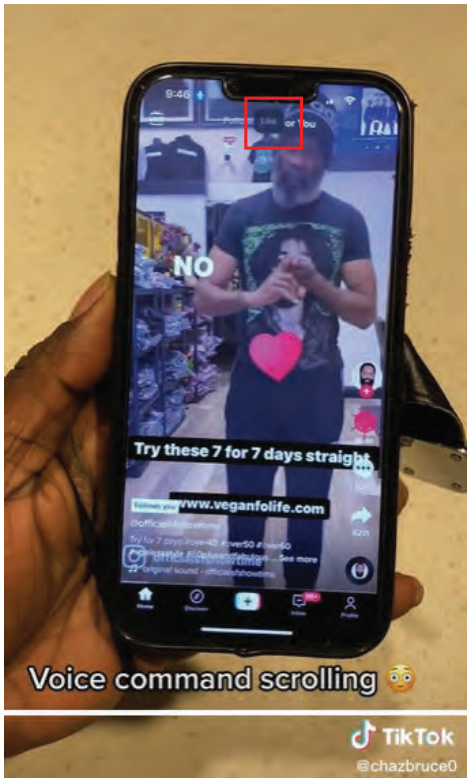
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| [4.4] said first processor configured to acquire new-data in the short-range wireless enabled data capture device using the data capture circuitry, wherein the new-data is data acquired after establishing the short-range paired wireless connection with the short-range wireless enabled cellular phone; | Defendant provides said first processor configured to acquire new-data in the short-range wireless enabled data capture device using the data capture circuitry, wherein the new-data is data acquired after establishing the short-range paired wireless connection with the short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth device captures the user's command ("new-data") using its data capture circuitry, processes it and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is processed and transferred to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down", the Bluetooth devices such as AirPods or earphones capture the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button, the Bluetooth remote captures the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

169

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| | Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br><br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br><br>  <br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

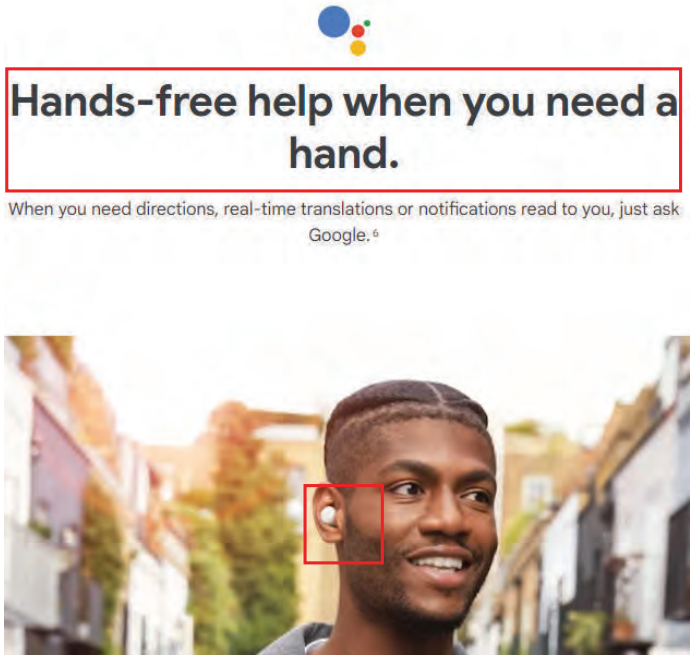
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

173

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| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

175




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
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Source: https://blog.malcore.io/p/tiktok63

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

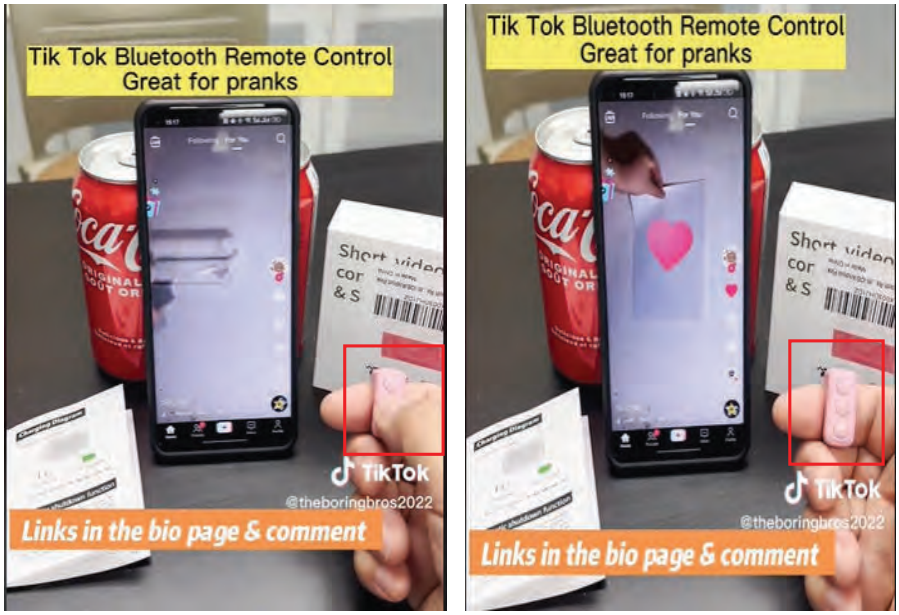
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.5] said first processor further configured to store the new-data in the first memory device; and | Defendant provides a first processor further configured to store the new-data in the first memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device captures the user's command ("new-data"), processes it, temporarily stores it before buffering and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user, temporarily stores the audio data locally, processes, and transfers the command to the mobile device on which the TikTok app is installed. Similarly, the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote, upon information and belief, temporarily stores the user's selection of the clicked button locally prior to buffering and transfer the command to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the audio command is stored, at least temporally, processed and sent for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, upon information and belief, the user's selection is stored locally prior to buffering, processed and sent for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |



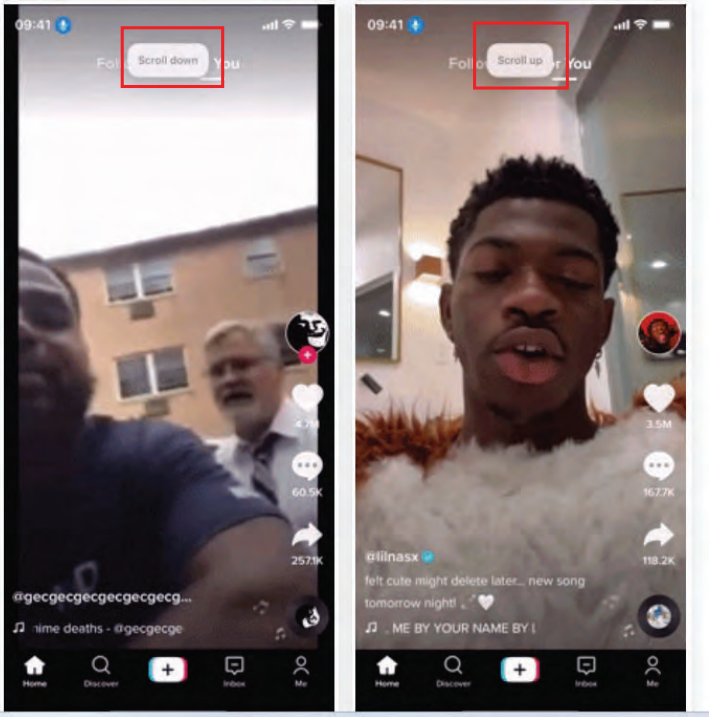

Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471

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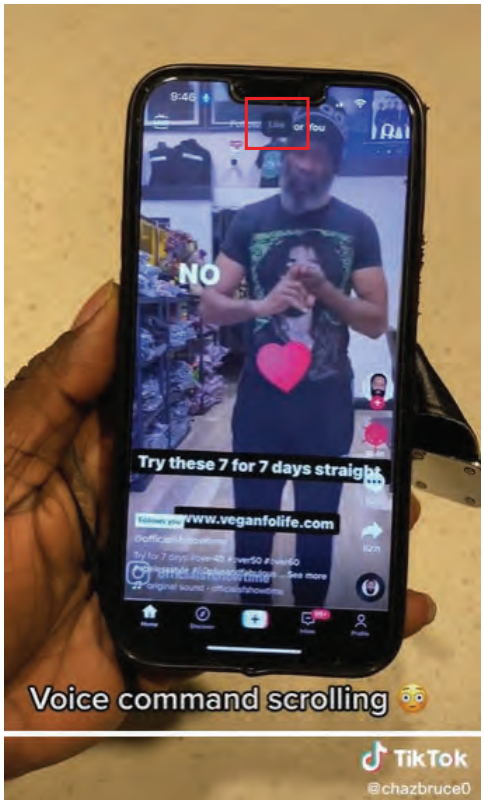
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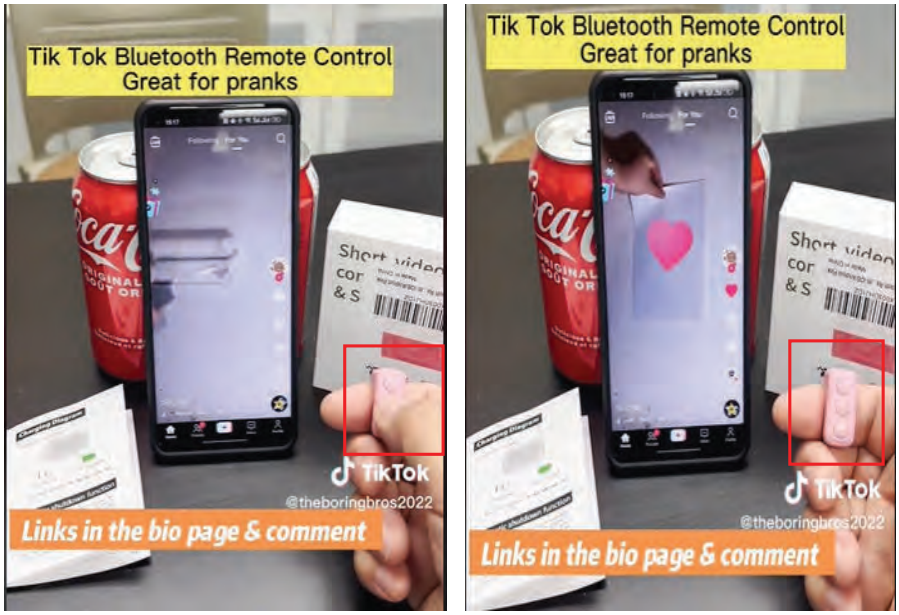
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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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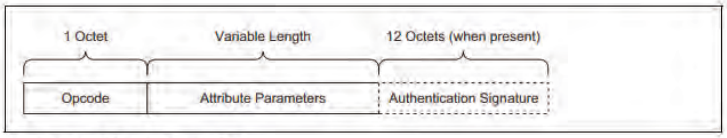
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.6] said first processor further configured to send an event notification and the acquired new-data to the cryptographically | Defendant provides a first processor further configured to send an event notification and the acquired new-data to the cryptographically authenticated short-range wireless enabled cellular phone over the established short-range paired wireless connection automatically, wherein the event notification corresponds to the acquired new-data and comprises sending a signal to the cryptographically authenticated short-range wireless enabled cellular phone wherein the cryptographically authenticated short-range wireless enabled cellular phone is configured to |

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| authenticated short-range wireless enabled cellular phone over the established short-range paired wireless connection automatically, wherein the event notification corresponds to the acquired new-data and comprises sending a signal to the cryptographically authenticated short-range wireless enabled cellular phone | listen to the event notification and receive the new-data over the established short-range paired wireless connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device, such as AirPods, earphones and Bluetooth remote, the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command in the form of event notification that comprises the information related to the command. Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the Bluetooth device automatically sends event notification, including the captured data (audio command and information corresponding to button press) ("acquired new-data"), along with the information of the captured data and a signal to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("signal to notify and acquired new-data") on AirPods or earphones, the Bluetooth device sends event notification, including the user's command, along with a signal to the mobile device on which the TikTok app is installed in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the Bluetooth remote sends event notification, including the user's selection of the clicked button, along with a signal to the mobile device on which the TikTok app is installed.in order to like or scroll the subsequent video.<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of |

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| | BLE functionality. GATT defines a framework for organizing and exchanging data between the BLE devices. When a GATT server (e.g., a Bluetooth device), has new data or an event to notify the GATT client (e.g., a mobile device), it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br><br>  <br>*Figure 2.3: Attribute Protocol PDU*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |

193

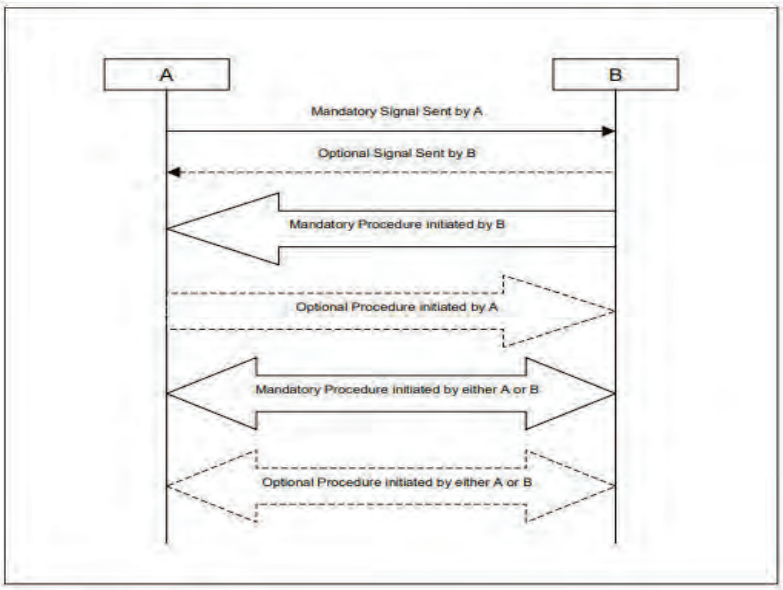



*Figure 1.2: Signaling conventions*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11

194

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

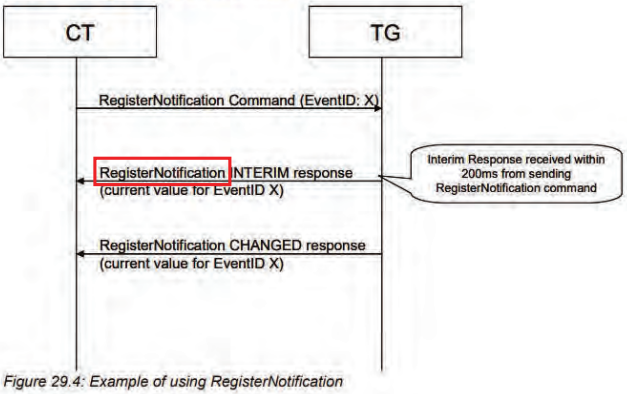



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139

195

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

196

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| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

197



LifeScan, Inc. Ex. 1036
Page 1466 of 2225
IPR2025-00102

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

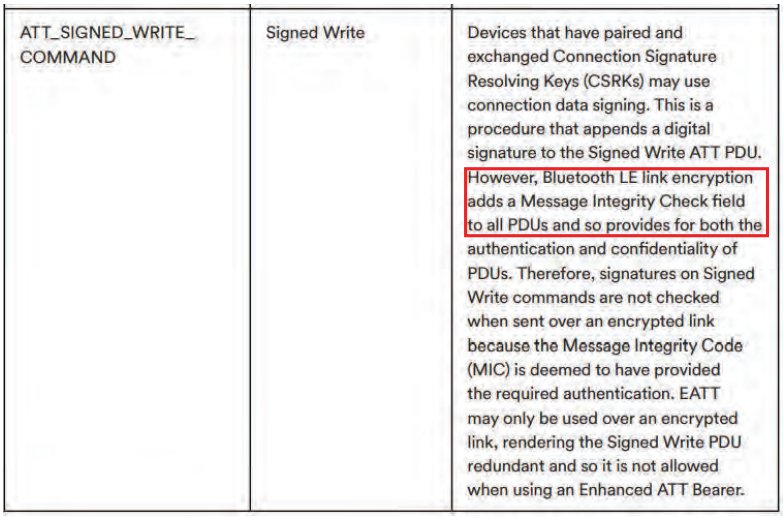
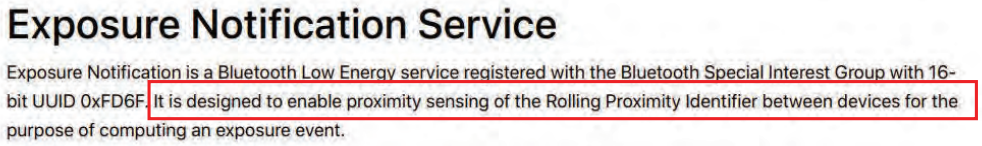
## 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

198

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| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

| | | |
|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

## Exposure Notification Service

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

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| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

| | |
|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified. This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

### 5.13 Browsing

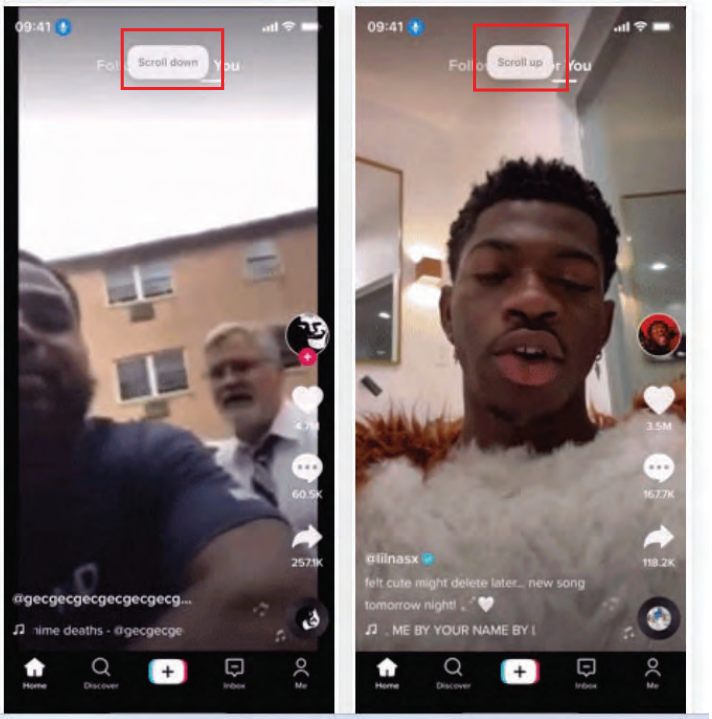
Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

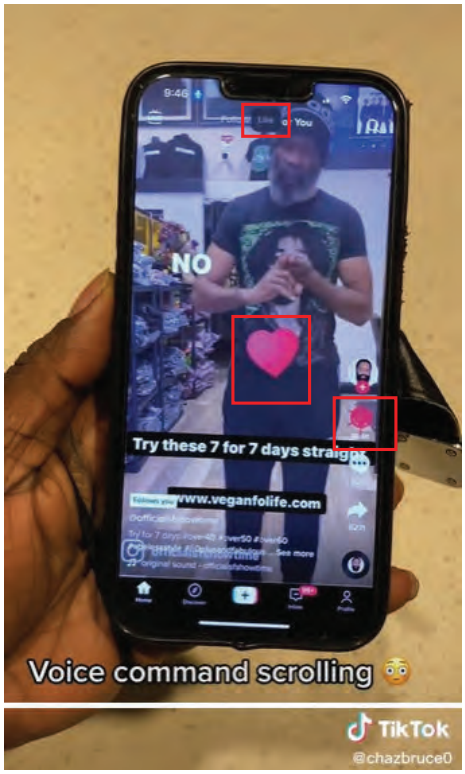
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

201

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|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |




Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

| | |
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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

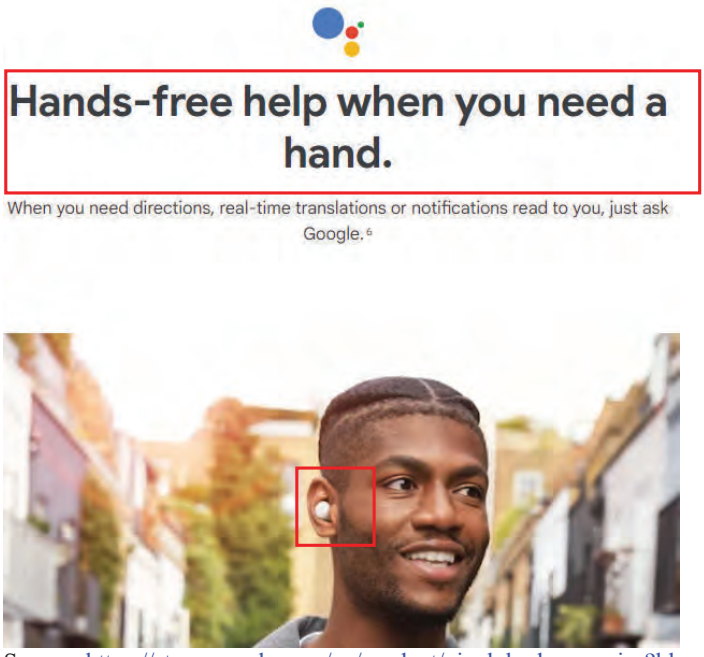
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| | <table><tr><td>**android.permission.BLUETOOTH_CONNECT**</td><td>App customer permission.</td></tr></table><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |



LifeScan, Inc. Ex. 1036
Page 1476 of 2225
IPR2025-00102




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

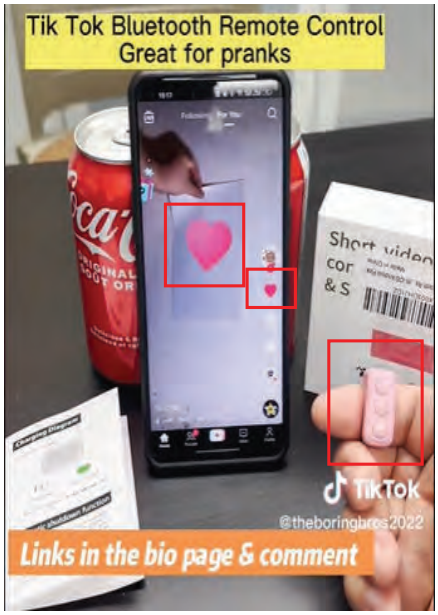
| | |
|---|---|
| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

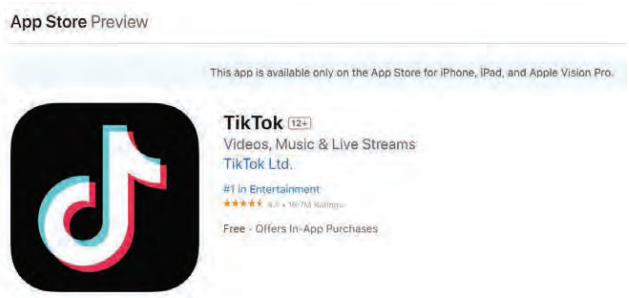
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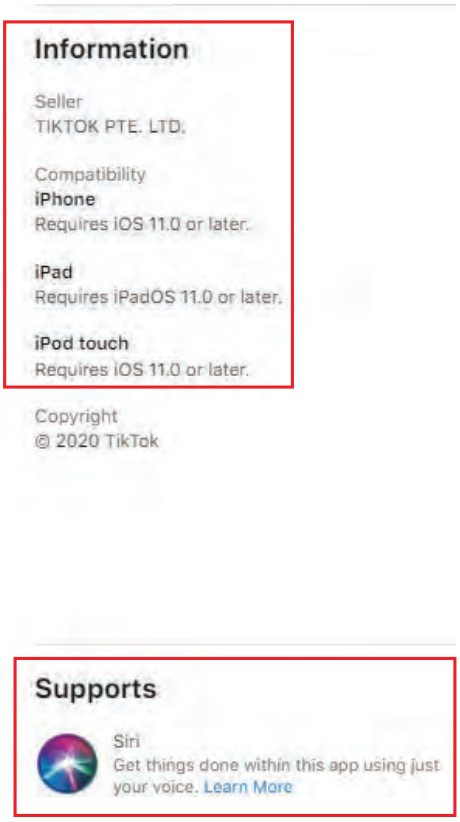
| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.7] said short-range wireless enabled cellular phone, comprising: | Defendant provides a short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

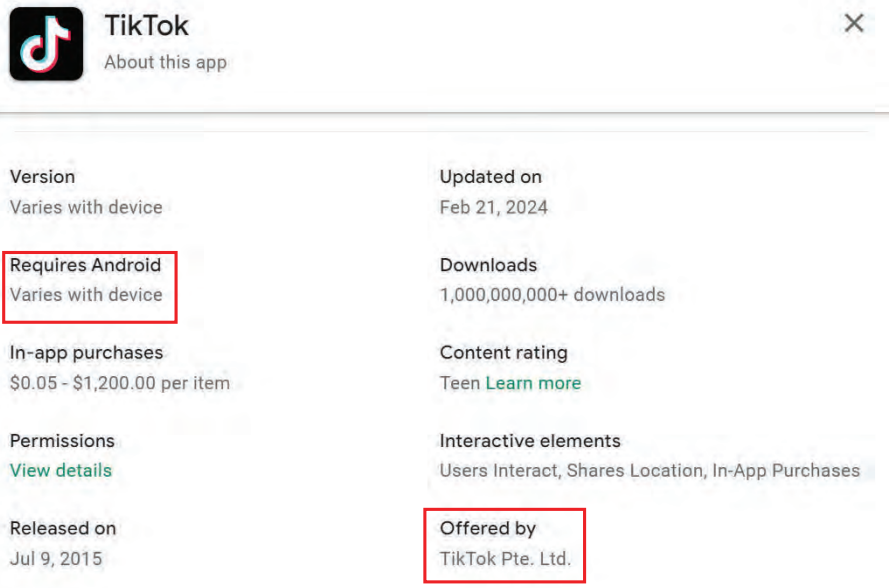
| | |
|---|---|
| | For example, the TikTok app includes the functionality of TikTok Shop that enables merchants to sell products and allows the users to buy products from the TikTok app's interface. The TikTok app enables merchants to sell products including, but not limited to, iPhones and Android phones ("a short-range wireless enabled cellular phone") to TikTok app's users. Further, the TikTok app is installed in a mobile device such as an iPhone or an Android phone. The users of the TikTok app use the mobile device while operating the TikTok app.<br>  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |



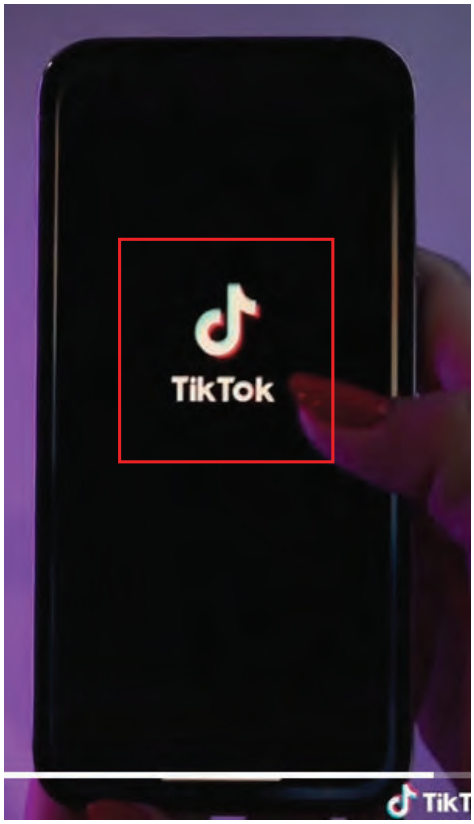

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

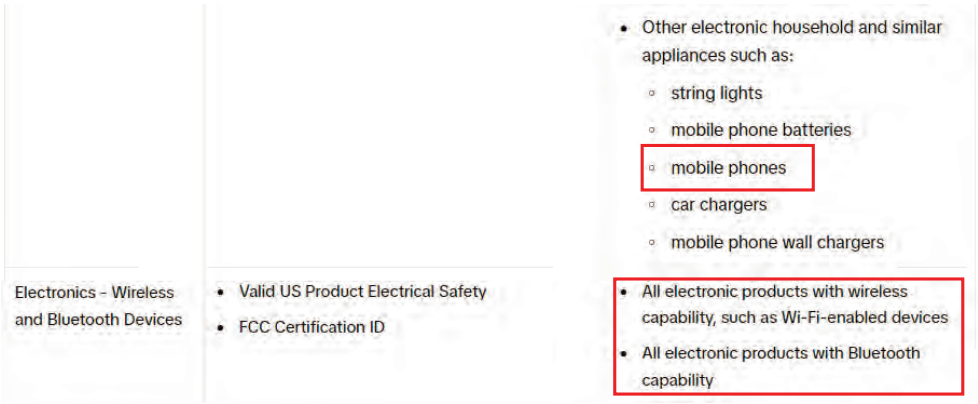


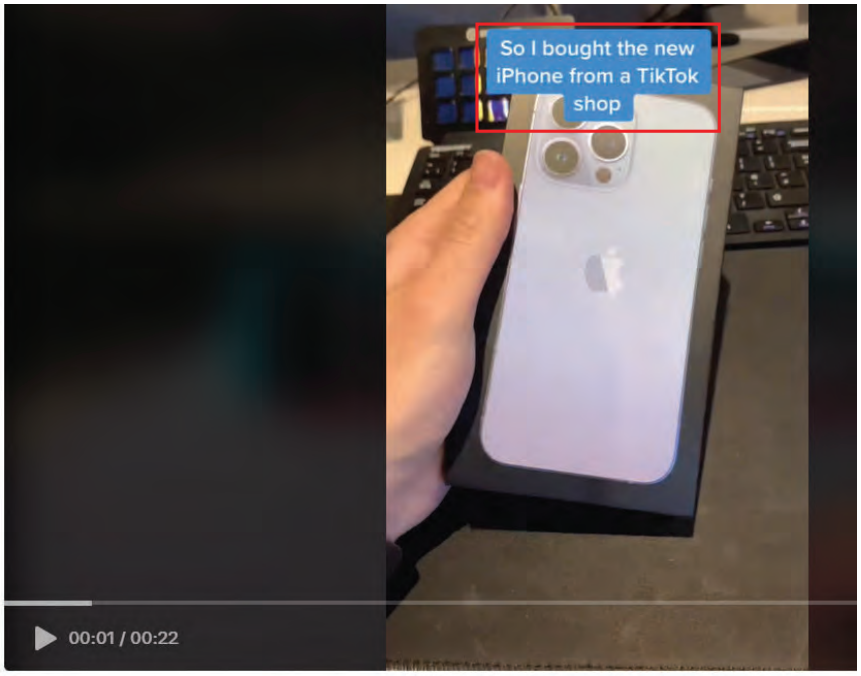

Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

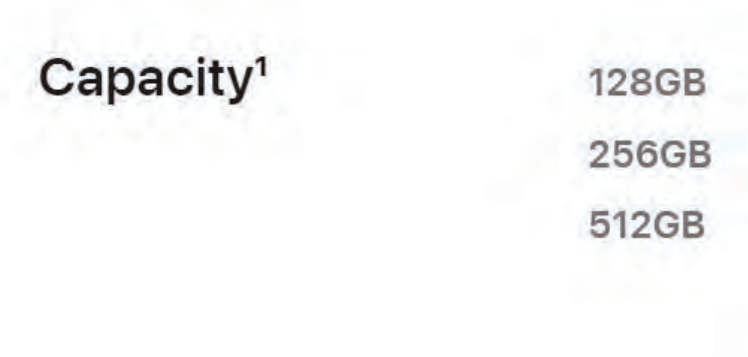
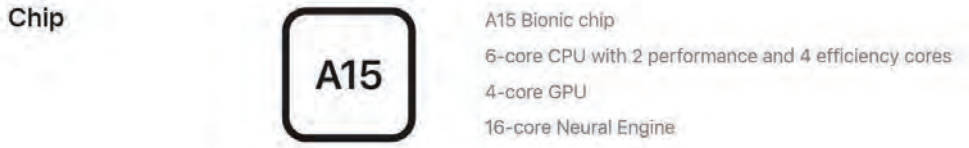



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

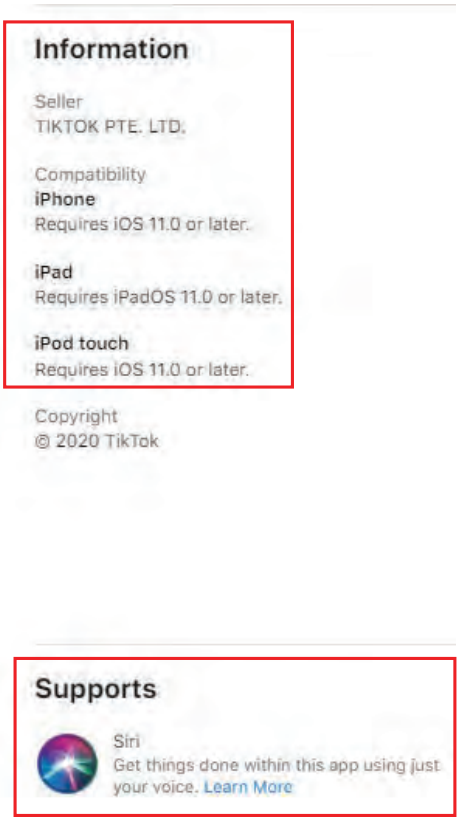
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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

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| | **Electrical Products and Electronics**<br>Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.<br>Electrical and electronic products include but are not limited to:<br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy<br>  <br><br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

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| |  <br>So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime<br>Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502 |
| [4.8] a second memory device; | Defendant provides a second memory device; a second processor coupled to second memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

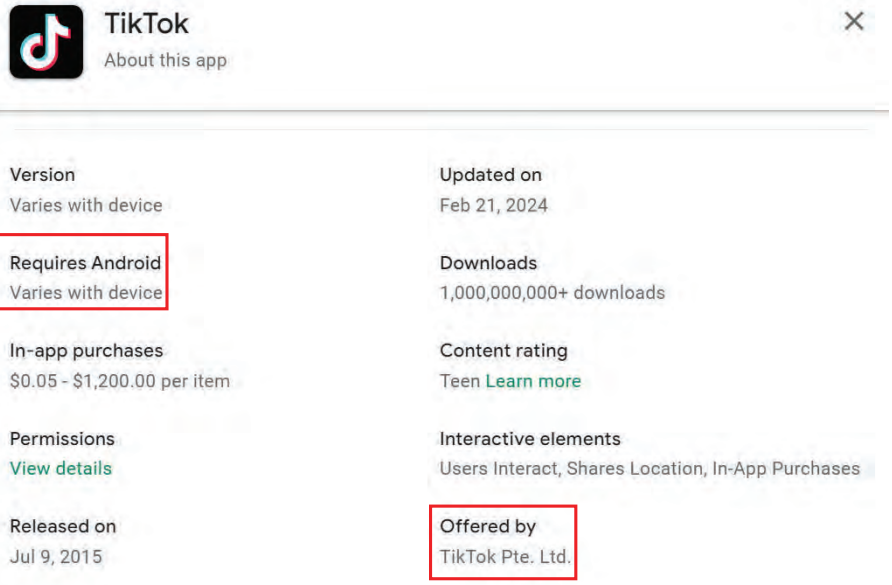
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| a second processor coupled to the second memory device; | For example, the users of the TikTok app, while operating the TikTok app, utilize a mobile device that comprises a memory ("second memory device") and a processor coupled to the memory ("second processor coupled to the second memory device"). The memory is utilized to store the TikTok app and the information related to it and the processor is utilized to execute the computer-readable instructions related to the TikTok app.<br><br>  <br>Source: https://www.apple.com/iphone-13/specs/<br><br>  <br>Source: https://www.apple.com/iphone-13/specs/ |

221

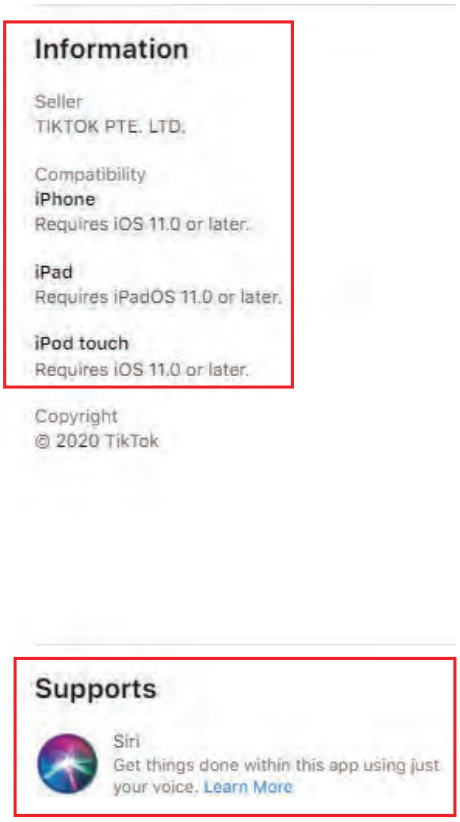



Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

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| | **Memory and Storage**<br>**Memory**<br>• 6 GB LPDDR5 RAM<br>**Storage**<br>• 128 GB storage UFS 3.1 storage[4]<br>**Processors**<br>• Google Tensor<br>• Titan M2™ security coprocessor<br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en |

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| |  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.9] a cellular network communication device configured to connect to the internet via a cellular data network; | Defendant provides a cellular network communication device configured to connect to internet via a cellular data network.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

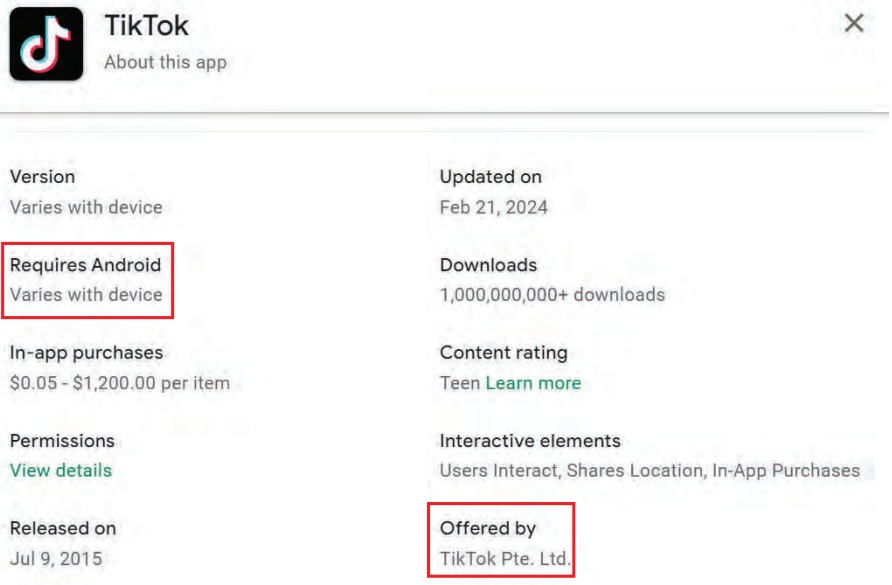
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| | For example, the user of the TikTok app, while operating the TikTok app, utilizes mobile device which comprises a cellular network communication device designed to establish an internet connection through Wi-Fi or a cellular data network. The user of the TikTok app uses the established internet connection to access the TikTok app and perform functions such as 'scrolling'/'liking' the video. |



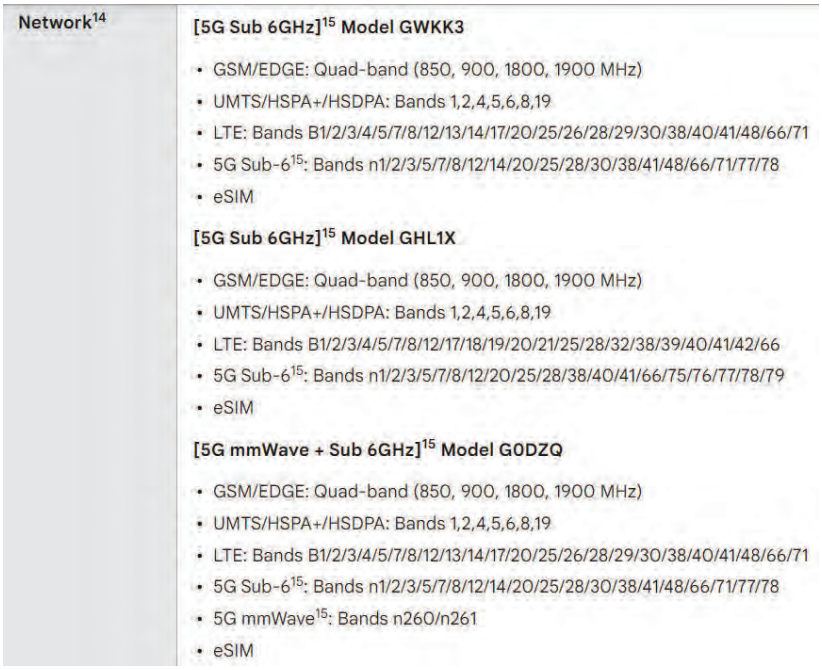

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

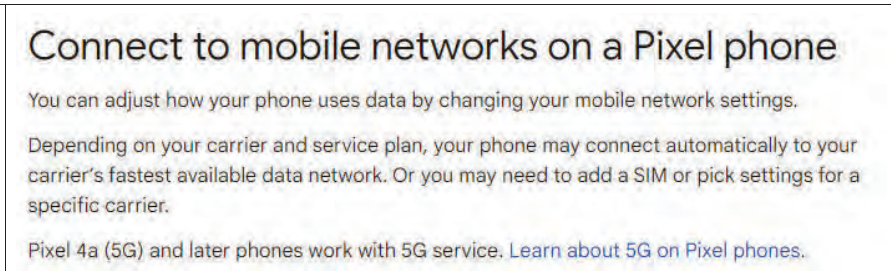
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| | **Check Internet connection**<br><br>Weak data or Wi-Fi signal can also impact your experience on TikTok. Try switching from Wi-Fi to mobile data to troubleshoot whether or not the issue is related to connectivity.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>If iPhone is connected to the internet using the cellular data network, an icon identifying the cellular network appears in the status bar.<br><br>5G, LTE, 4G, and 3G service on GSM cellular networks support simultaneous voice and data communications. For all other cellular connections, you can't use internet services while you're talking o the phone unless iPhone also has a Wi-Fi connection to the internet. Depending on your network connection, you may not be able to receive calls while iPhone transfers data over the cellular network—when downloading a webpage, for example.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Choose cellular data options for data usage, performance, battery life, and more**<br><br>To turn Cellular Data on or off, go to Settings > Cellular.<br><br>To set options when Cellular Data is on, go to Settings > Cellular > Cellular Data Options, then do any of the following:<br><br>• *Reduce cellular usage:* Turn on Low Data Mode, or tap Data Mode, then choose Low Data Mode. This mode pauses automatic updates and background tasks when iPhone isn't connected to Wi-Fi.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios |

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| |  **Cell signal.** The number of bars indicates the signal strength of your cellular service. If there's no signal, "No Service" appears.<br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0<br>  **LTE.** Your carrier's LTE network is available, and iPhone can connect to the internet over that network (not available in all countries or regions). See View or change cellular data settings on iPhone.<br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0 |

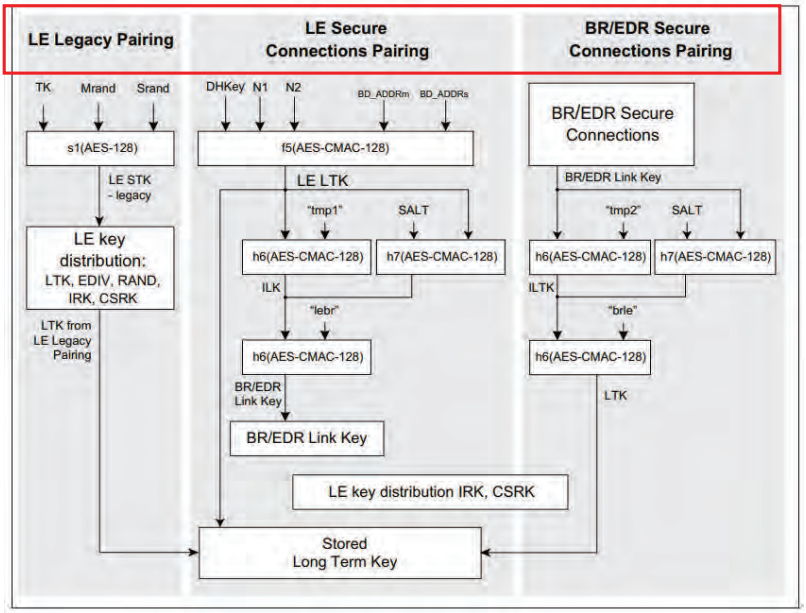



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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| |  <br>**Network[14]**<br>**[5G Sub 6GHz][15] Model GWKK3**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78<br>• eSIM<br>**[5G Sub 6GHz][15] Model GHL1X**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/17/18/19/20/21/25/28/32/38/39/40/41/42/66<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/20/25/28/38/40/41/66/75/76/77/78/79<br>• eSIM<br>**[5G mmWave + Sub 6GHz][15] Model G0DZQ**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78<br>• 5G mmWave[15]: Bands n260/n261<br>• eSIM<br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en |

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| |  <br>Source: https://support.google.com/pixelphone/answer/2926415?hl=en<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.10] a second short-range wireless communication device configured to establish the short-range paired wireless connection between the short-range wireless enabled cellular phone and the short-range wireless enabled data capture device; | Defendant provides a second short-range wireless communication device configured to establish the short-range paired wireless connection between the short-range wireless enabled cellular phone and the short-range wireless enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device ("short-range wireless enabled cellular phone") which comprises Bluetooth ("second short-range wireless communication device"). Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("short-range wireless enabled data capture device"). The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices. |

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| | The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master trans-mits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

233

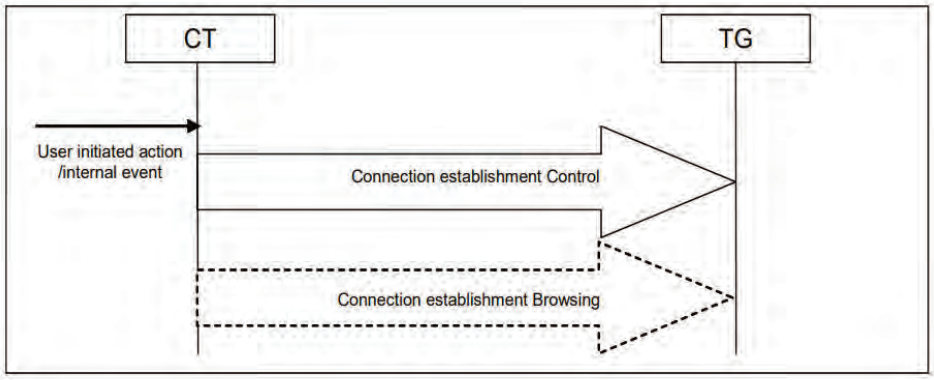



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

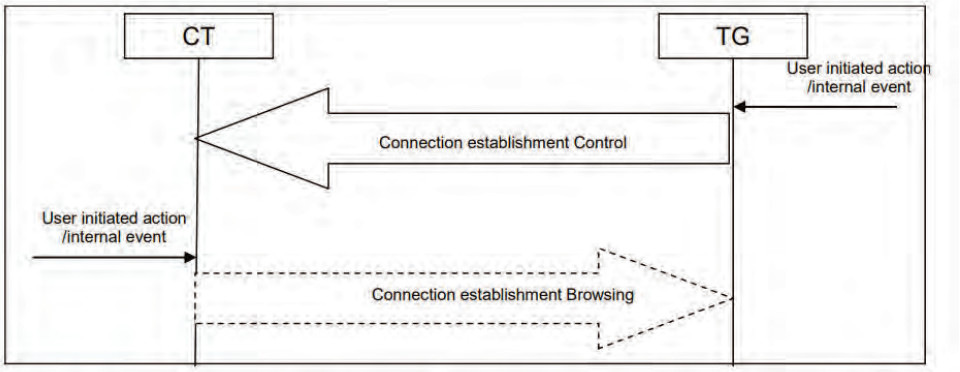



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

235

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| | android.permission.BLUETOOTH_CONNECT — App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity — Bluetooth 5.0 wireless technology<br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

## Bluetooth security

There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:

- *Pairing:* The process for creating one or more shared secret keys
- *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair
- *Authentication:* Verifying that the two devices have the same keys
- *Encryption:* Message confidentiality
- *Message integrity:* Protection against message forgeries
- *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks

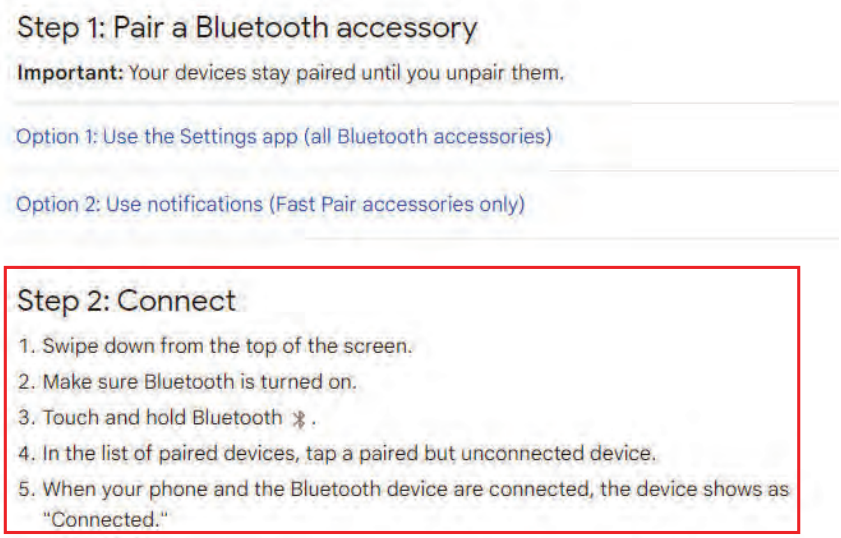
Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web

## Connectivity

Each earbud: Bluetooth 5.0

Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US

237




Source: https://support.google.com/android/answer/9075925?hl=en



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classll(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

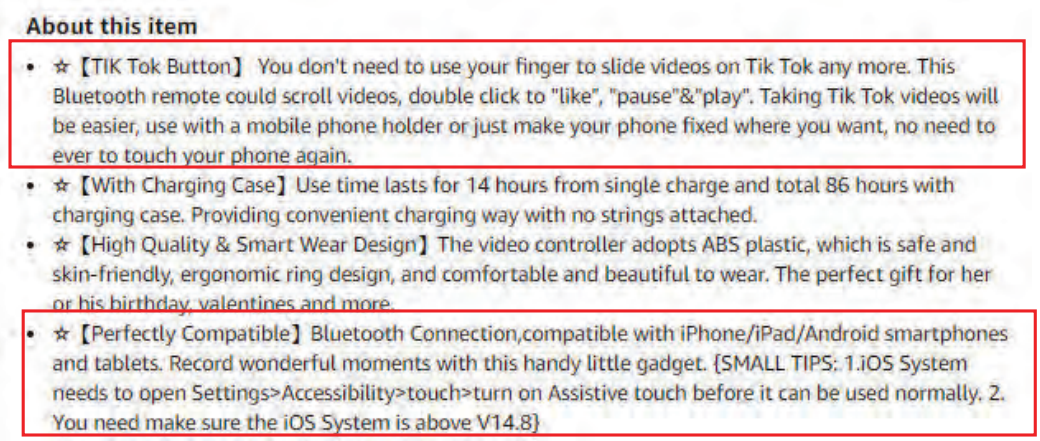
**Bluetooth permissions**

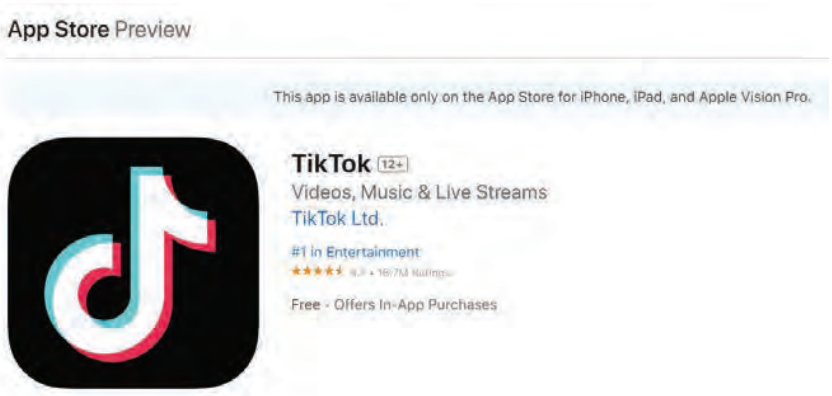
In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

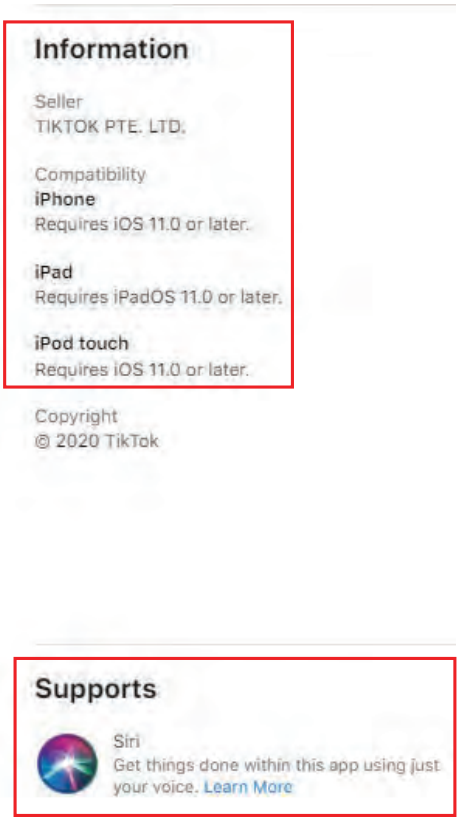
Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.11] a single mobile client application for the short-range wireless enabled cellular phone comprising executable instructions that, when executed by the second processor controls the second processor to: | Defendant provides a single mobile client application for the short-range wireless enabled cellular phone comprising executable instructions.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app (“mobile client application”) is installed in the mobile device (“short-range wireless enabled cellular phone”) and can be remotely controlled through Bluetooth devices such as AirPods, earphones, or Bluetooth remotes. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to receive and execute the inputs (using executable instructions) provided by the user through the Bluetooth devices and perform corresponding functions such as ‘scrolling’/‘liking’ the video. |

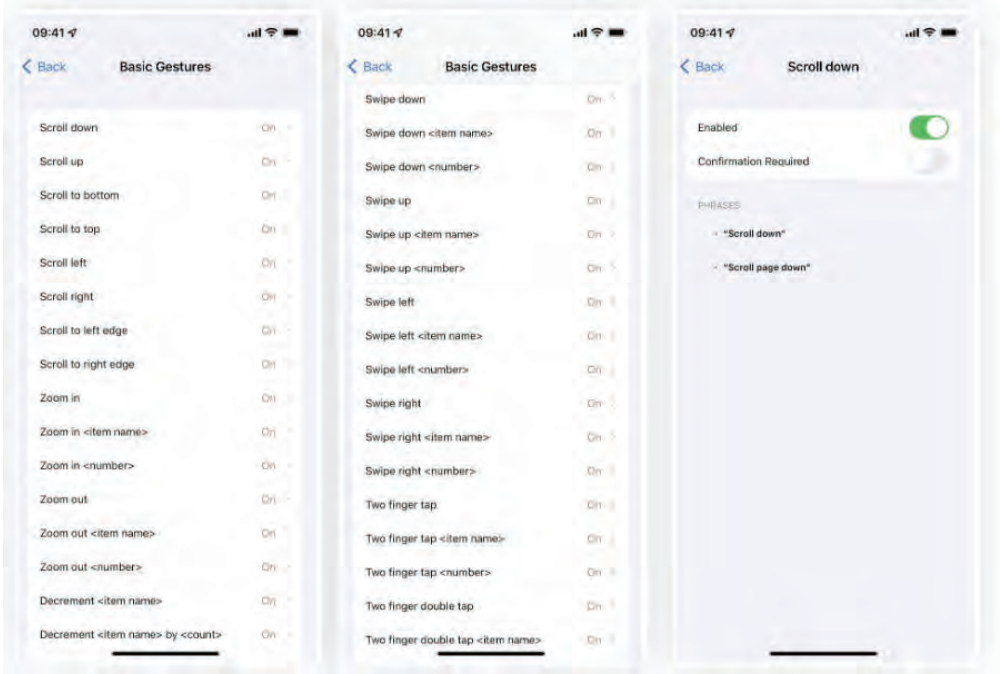
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| | For example, the TikTok app for iOS allows a user to configure gestures for phrases such that when the user provides an audio command corresponding to the phrase, a gesture is automatically performed on the user interface of the TikTok app causing a functionality such as 'liking' or 'scrolling' of a video in the app. The custom phrases and corresponding gestures for the TikTok app are set in the Voice Control settings of iOS. For example, when the phrase "double tap" and a custom gesture causing a double tap on the screen is configured for the TikTok app, then the audio command "double tap" provided by the user on the Bluetooth device (such as AirPods) causes the double tapping gesture to be performed in the TikTok app leading to 'liking' of the video.<br>  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

242



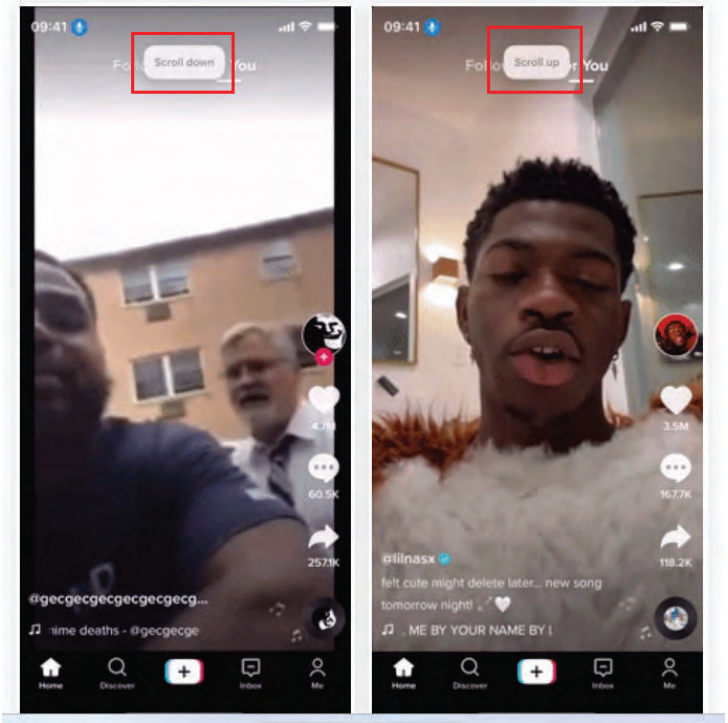

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

243




Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/#

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|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

246

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| | **If an app would like to use Bluetooth on your device**<br>Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.<br><br>**About Bluetooth privacy settings**<br>Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.<br>Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.<br>Source: https://support.apple.com/en-us/HT210578 |

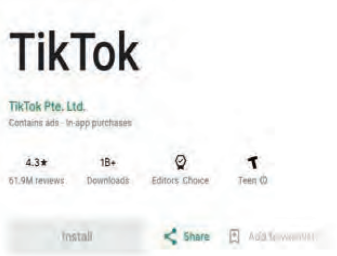


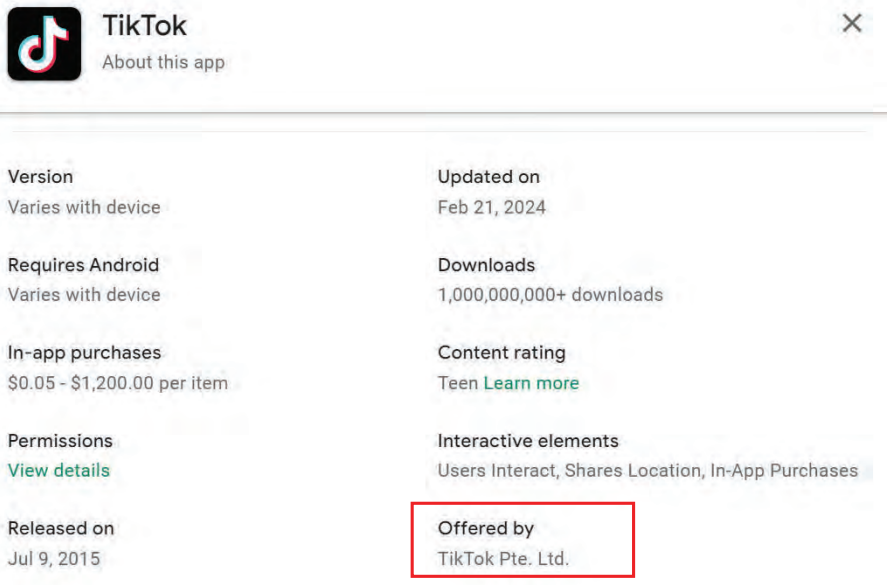

Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/

Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.

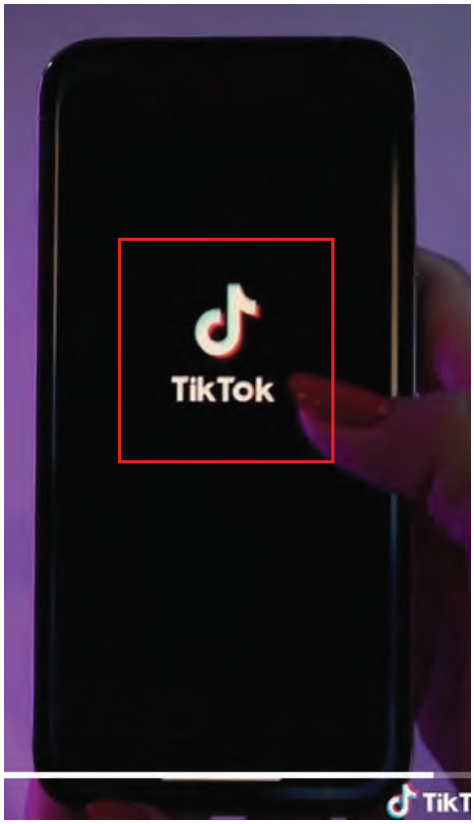
Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/

For example, the TikTok app when installed on an Android phone such as Pixel 6a (used herein as an exemplary Android-based device), allows the user to turn on Voice Access feature in the Android phone's Accessibility settings to perform multiple functionalities such as 'liking' the content and 'scrolling' the videos while accessing the TikTok app. When an audio command corresponding to the desired functionality is provided

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| | through the Bluetooth device, Pixel 6a receives the command and the TikTok app processes the executed command and performs the corresponding functionality such as scrolling/liking the video. For example, when Voice Access is enabled while surfing the TikTok app and the user provides an audio input “Scroll down” on the Bluetooth device such as an earphone, the TikTok app scrolls down to load the next video.<br>  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

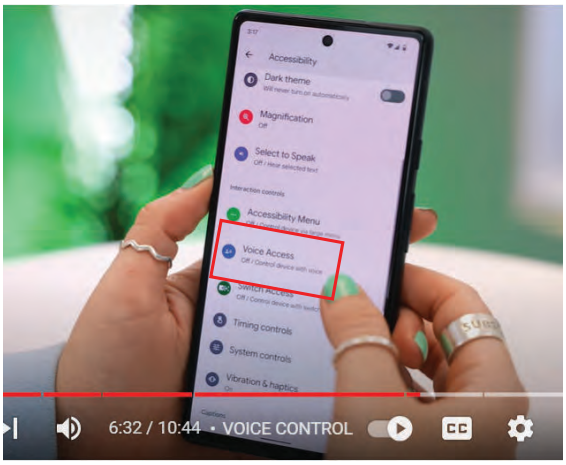



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

251

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| | **Step 3: Start using Voice Access**<br>To turn on Voice Access, follow these steps:<br>1. Open your device's Settings app.<br>2. Tap **Accessibility**, then tap **Voice Access.**<br>3. Tap **Use Voice Access**.<br>4. Start Voice Access in one of these ways:<br>• If "Hey Google" detection is on, you can say "Hey Google, Voice Access."<br>• Open your notification shade and tap **Touch to start**.<br>• On your Home screen, tap the Voice Access app.<br>• Tap the Voice Access activation button. (You can set up the activation button in Settings > **Accessibility** > **Voice Access** > **Settings** > **Activation button**.)<br>5. Say a command, such as "Open Gmail." Learn more Voice Access commands.<br>The first time you turn on Voice Access, two extra steps help you get started:<br>• A guide to "Hey Google" settings helps set you up for a good hands-free experience.<br>• An interactive tutorial teaches you how Voice Access works.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

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| |  <br>Source: https://www.youtube.com/watch?v=Ec52kzzqVRM, at 6:32 |

253

Here is how to scroll through TikTok hands-free on Android:

- Install Google's Voice Access app from Play Store.
- Go to **Settings** › **Accessibility**; find and select the Voice Access app.
- Tap on **Use service** to enable Voice Access.
- When prompted, grant permissions to the Voice Access app.
- Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.
- Once done, you will see a blue floating icon on your screen.
- Tap on the floating icon to activate Voice Access. You are all set!
- Now, open TikTok and say "**scroll down**" to see the magic.

Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/

- **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:
  1. Connect your keyboard or switch to your device:
     - Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices.

Source: https://support.google.com/accessibility/android/answer/6151848?hl=en

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

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| | Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.BLUETOOTH<br>Source: https://apkpure.com/tiktok/com.ss.android.ugc.trill/download/290504-APK<br><br>android.permission.BLUETOOTH_CONNECT<br>Source: https://apkpure.com/tiktok/com.ss.android.ugc.trill/download/290504-APK<br><br>For example, TikTok app is also configured to receive data from third-party Bluetooth remotes. These Bluetooth remotes connect to the mobile device via Bluetooth and allow the user to scroll through videos or 'like' a video using designated buttons on the remote (for example, a user can "like" a particular video on the TikTok app by double clicking a designated button). |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

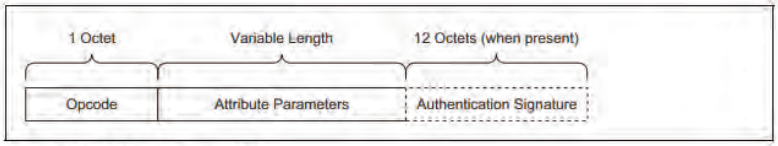
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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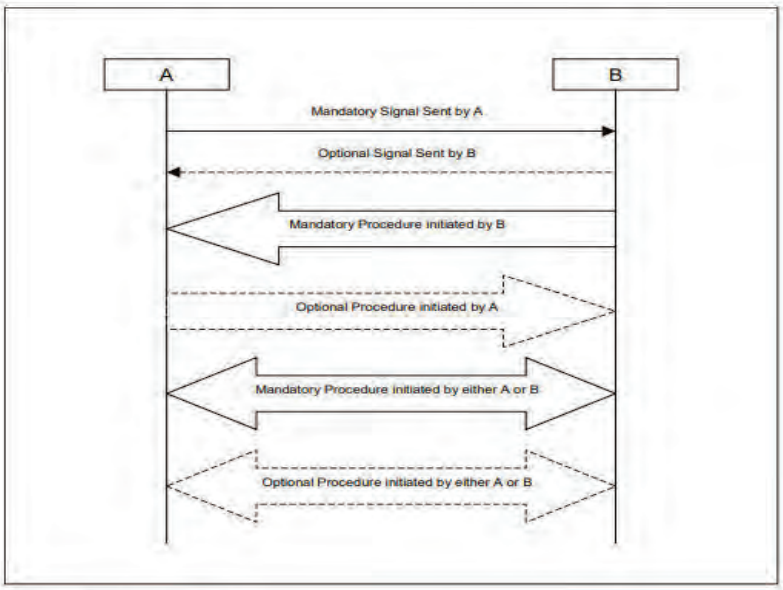
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| |  <br>Source: https://www.youtube.com/shorts/rz7SWRCzdMg<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63 |

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| | BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>**Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br><br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance |

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.12] listen for the event notification sent by the short-range wireless enabled data capture device, wherein the single mobile client application for the short-range wireless enabled cellular phone is configured to process the event notification; | Defendant provides mobile client application that listen for the event notification sent by the short-range wireless enabled data capture device, wherein the single mobile client application for the short-range wireless enabled cellular phone is configured to process the event notification.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth device captures the user's command and sends the command to the mobile device through the Bluetooth connection. The TikTok app ("mobile client application" in the mobile device receives the user command in the form of event notification that comprises the information related to the command. Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>Further, after establishing Bluetooth connection, when an audio command is sent through the Bluetooth devices, such as AirPods or earphones, or when a button is pressed on the Bluetooth remote control, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client (e.g., a mobile device) establishes a connection with a GATT server (e.g., a Bluetooth device), it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to |

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| | Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>**Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br><br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br><br>  <br>*Figure 2.3: Attribute Protocol PDU*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |

264

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| |  <br>*Figure 1.2: Signaling conventions*<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11 |

265

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

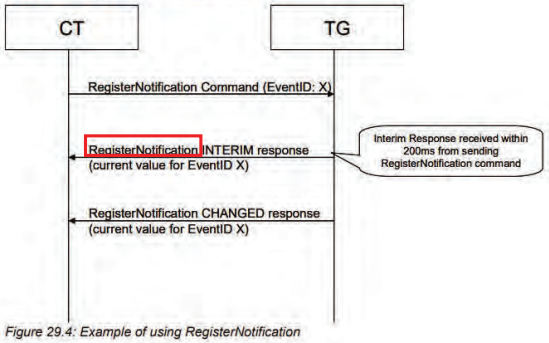



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139

266

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

267

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

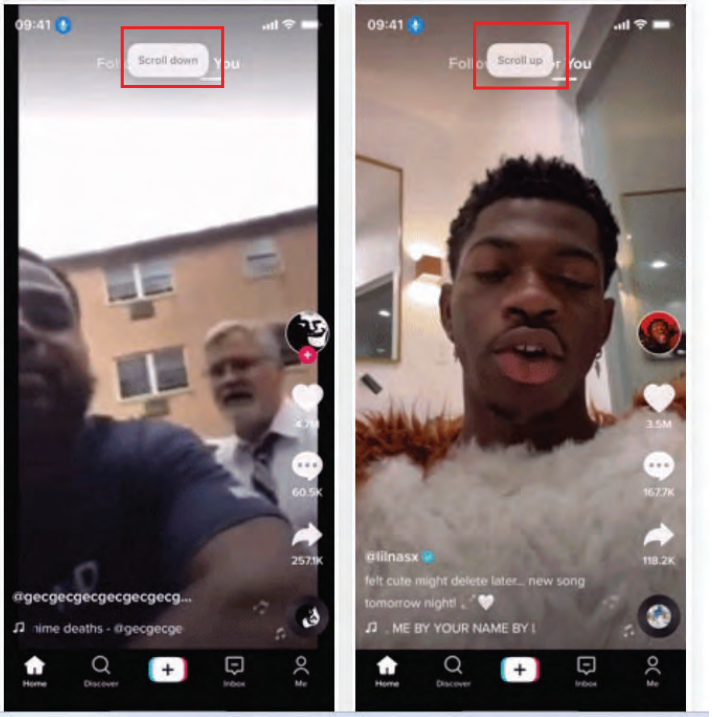
### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

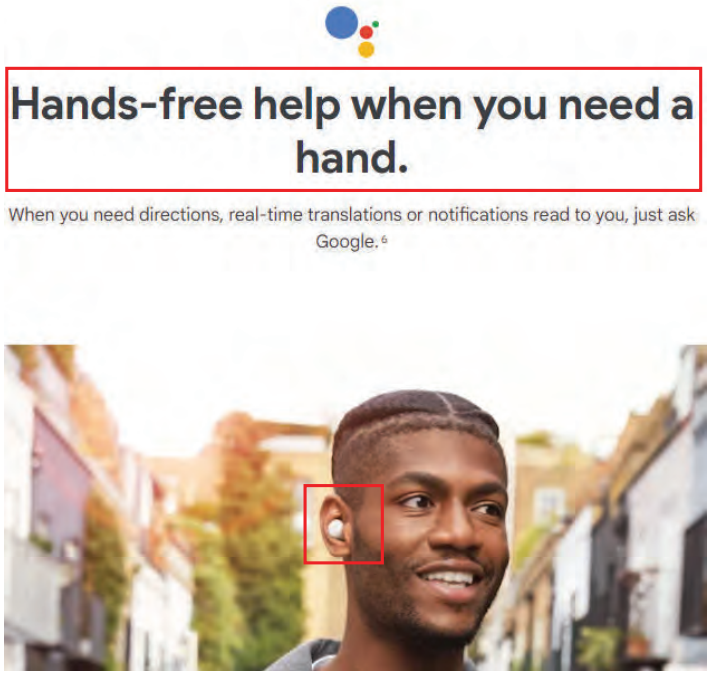
| | |
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| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

271

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

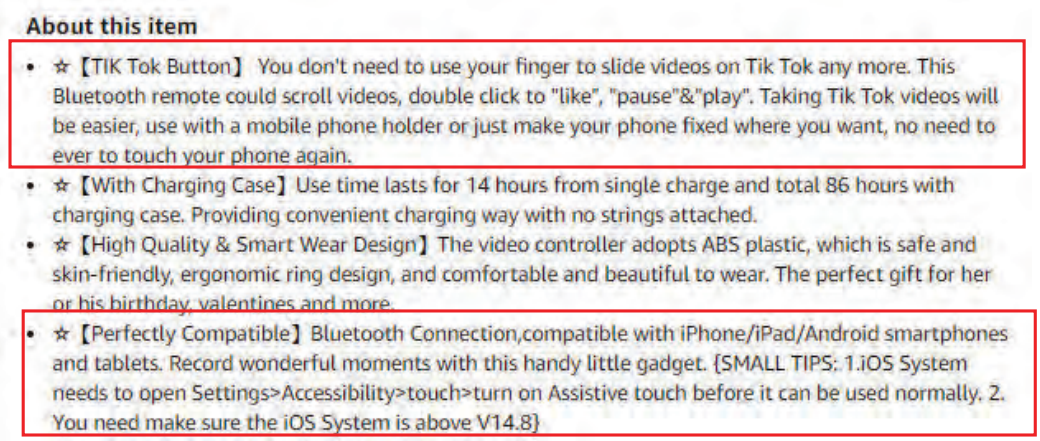


LifeScan, Inc. Ex. 1036
Page 1542 of 2225
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.13] receive the new-data from the short-range wireless enabled data capture device; | Defendant provides a mobile client application that receive the new-data from the short-range wireless enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device (“short-range wireless enabled data capture device”), the Bluetooth device captures the user’s command (“new-data”) and sends the command to the mobile device through the Bluetooth connection. Based on the received data, the TikTok app performs the functionality corresponding to the received command. |

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| | For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command to like or scroll the subsequent video.<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

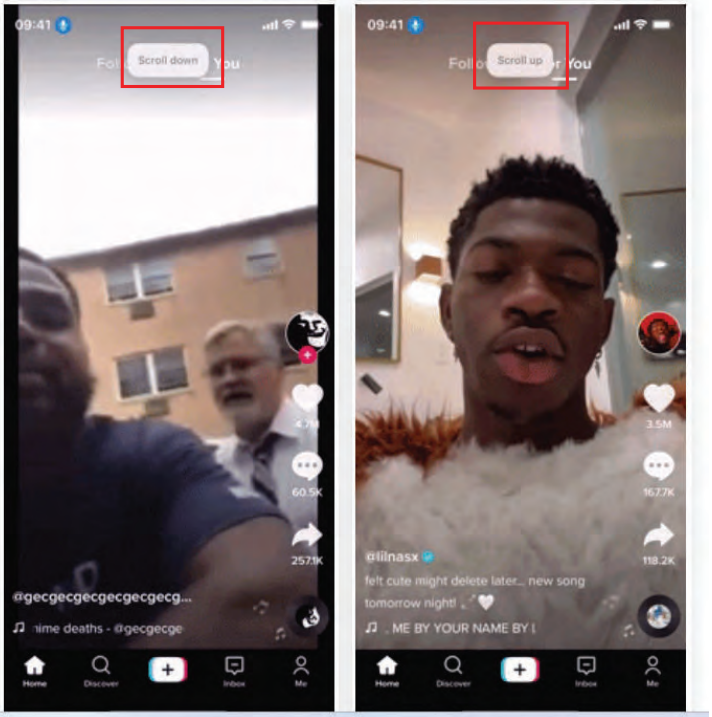
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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

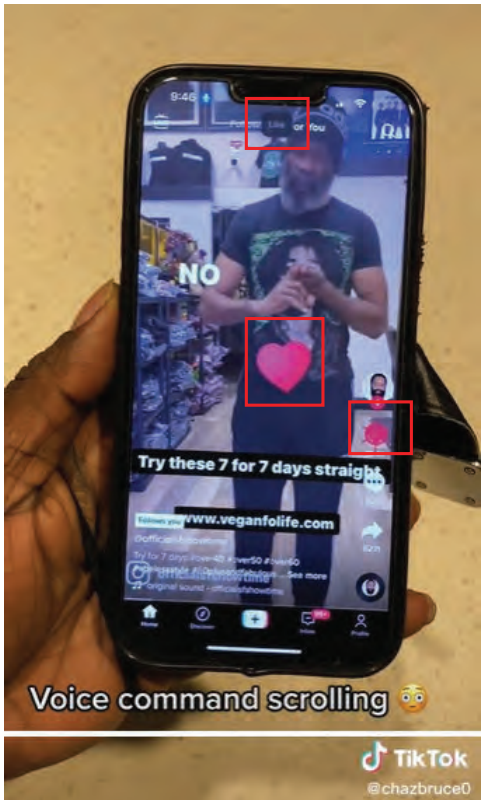
278



LifeScan, Inc. Ex. 1036
Page 1547 of 2225
IPR2025-00102

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

279

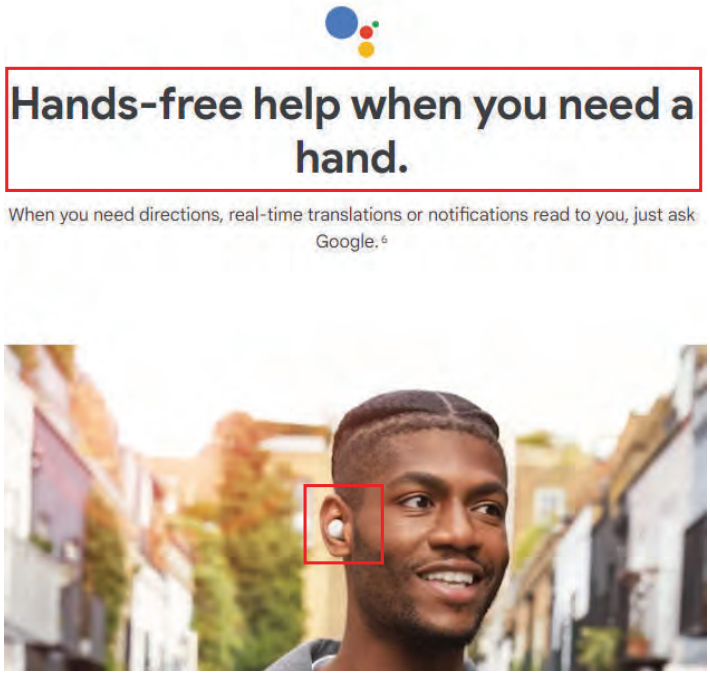



Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

280

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| | Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** \| App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

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| | Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

283



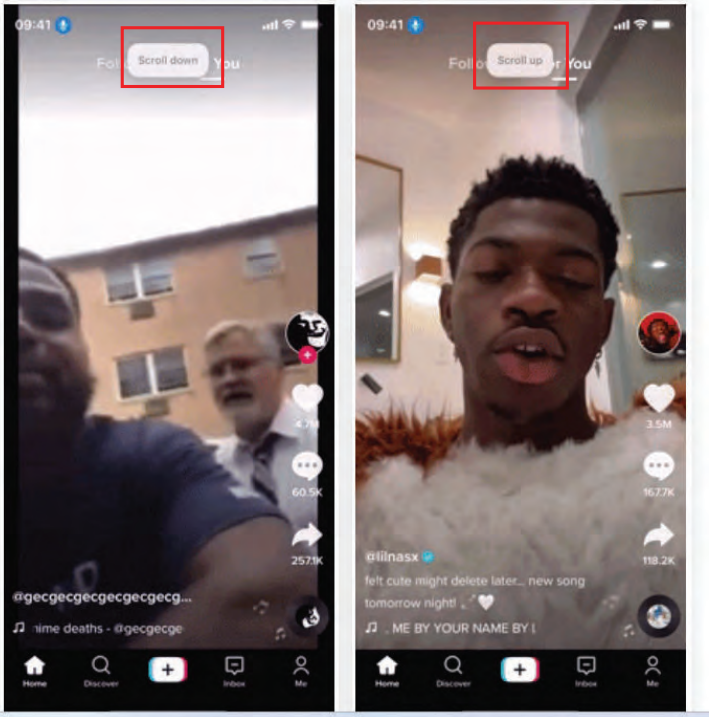

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

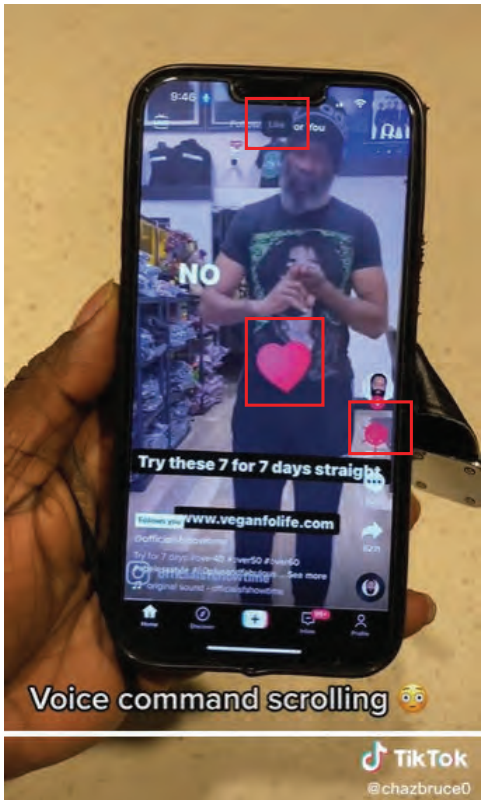
285

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |

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| [4.14] store the received new-data in the second memory device;<br>store a user authentication credential in the second memory device; | Defendant provides a mobile client application that store the received new-data in the second memory device; store a user authentication credential in the second memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, when the user provides the audio command such as “Double Tap” or “Scroll Down” on AirPods or earphones, the TikTok app receives the user’s command and processes it to ‘like’ or ‘scroll down’ the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user’s command and processes it to like or scroll the subsequent video. The TikTok app stores the user’s activity (liked and watched videos) including the commands (“received new-data”) at least temporarily in the cache memory of the mobile device (“second memory device”) in which the TikTok app is installed. Further, the user's login credentials (“user authentication credential”) are stored within the mobile device's memory, facilitating automatic authentication upon subsequent logins to their TikTok app account.<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

288

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

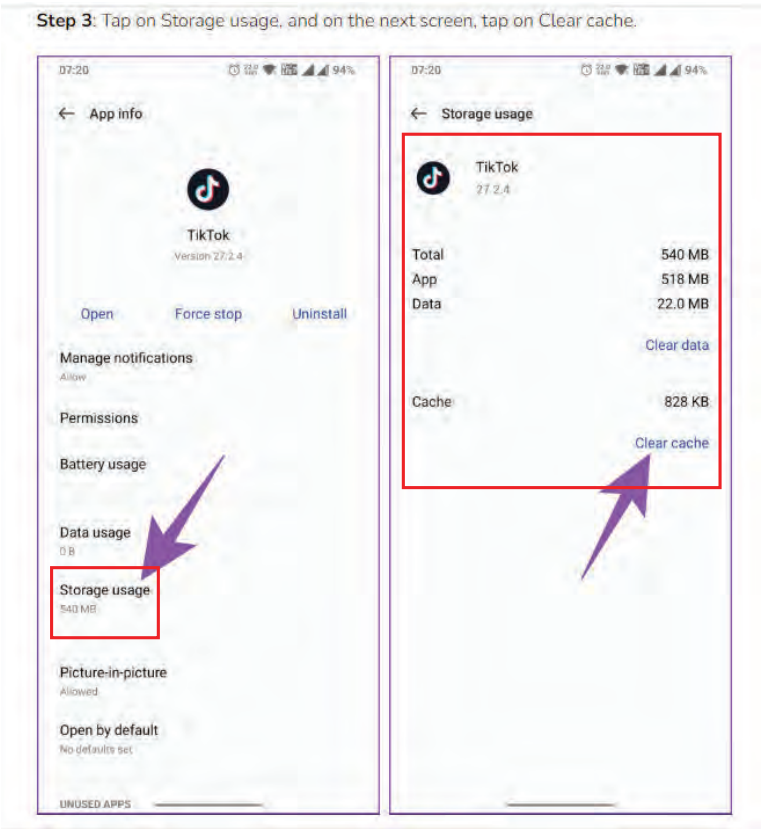
289

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| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings › Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br><br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

290



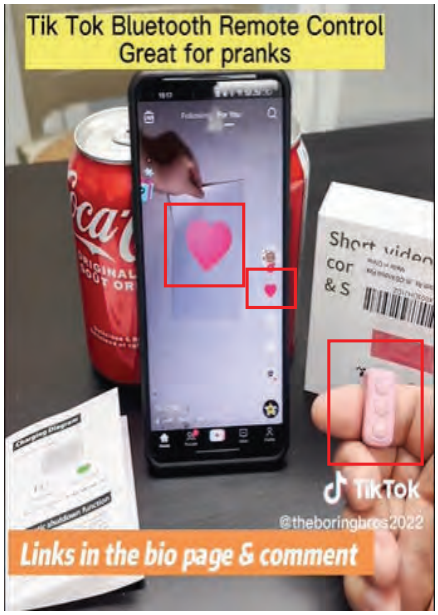
LifeScan, Inc. Ex. 1036
Page 1559 of 2225
IPR2025-00102

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| |  <br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

291

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

292

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| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09 |

293

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>However, some have been noticing that the app is taking up a huge amount of space on their devices, sometimes gigabytes worth of storage. If you're looking to make more space on your device, here's how to reduce the amount of room TikTok is using on your phone.<br><br>Source: https://www.dexerto.com/entertainment/tiktok-storage-free-up-space-1775839/<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/ |

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| | **There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage<br>**Information You Provide**<br>• **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.<br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |

296

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| | You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

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| |  <br>Source: https://www.tiktok.com/@akirasashmi/video/7129576154465422619<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.15] use HTTP to upload the received new-data and the user authentication credential to a user data publishing website over the cellular data network, wherein the upload is based on a timer setting on the single mobile client application, and wherein the timer setting is no wait | Defendant provides mobile client application that use HTTP to upload the received new-data and the user authentication credential to a user data publishing website over the cellular data network, wherein the upload is based on a timer setting on the single mobile client application, and wherein the timer setting is no wait automatic or wait X minutes automatic.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user authentication credential") associated with the user's account of TikTok app for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of |

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| automatic or wait X minutes automatic | the TikTok app by logging into the app. Further, the data provided by the user is uploaded automatically ("timer setting is no wait automatic") on the TikTok app's cloud.<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>**File upload**<br><br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br><br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide |

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| | **Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

300

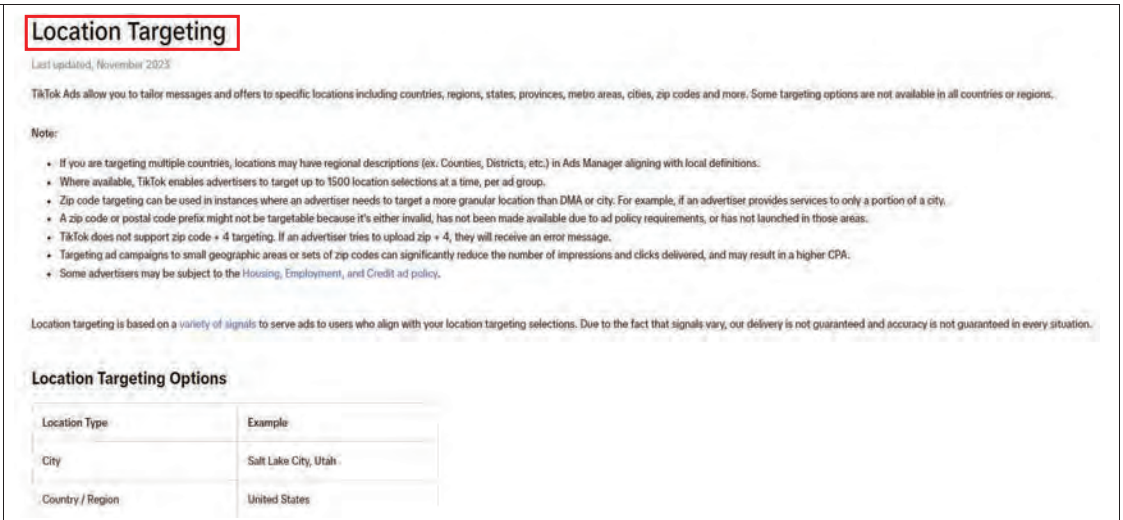


LifeScan, Inc. Ex. 1036
Page 1569 of 2225
IPR2025-00102

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br><br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance |

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4.16] use the HTTP to send a user preference to the user data publishing website over the cellular data network, wherein the user preference comprises global positioning system information; and | Defendant provides mobile client application that uses HTTP to send a user preference to a user data publishing web service over the cellular data network, wherein the user preference comprises global positioning system information.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data such as user's precise location, utilizing the mobile device's Global Positioning System (GPS) ("user preference") functionality over the cellular data network to the Defendant's servers.<br><br>**Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |

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| | **How TikTok collects location information**<br><br>TikTok collects your approximate location information based on your device or network information, such as SIM card and IP address.<br><br>In regions where Location Services are available for the TikTok app, and when you turn it on, TikTok will also collect your location information based on your device's GPS. Learn more about your device's location settings in the Android Help Center and Apple Support. Note: Location Services may not be available in all regions, including the U.S. and South Korea.<br><br>Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok<br><br>• **Location Information.** We collect information about your approximate location, including location information based on your SIM card and/or IP address. With your permission, we may also collect precise location data (such as GPS). In addition, we collect location information (such as tourist attractions, shops, or other points of interest) if you choose to add location information to your User Content.<br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |



## Location Targeting

Last updated, November 2023

TikTok Ads allow you to tailor messages and offers to specific locations including countries, regions, states, provinces, metro areas, cities, zip codes and more. Some targeting options are not available in all countries or regions.

Note:

- If you are targeting multiple countries, locations may have regional descriptions (ex. Counties, Districts, etc.) in Ads Manager aligning with local definitions.
- Where available, TikTok enables advertisers to target up to 1500 location selections at a time, per ad group.
- Zip code targeting can be used in instances where an advertiser needs to target a more granular location than DMA or city. For example, if an advertiser provides services to only a portion of a city.
- A zip code or postal code prefix might not be targetable because it's either invalid, has not been made available due to ad policy requirements, or has not launched in those areas.
- TikTok does not support zip code + 4 targeting. If an advertiser tries to upload zip + 4, they will receive an error message.
- Targeting ad campaigns to small geographic areas or sets of zip codes can significantly reduce the number of impressions and clicks delivered, and may result in a higher CPA.
- Some advertisers may be subject to the Housing, Employment, and Credit ad policy.

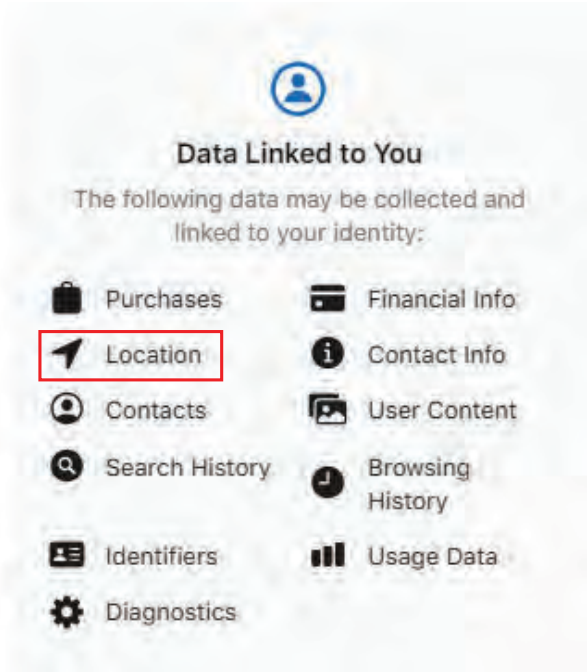
Location targeting is based on a variety of signals to serve ads to users who align with your location targeting selections. Due to the fact that signals vary, our delivery is not guaranteed and accuracy is not guaranteed in every situation.

### Location Targeting Options

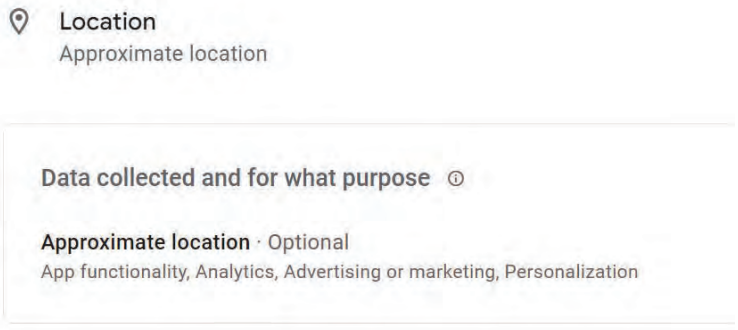
| Location Type | Example |
|---|---|
| City | Salt Lake City, Utah |
| Country / Region | United States |

Source: https://ads.tiktok.com/help/article/location-targeting?lang=en

304

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| |  <br>Source: https://apps.apple.com/us/app/tiktok/id835599320 |

305

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| |  <br>Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

306



LifeScan, Inc. Ex. 1036
Page 1575 of 2225
IPR2025-00102

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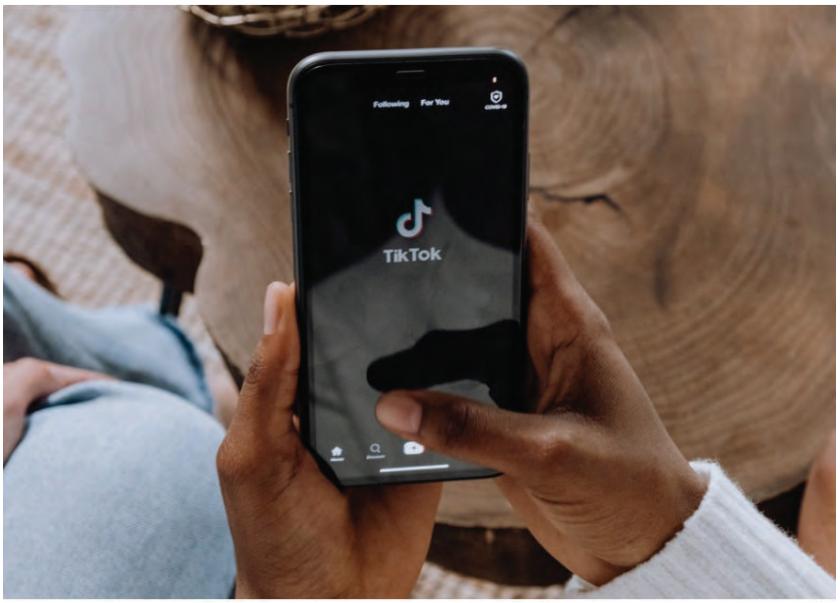
## Ad Targeting

TikTok Ads Manager supports the following targeting dimensions:

<table>
<tr><td>Audience</td><td>Include</td><td>Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account)</td></tr>
<tr><td></td><td>Exclude</td><td>Exclude Lookalike or Custom Audiences</td></tr>
<tr><td>Demographics</td><td>Gender</td><td>Male, Female</td></tr>
<tr><td></td><td>Age</td><td>13-17, 18-24, 25-34, 35-44, 45-54, 55+</td></tr>
<tr><td></td><td>Location</td><td>Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only)</td></tr>
</table>

Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en

Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant.
</td></tr>
<tr><td>[4.17] provide a touch based graphical user interface for the received new-data.</td><td>Defendant provides a touch based graphical user interface for the received new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app installed on the mobile device comprises graphical user interface (GUI) which allows the user to access the liked and watched videos (“new-data”).</td></tr>
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| |  <br>Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber |

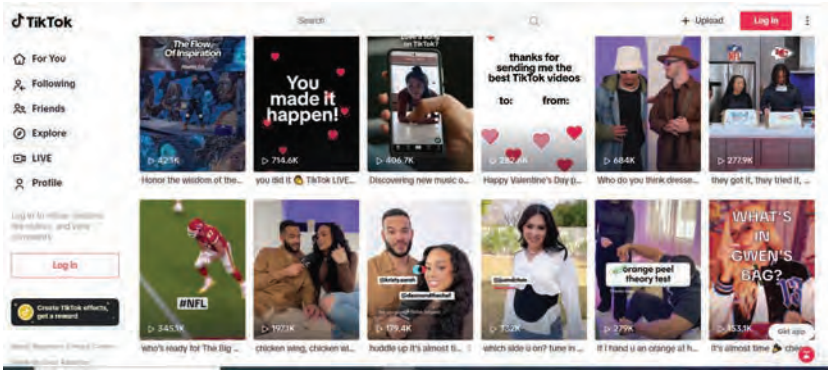
308

## Onboarding - It starts with a Swipe

The process of getting hooked to TikTok starts right away in the users onboarding experience. TikTok asks users to choose their interests. This information is used for personalizing each user's feed. This is a common practice for products with curated content and used by many different apps.

But TikTok's user onboarding is really smart. It encourages users to scroll through the feed and tells them that the content will become more relevant and personalized the more they use it. While this is true for many algorithms, many apps don't tell users this explicitly. By doing so, TikTok encourages users to continue using the app for a better experience

Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber




Source: https://www.tiktok.com/@tiktok

309

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [5] The system of claim 4, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing. | Defendant provides the system of claim 4, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device which comprises Bluetooth ("short-range paired wireless connection"). Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>`Name: BLUETOOTH`<br><br>`Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.`<br><br>Source: https://blog.malcore.io/p/tiktok63<br><br>**Bluetooth** — Allows to to connect to paired bluetooth devices.<br><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill |

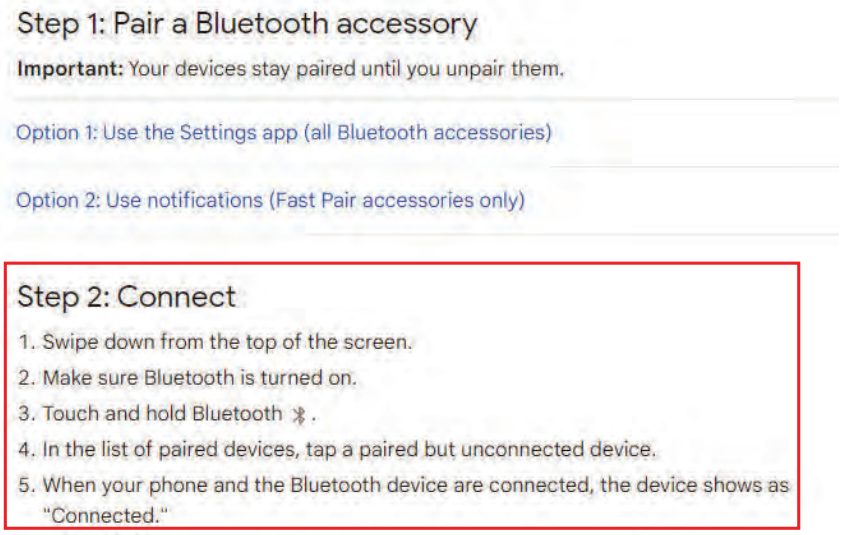
310



LifeScan, Inc. Ex. 1036
Page 1579 of 2225
IPR2025-00102

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity Bluetooth 5.0 wireless technology<br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

311

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| | **Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US<br>  <br>Step 1: Pair a Bluetooth accessory<br>**Important:** Your devices stay paired until you unpair them.<br>Option 1: Use the Settings app (all Bluetooth accessories)<br>Option 2: Use notifications (Fast Pair accessories only)<br>Step 2: Connect<br>1. Swipe down from the top of the screen.<br>2. Make sure Bluetooth is turned on.<br>3. Touch and hold Bluetooth .<br>4. In the list of paired devices, tap a paired but unconnected device.<br>5. When your phone and the Bluetooth device are connected, the device shows as "Connected."<br>Source: https://support.google.com/android/answer/9075925?hl=en |

312



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

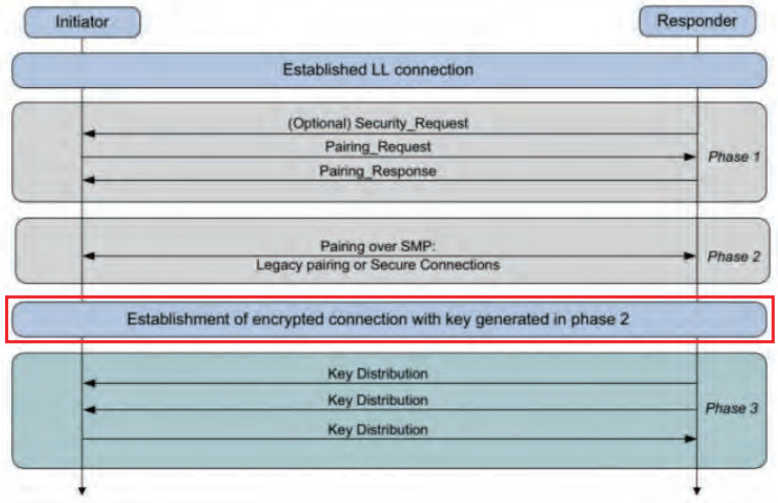
In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

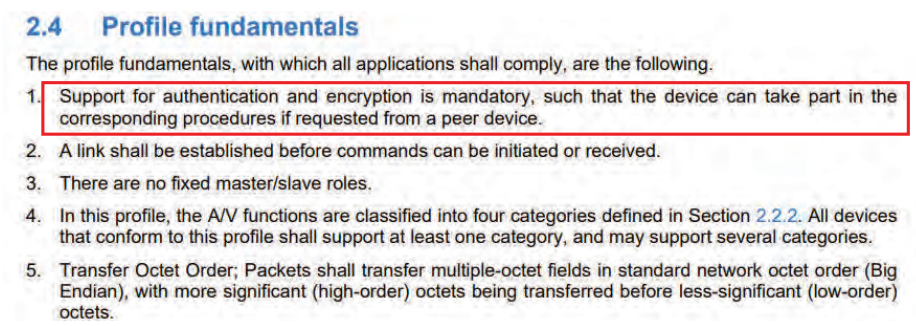
The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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| | In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>  |

314

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

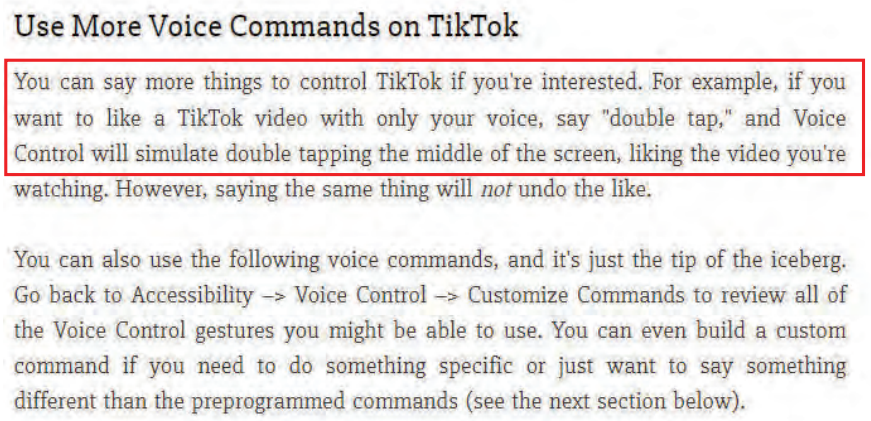


## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20



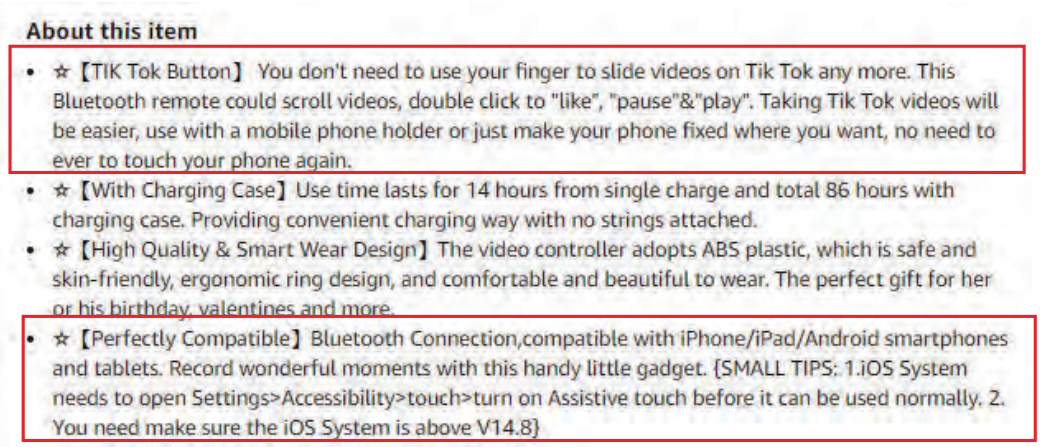
## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

315

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6] The system of claim 4, wherein the user authentication credential is for a user of the user data publishing website. | Defendant provides the system of claim 4, wherein the user authentication credential is for a user of the user data publishing website.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app (“data publishing website”) in the mobile device uses the user credentials such as username and password (“user authentication credential”) associated with the user’s account for logging into the TikTok app. |

## Information You Provide

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

Source: https://www.tiktok.com/legal/page/row/privacy-policy/en

You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.

You can save your login information:
- Across all devices using the same iCloud account on iOS.
- On a single device on Android.

To save or delete your login information:
1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.
2. Enter the 6-digit code that was sent to the phone number associated with your account.
3. Once you're logged in, tap the **Menu** button at the top.
4. Tap **Settings and privacy**.
5. Tap **Security**.
6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.

If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.

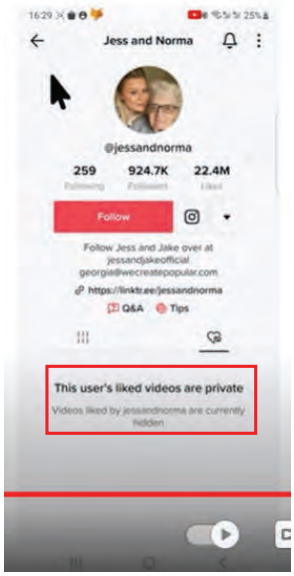
Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information

317



LifeScan, Inc. Ex. 1036
Page 1586 of 2225
IPR2025-00102

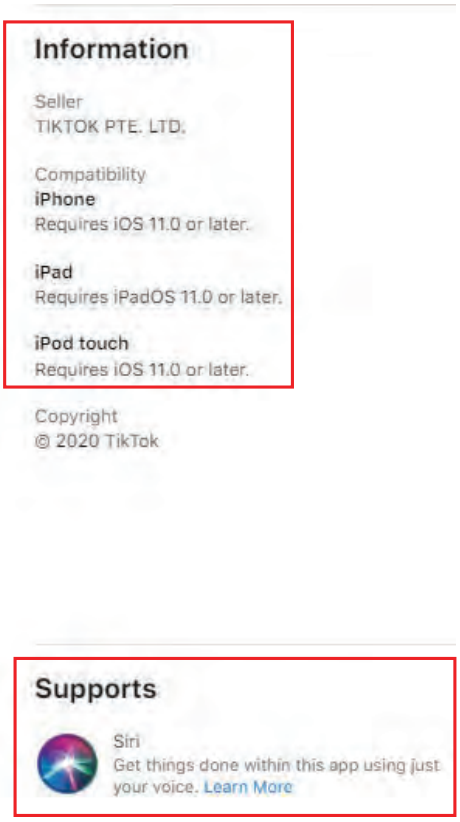
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| | **How to manage who can view your liked videos**<br><br>You can choose to show or hide your liked videos on your profile. Your liked videos are hidden from your profile by default when you create an account.<br><br>To hide or show your liked videos on your profile:<br>1. In the TikTok app, tap **Profile** at the bottom.<br>2. Tap the **Menu** button at the top.<br>3. Tap **Settings and privacy**, then tap **Privacy**.<br>4. Tap **Liked videos** and select **Everyone** (public accounts only), **Followers** (private accounts only) or **Only me**.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking |

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| |  <br>Source: https://www.youtube.com/watch?v=JzlTDsCIOQA&t=68s, at 1:10<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.P] A short-range wireless enabled cellular phone, comprising: | ByteDance ("Defendant") makes, uses, sells, and/or offers to sell a short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| | For example, Defendant provides TikTok[5] app which includes the functionality of TikTok Shop that enables merchants to sell products and allows the users to buy products from the TikTok app's interface. The TikTok app enables merchants to sell products including, but not limited to, iPhones and Android phones ("a short-range wireless enabled cellular phone") to TikTok app's users.<br><br>For example, TikTok app is installed in a mobile device such as an iPhone or an Android phone. The users of the TikTok app use the mobile device while operating the TikTok app. Further, the TikTok app installed in the mobile device can be remotely controlled through Bluetooth devices such as AirPods and Bluetooth remotes[6]. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

[5] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

[6] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.



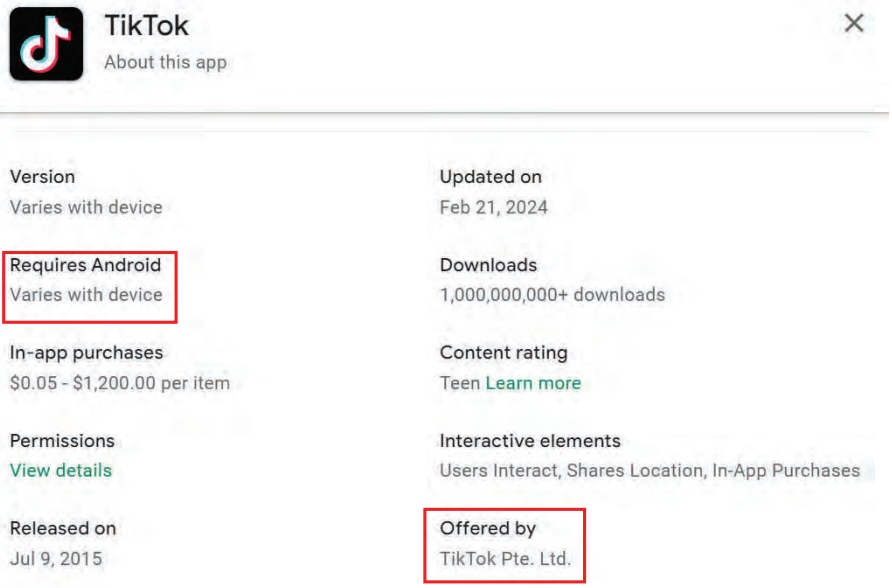

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

321

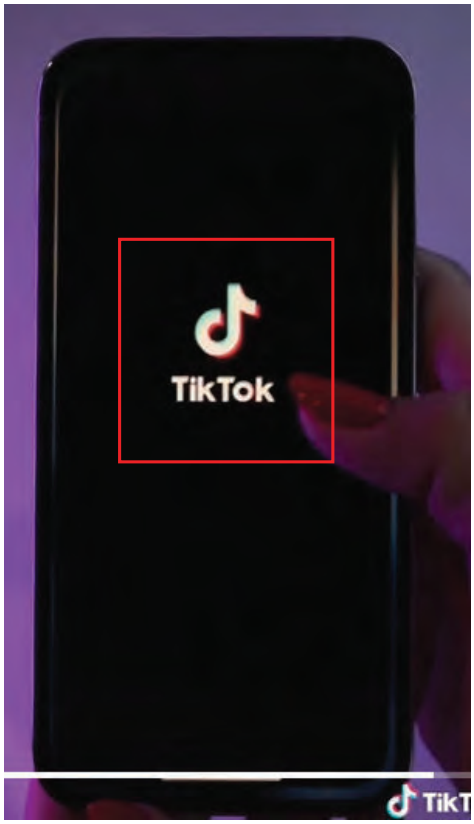



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

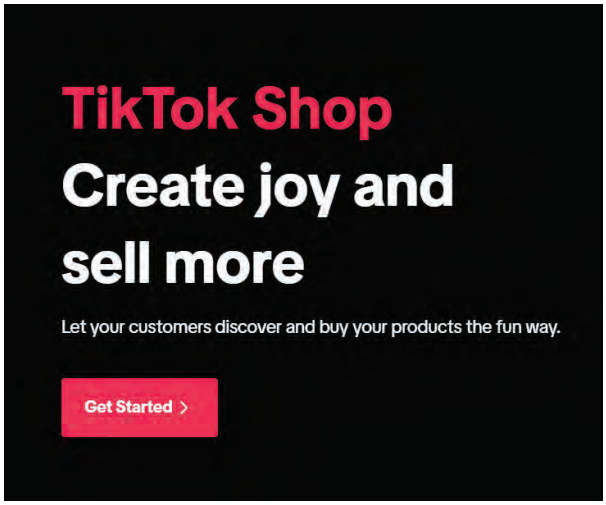
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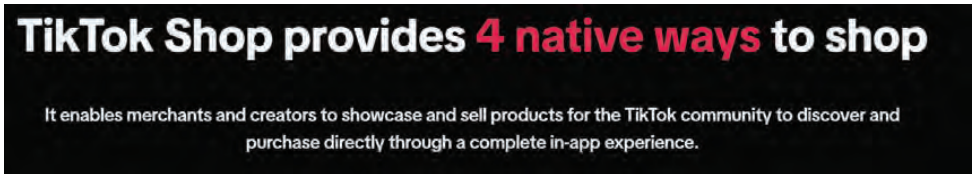

Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

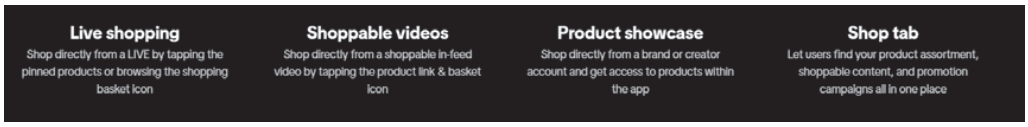
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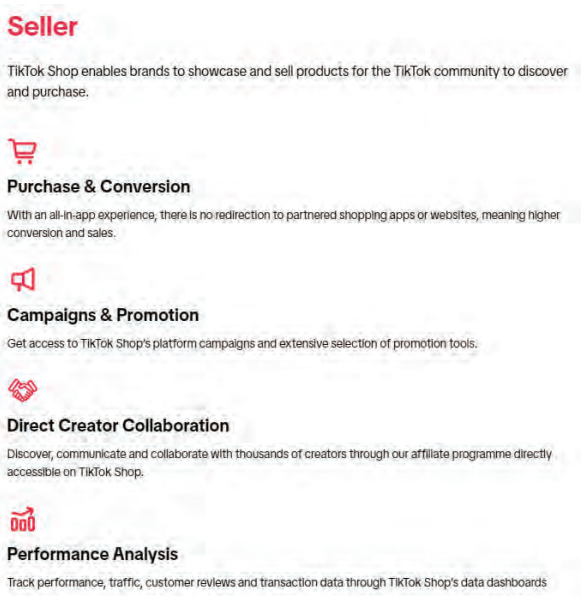



Source: https://shop.tiktok.com/business/en



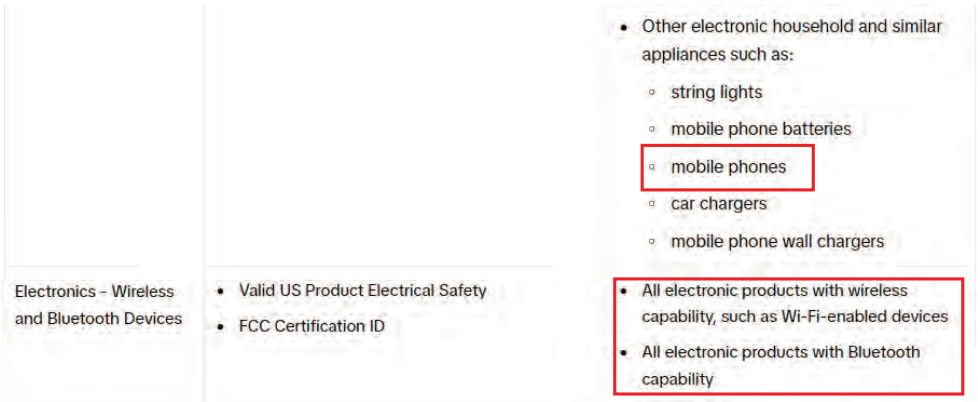

Source: https://shop.tiktok.com/business/en



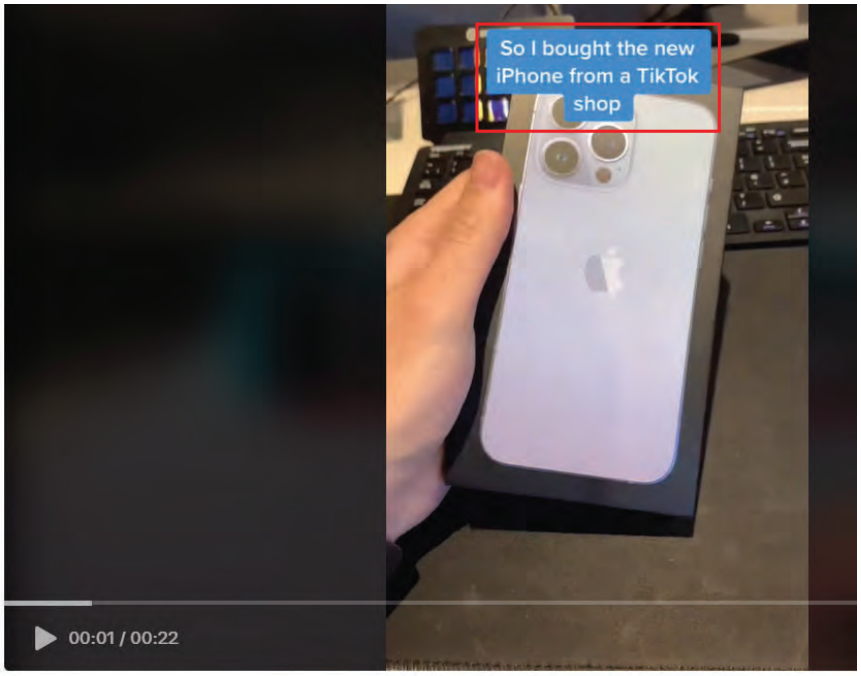
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| | Source: https://shop.tiktok.com/business/en<br>  <br><br>Source: https://shop.tiktok.com/business/en<br>**How does TikTok Commerce work?**<br>TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.<br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en |

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| | **About TikTok Shop**<br><br>TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.<br><br>Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.<br><br>• See TikTok Shop and Showcase<br>• See How to Add Product Links to TikTok Videos<br><br>With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en<br><br>**Electrical Products and Electronics**<br><br>Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.<br><br>Electrical and electronic products include but are not limited to:<br><br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

327

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| |  <br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

328



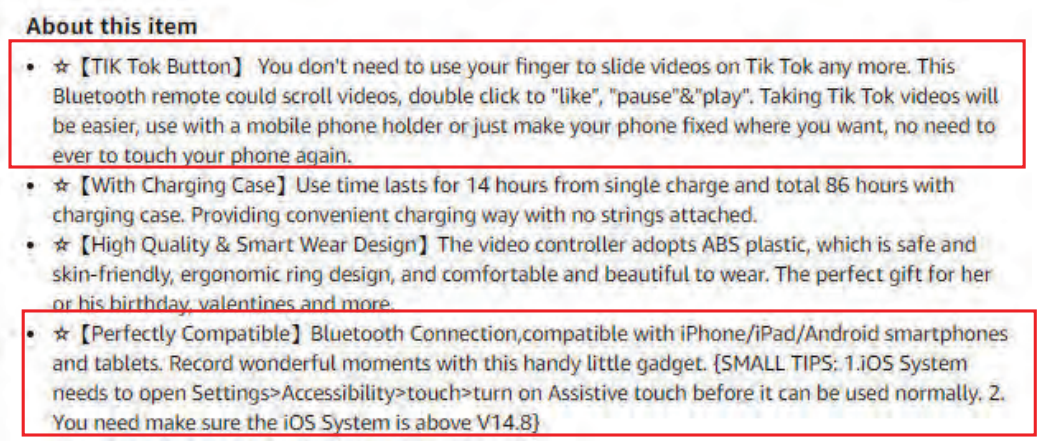

So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime

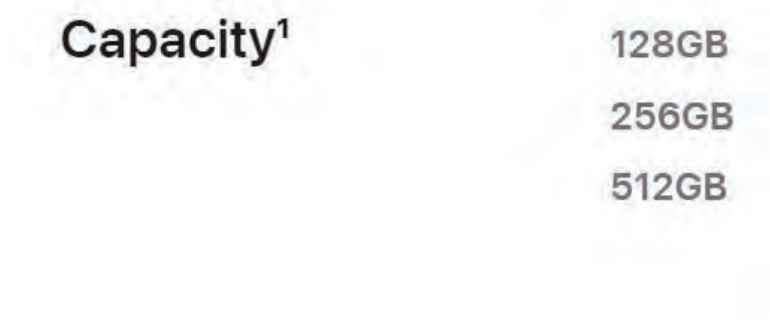
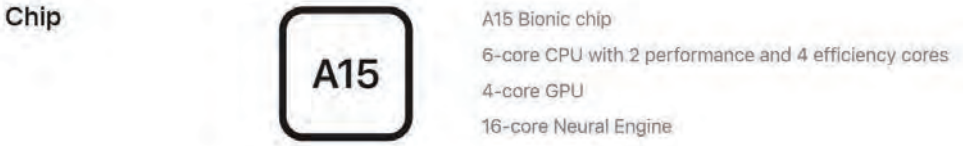
Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502

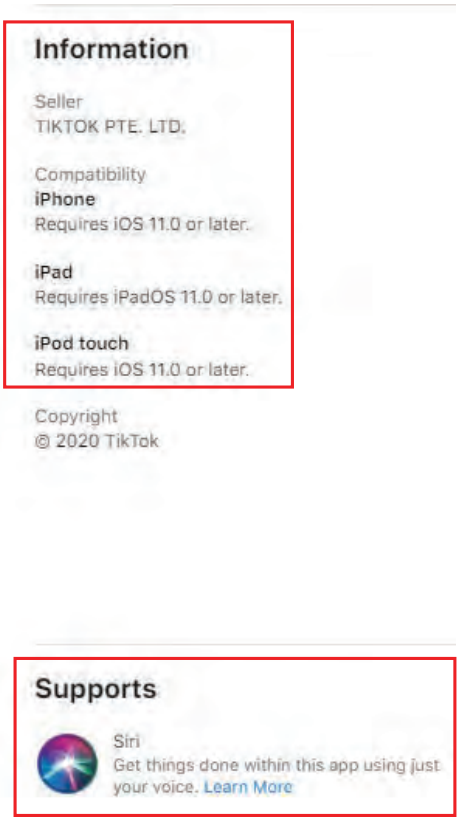
329

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|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

330

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.1] a memory device; a processor coupled to said memory device; | Defendant provides a memory device; a processor coupled to said memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the users of the TikTok app, while operating the TikTok app, utilize a mobile device that comprises a memory (“memory device”) and a processor coupled to the memory. The memory is utilized to store the TikTok app and the information related to it and the processor is utilized to execute the computer-readable instructions related to the TikTok app. |

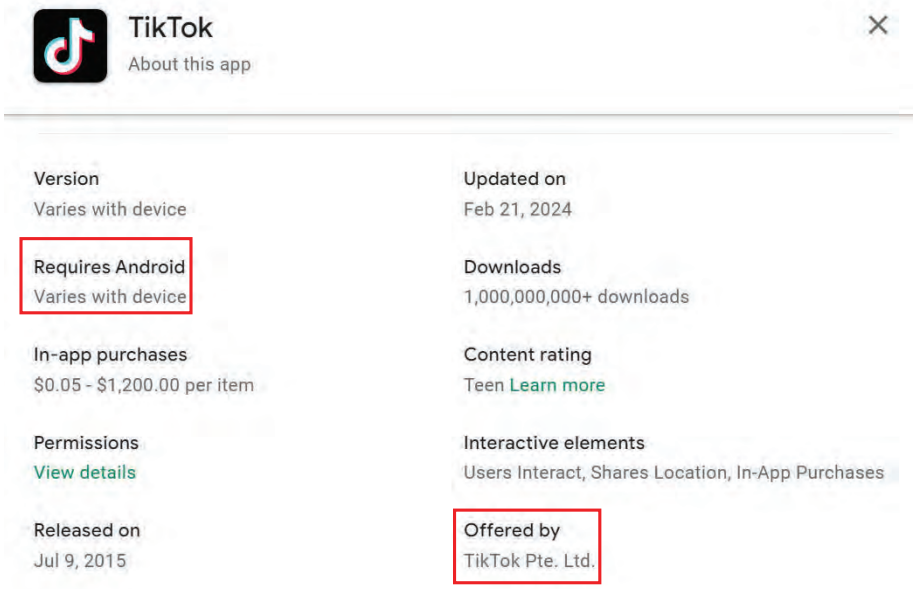
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| |  <br>Source: https://www.apple.com/iphone-13/specs/<br>  <br>Source: https://www.apple.com/iphone-13/specs/ |




Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

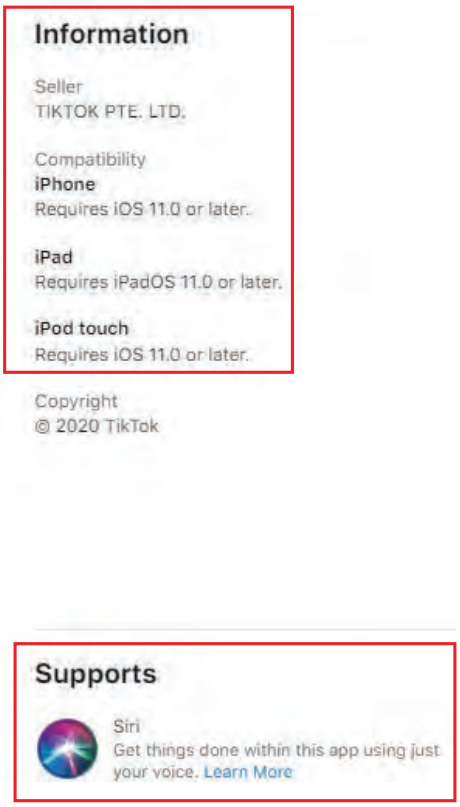
333

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| | **Memory and Storage**<br>**Memory**<br>• 6 GB LPDDR5 RAM<br>**Storage**<br>• 128 GB storage UFS 3.1 storage[4]<br>**Processors**<br>• Google Tensor<br>• Titan M2™ security coprocessor<br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en |

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| |  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.2] a cellular network communication device configured to connect to internet via a cellular data network; | Defendant provides a cellular network communication device configured to connect to internet via a cellular data network.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

335

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| | For example, the user of the TikTok app, while operating the TikTok app, utilizes mobile device which comprises a cellular network communication device designed to establish an internet connection through Wi-Fi or a cellular data network. The user of the TikTok app uses the established internet connection to access the TikTok app and perform functions such as 'scrolling'/'liking' the video. |



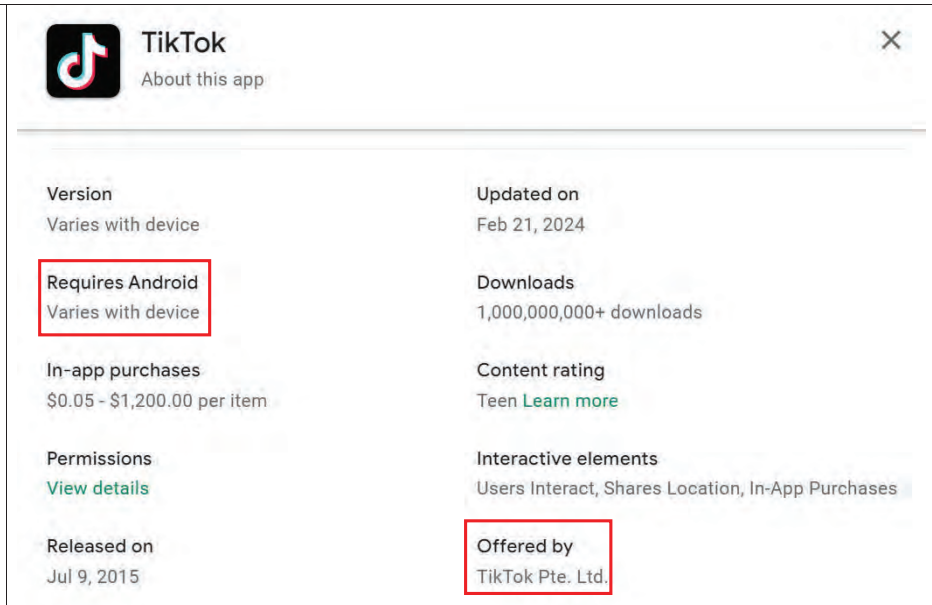

Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

337

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| | **Check Internet connection**<br><br>Weak data or Wi-Fi signal can also impact your experience on TikTok. Try switching from Wi-Fi to mobile data to troubleshoot whether or not the issue is related to connectivity.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>If iPhone is connected to the internet using the cellular data network, an icon identifying the cellular network appears in the status bar.<br><br>5G, LTE, 4G, and 3G service on GSM cellular networks support simultaneous voice and data communications. For all other cellular connections, you can't use internet services while you're talking o the phone unless iPhone also has a Wi-Fi connection to the internet. Depending on your network connection, you may not be able to receive calls while iPhone transfers data over the cellular network—when downloading a webpage, for example.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios<br><br>**Choose cellular data options for data usage, performance, battery life, and more**<br><br>To turn Cellular Data on or off, go to Settings > Cellular.<br><br>To set options when Cellular Data is on, go to Settings > Cellular > Cellular Data Options, then do any of the following:<br><br>• *Reduce cellular usage:* Turn on Low Data Mode, or tap Data Mode, then choose Low Data Mode. This mode pauses automatic updates and background tasks when iPhone isn't connected to Wi-Fi.<br><br>Source: https://support.apple.com/guide/iphone/view-or-change-cellular-data-settings-iph3dd5f213/ios |

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| |  **Cell signal.** The number of bars indicates the signal strength of your cellular service. If there's no signal, "No Service" appears.<br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0<br>  **LTE.** Your carrier's LTE network is available, and iPhone can connect to the internet over that network (not available in all countries or regions). See View or change cellular data settings on iPhone.<br>Source: https://support.apple.com/guide/iphone/learn-the-meaning-of-the-status-icons-iphef7bb57dc/16.0/ios/16.0 |

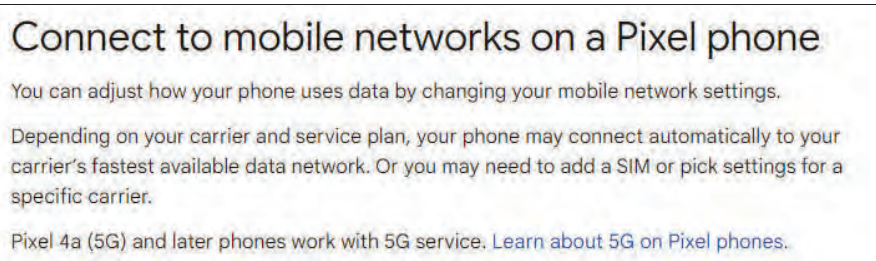
339




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

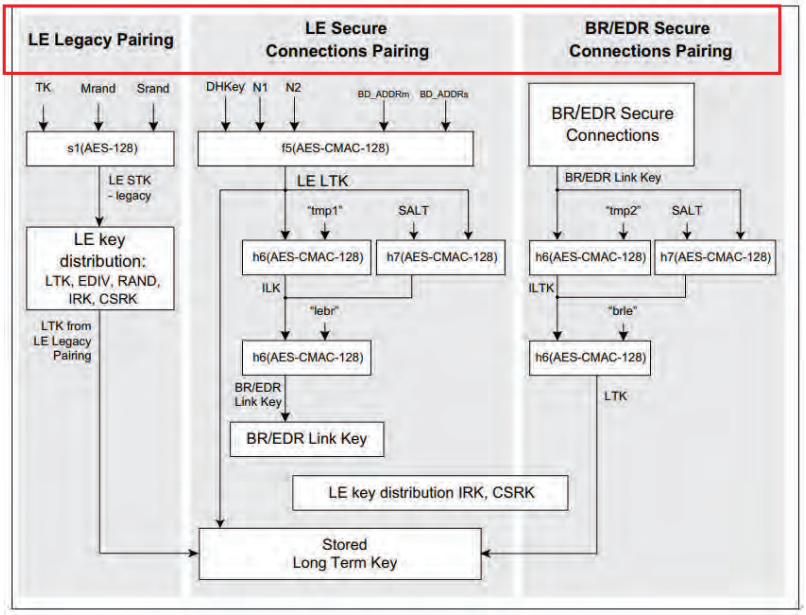
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| | **Network**[14]<br><br>**[5G Sub 6GHz]**[15] **Model GWKK3**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78<br>• eSIM<br><br>**[5G Sub 6GHz]**[15] **Model GHL1X**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/17/18/19/20/21/25/28/32/38/39/40/41/42/66<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/20/25/28/38/40/41/66/75/76/77/78/79<br>• eSIM<br><br>**[5G mmWave + Sub 6GHz]**[15] **Model G0DZQ**<br>• GSM/EDGE: Quad-band (850, 900, 1800, 1900 MHz)<br>• UMTS/HSPA+/HSDPA: Bands 1,2,4,5,6,8,19<br>• LTE: Bands B1/2/3/4/5/7/8/12/13/14/17/20/25/26/28/29/30/38/40/41/48/66/71<br>• 5G Sub-6[15]: Bands n1/2/3/5/7/8/12/14/20/25/28/30/38/41/48/66/71/77/78<br>• 5G mmWave[15]: Bands n260/n261<br>• eSIM<br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en |

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| |  <br>Source: https://support.google.com/pixelphone/answer/2926415?hl=en<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.3] a short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled cellular phone and a short-range wireless enabled data capture device, wherein the short-range wireless enabled data capture device is configured to cryptographically authenticate identity of the short-range wireless enabled cellular phone; | Defendant provides a short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled cellular phone and a short-range wireless enabled data capture device, wherein the short-range wireless enabled data capture device is configured to cryptographically authenticate identity of the short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device ("short-range wireless enabled cellular phone") which comprises Bluetooth ("short-range wireless communication device"). Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("short-range wireless enabled data capture device"). The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the mobile device and the Bluetooth device are connected through an encrypted connection created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB). |

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| | The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |

343




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

344

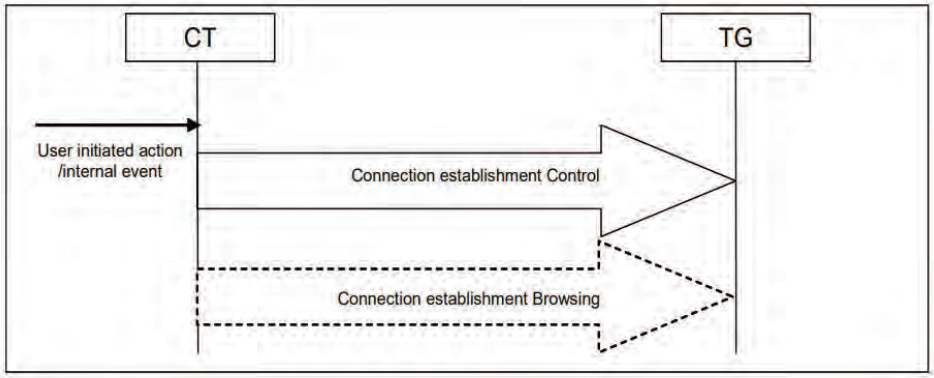



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

345

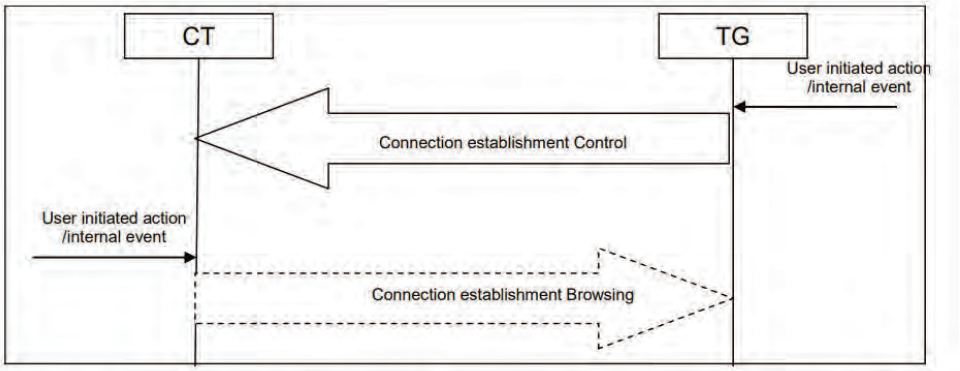



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

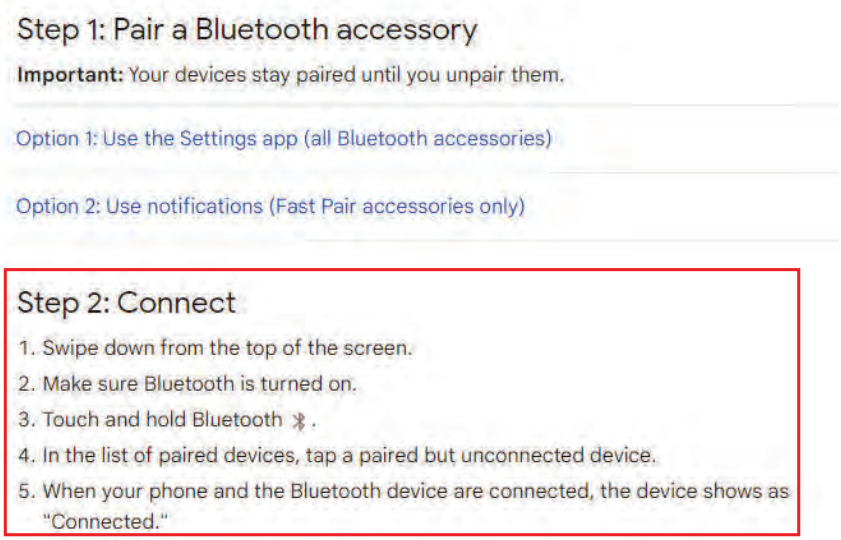
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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

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| | Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity Bluetooth 5.0 wireless technology<br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

347

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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web<br>**Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US |

348

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| |  <br>Source: https://support.google.com/android/answer/9075925?hl=en |



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classll(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

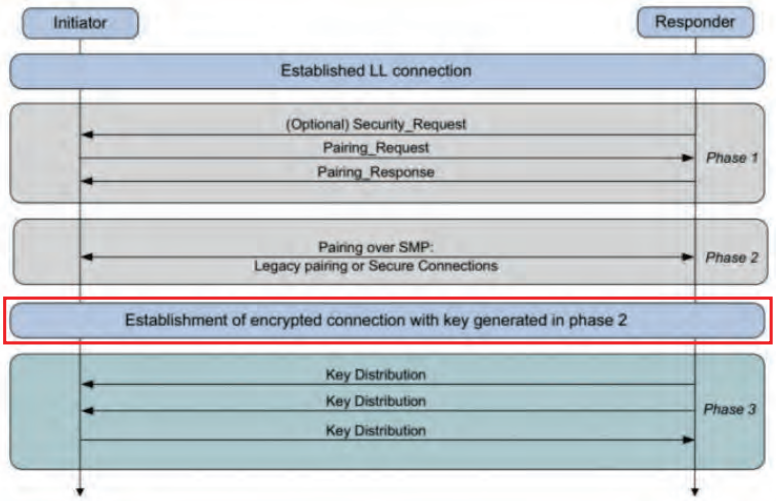
The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

352




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

353

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| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

354

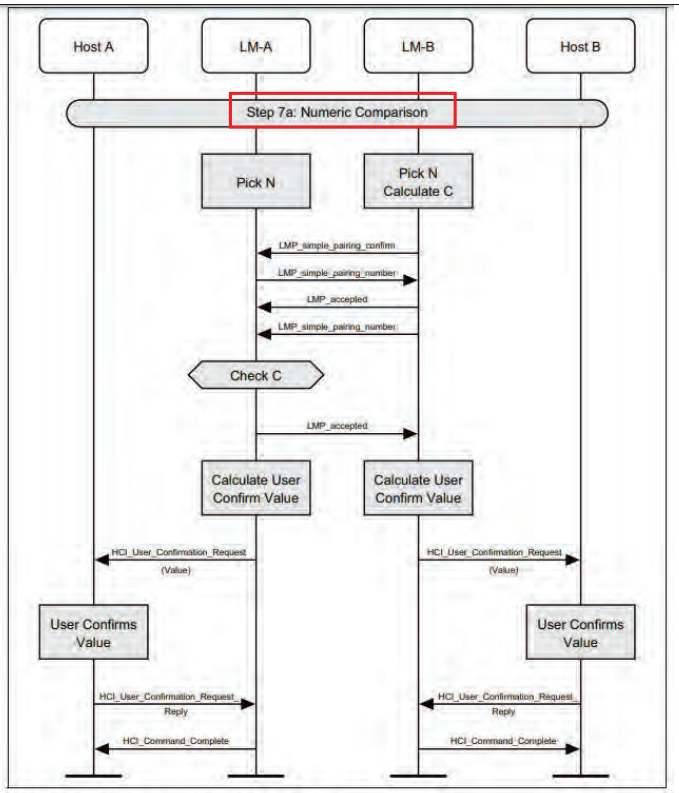



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

355

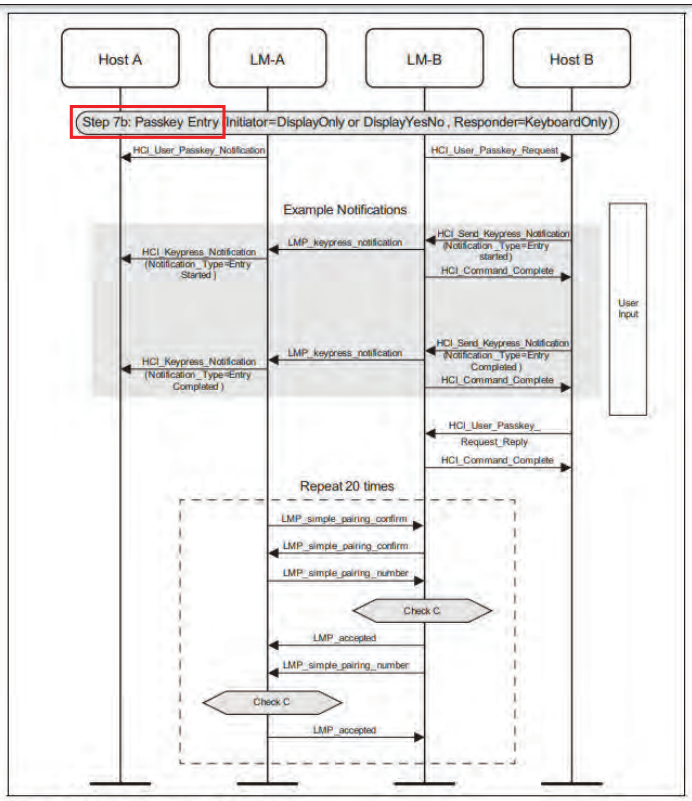



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

356

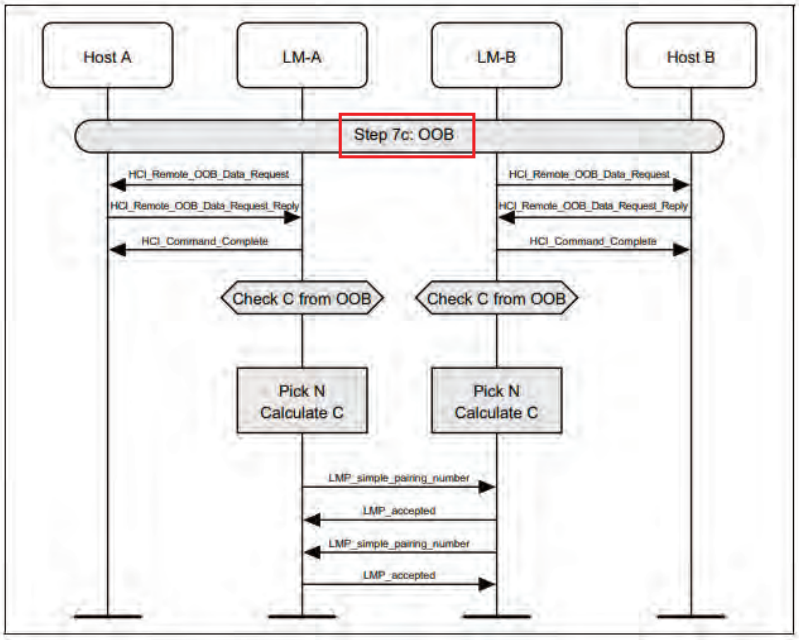
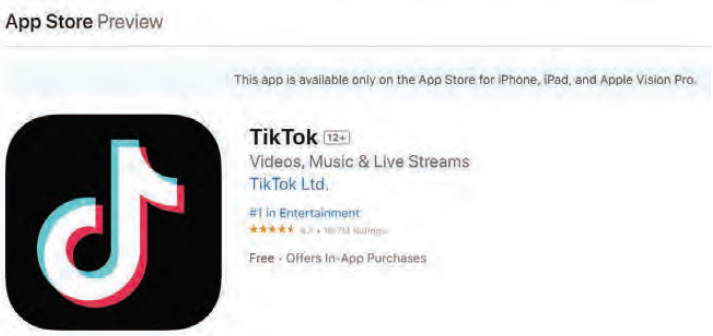



*Figure 4.20: OOB authentication (P-192)*

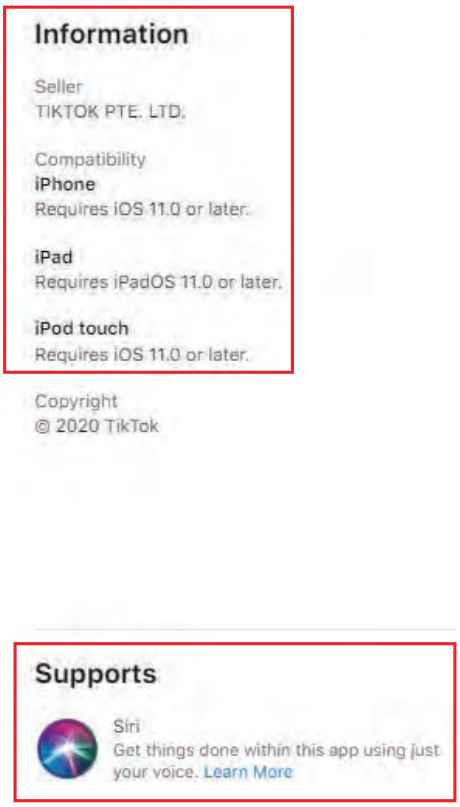
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

357

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| | **Encryption Key Size Control Enhancements**<br>New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.<br>Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.<br>Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.4] a single mobile client application for the short-range wireless enabled cellular phone comprising executable instructions that, when executed by the processor controls the processor to: | Defendant provides a single mobile client application for the short-range wireless enabled cellular phone comprising executable instructions.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app ("mobile client application") is installed in the mobile device ("short-range wireless enabled cellular phone") and can be remotely controlled through Bluetooth devices such as AirPods, earphones, or Bluetooth remotes. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to receive and execute the inputs (using executable instructions) provided by the user through the Bluetooth devices and perform corresponding functions such as 'scrolling'/'liking' the video.<br><br>For example, the TikTok app for iOS allows a user to configure gestures for phrases such that when the user provides an audio command corresponding to the phrase, a gesture is automatically performed on the user interface of the TikTok app causing a functionality such as 'liking' or 'scrolling' of a video in the app. The custom phrases and corresponding gestures for the TikTok app are set in the Voice Control settings of iOS. For example, when the phrase "double tap" and a custom gesture causing a double tap on the screen is configured for the TikTok app, then the audio command "double tap" provided by the user on the Bluetooth device (such |

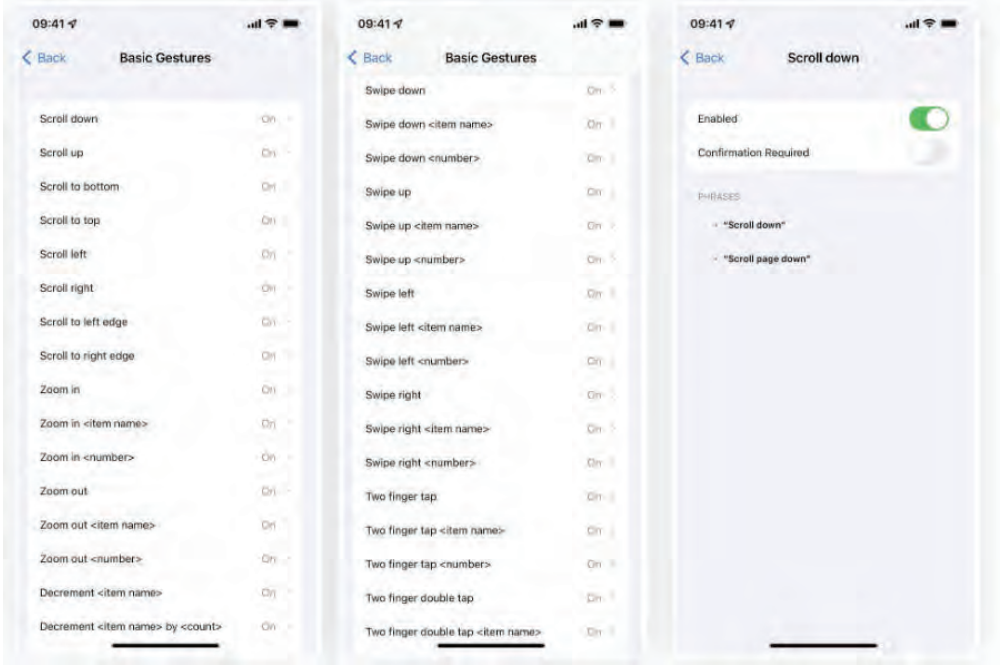
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| | as AirPods) causes the double tapping gesture to be performed in the TikTok app leading to 'liking' of the video.<br>  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

359




Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

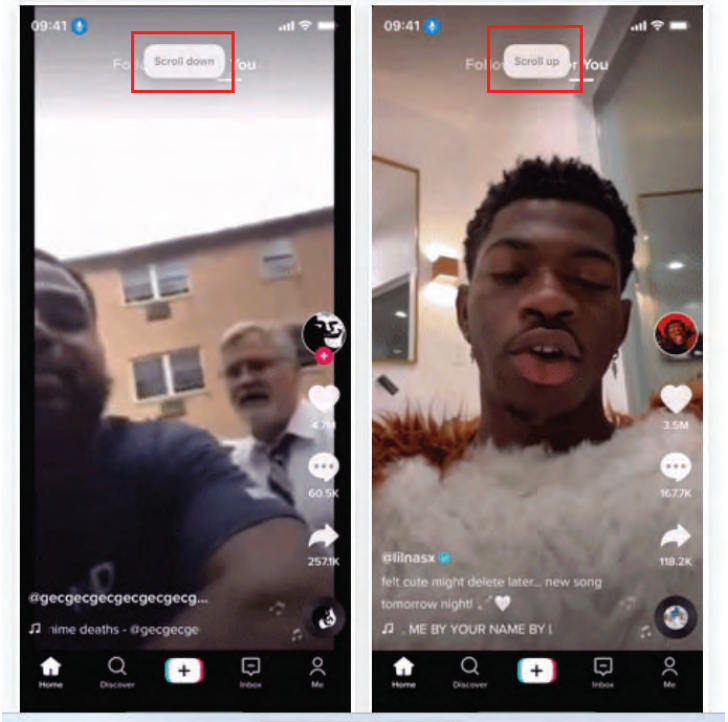
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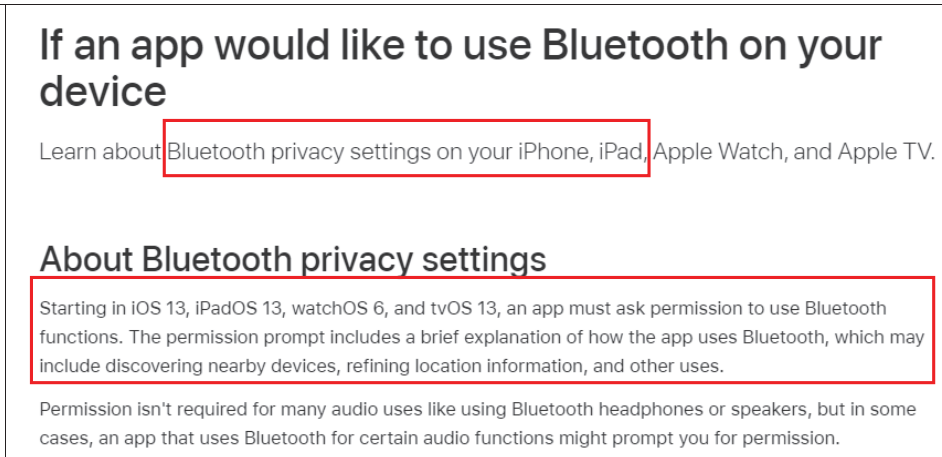

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/#

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://support.apple.com/en-us/HT210578 |

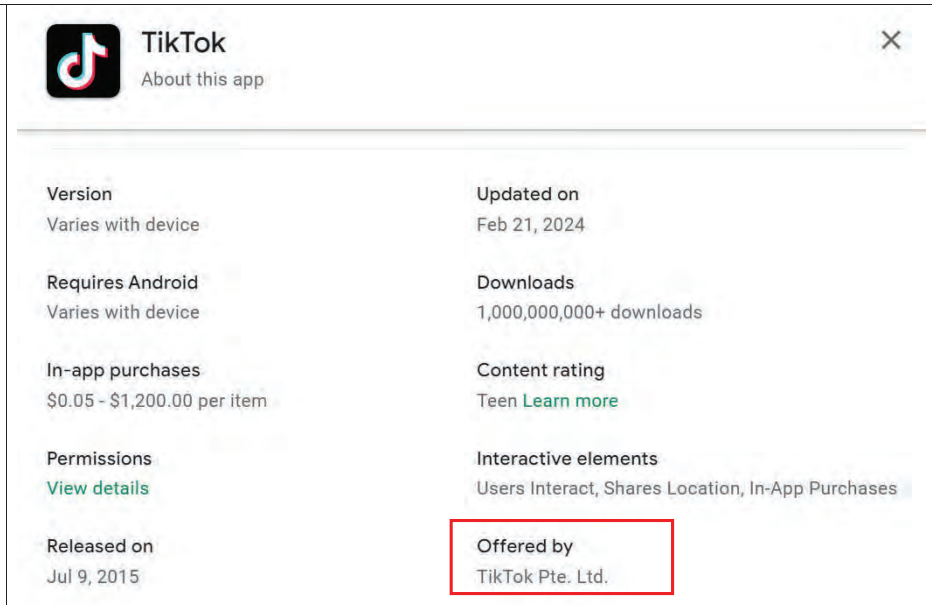
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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>For example, the TikTok app when installed on an Android phone such as Pixel 6a (used herein as an exemplary Android-based device), allows the user to turn on Voice Access feature in the Android phone's Accessibility settings to perform multiple functionalities such as 'liking' the content and 'scrolling' the videos while accessing the TikTok app. When an audio command corresponding to the desired functionality is provided through the Bluetooth device, Pixel 6a receives the command and the TikTok app processes the executed |

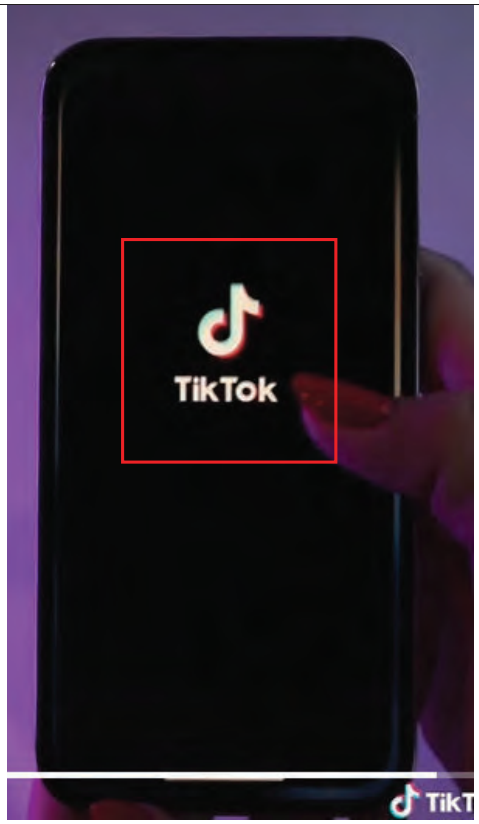
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| | command and performs the corresponding functionality such as scrolling/liking the video. For example, when Voice Access is enabled while surfing the TikTok app and the user provides an audio input “Scroll down” on the Bluetooth device such as an earphone, the TikTok app scrolls down to load the next video.<br>  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

366




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

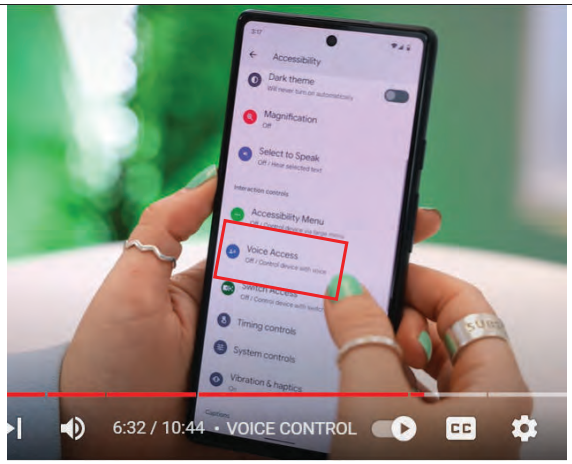
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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

368

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| | **Step 3: Start using Voice Access**<br>To turn on Voice Access, follow these steps:<br>1. Open your device's Settings app.<br>2. Tap **Accessibility**, then tap **Voice Access.**<br>3. Tap **Use Voice Access**.<br>4. Start Voice Access in one of these ways:<br>• If "Hey Google" detection is on, you can say "Hey Google, Voice Access."<br>• Open your notification shade and tap **Touch to start**.<br>• On your Home screen, tap the Voice Access app.<br>• Tap the Voice Access activation button. (You can set up the activation button in Settings > **Accessibility** > **Voice Access** > **Settings** > **Activation button**.)<br>5. Say a command, such as "Open Gmail." Learn more Voice Access commands.<br>The first time you turn on Voice Access, two extra steps help you get started:<br>• A guide to "Hey Google" settings helps set you up for a good hands-free experience.<br>• An interactive tutorial teaches you how Voice Access works.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |



LifeScan, Inc. Ex. 1036
Page 1638 of 2225
IPR2025-00102

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| |  <br>Source: https://www.youtube.com/watch?v=Ec52kzzqVRM, at 6:32 |

370

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en<br>**Bluetooth** — Allows to to connect to paired bluetooth devices. |

371

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| | Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.BLUETOOTH<br>Source: https://apkpure.com/tiktok/com.ss.android.ugc.trill/download/290504-APK<br><br>android.permission.BLUETOOTH_CONNECT<br>Source: https://apkpure.com/tiktok/com.ss.android.ugc.trill/download/290504-APK<br><br>For example, TikTok app is also configured to receive data from third-party Bluetooth remotes. These Bluetooth remotes connect to the mobile device via Bluetooth and allow the user to scroll through videos or 'like' a video using designated buttons on the remote (for example, a user can "like" a particular video on the TikTok app by double clicking a designated button). |

372

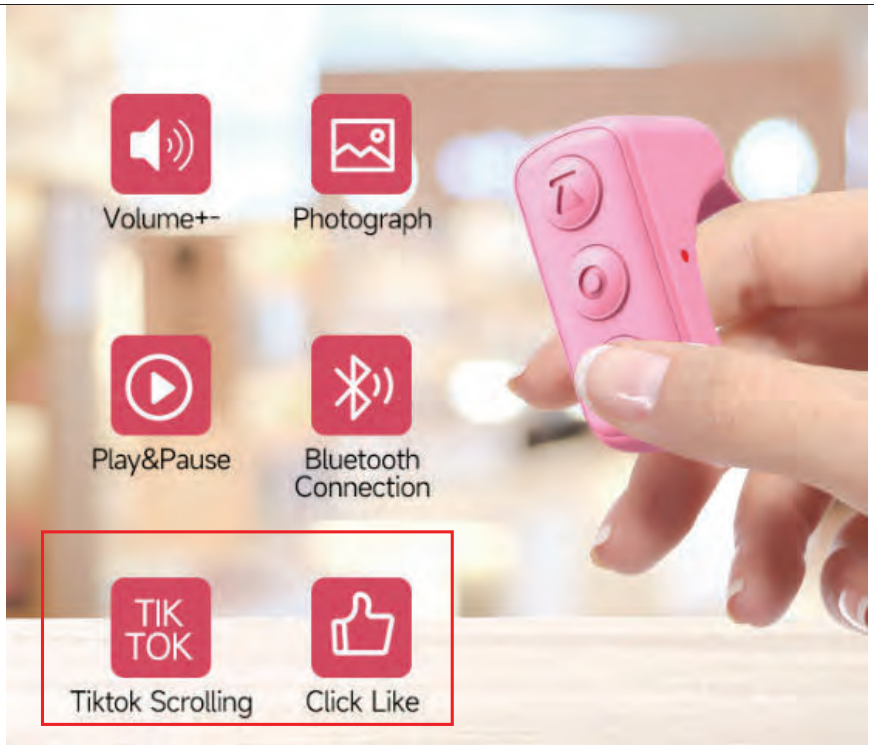
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

373




Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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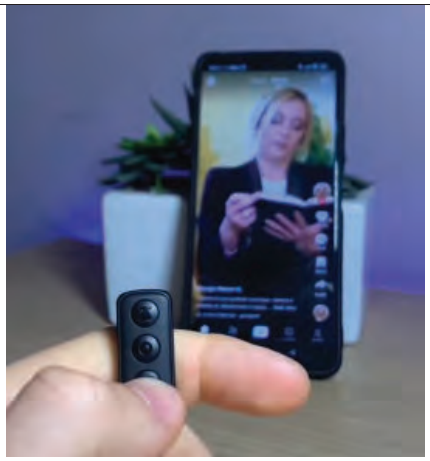

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

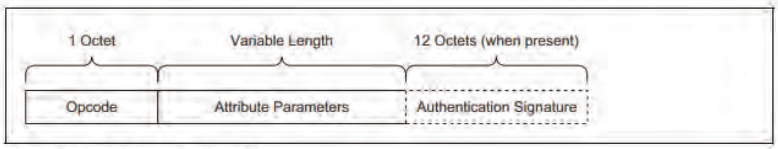
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| |  <br>Source: https://www.youtube.com/shorts/rz7SWRCzdMg<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63 |

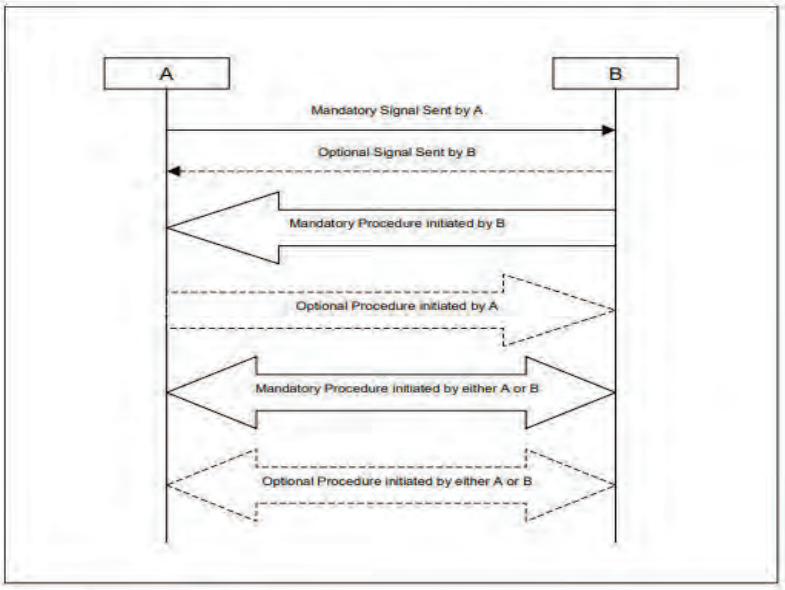
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| | BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>**Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br><br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance |

379

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.5] listen for an event notification sent by the short-range wireless enabled data capture device, wherein the event notification corresponds to new-data and comprises sending a signal by the short-range wireless enabled data capture device to the short-range wireless enabled cellular phone, wherein the new-data is data acquired by the data capture device after establishing the short-range paired wireless connection with the short-range wireless enabled cellular phone; | Defendant provides mobile client application that listen for an event notification sent by the short-range wireless enabled data capture device, wherein the event notification corresponds to new-data and comprises sending a signal by the short-range wireless enabled data capture device to the short-range wireless enabled cellular phone, wherein the new-data is data acquired by the data capture device after establishing the short-range paired wireless connection with the short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user command in the form of event notification that comprises the information related to the command. Based on the received data, the TikTok app performs the functionality corresponding to the received command.<br><br>Further, after establishing Bluetooth connection, when an audio command is sent through the Bluetooth devices, such as AirPods or earphones, or when a button is pressed on the Bluetooth remote control, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client (e.g., a mobile device) establishes a connection with a GATT server (e.g., a Bluetooth device), it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to |

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| | Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>**Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br><br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br><br>  <br>*Figure 2.3: Attribute Protocol PDU*<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |

381

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| |  <br>*Figure 1.2: Signaling conventions*<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11 |

382

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

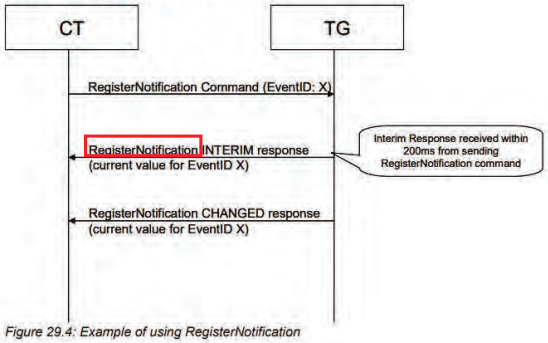



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139

383

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

384

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

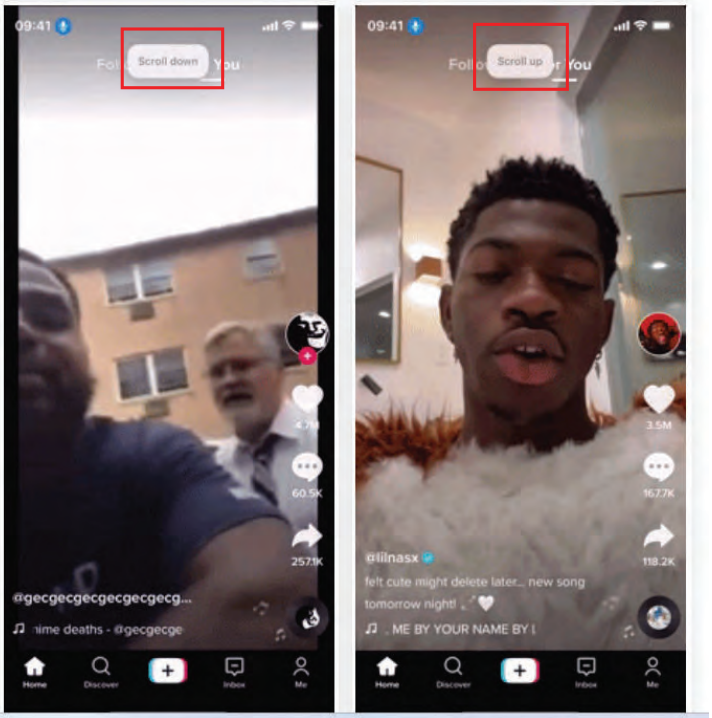
### Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

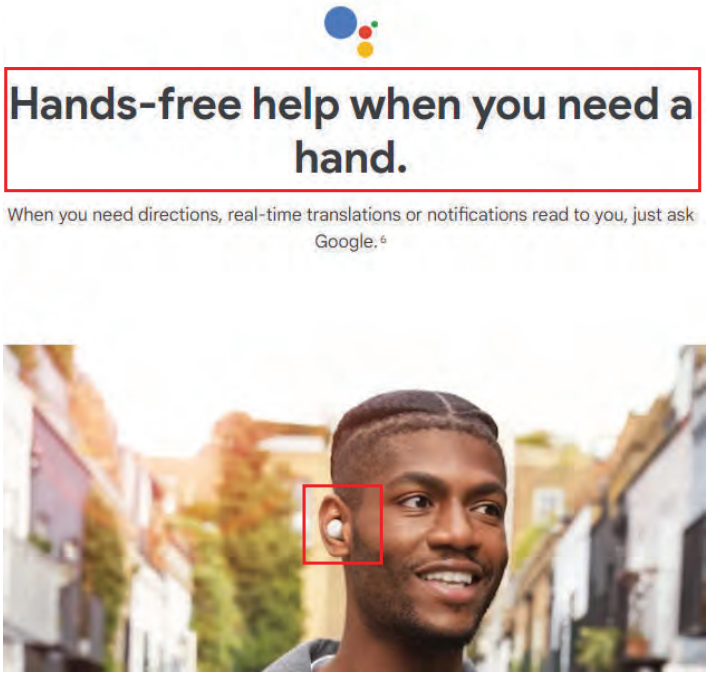
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| | Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa | Jan 30 2017 - 10:34 am PT | 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

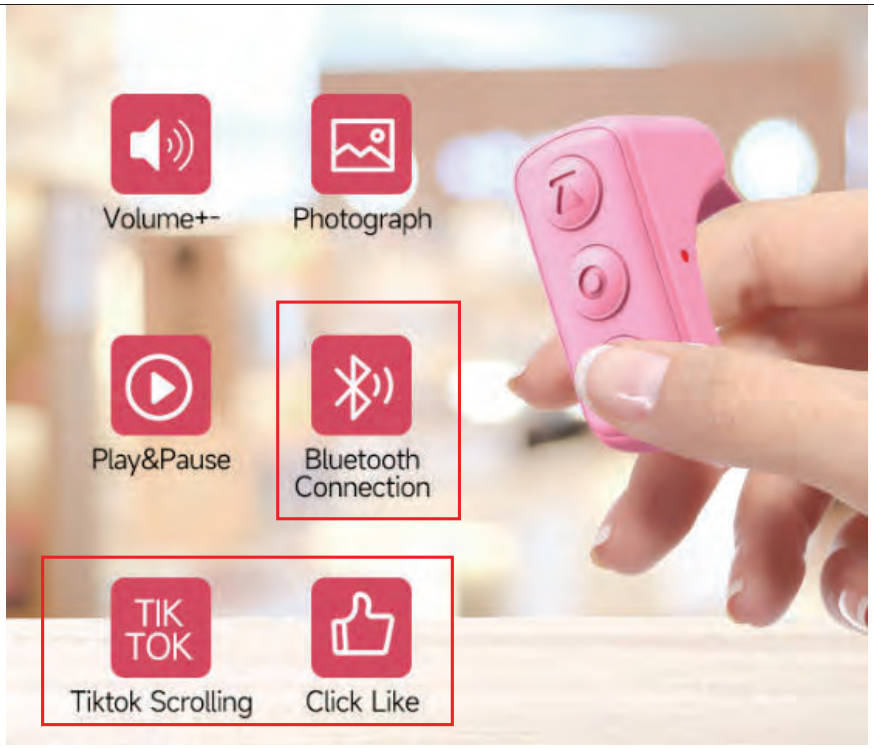



Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

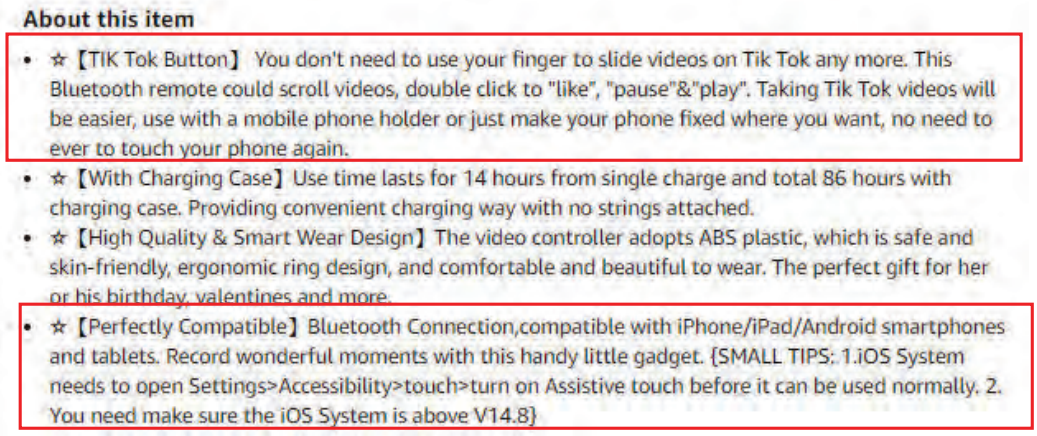
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

390

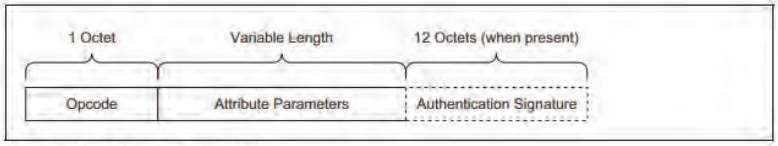
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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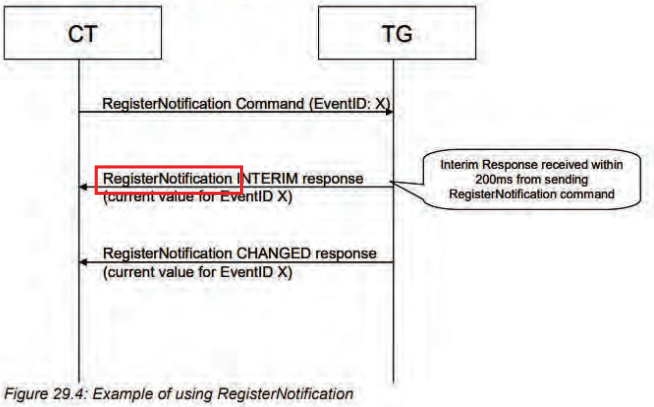
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.6] receive the event notification and the new-data from the short-range wireless enabled data capture device; | Defendant provides a mobile client application that receive the event notification and the new-data from the short-range wireless enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device (“short-range wireless enabled data capture device”) captures the user’s command and sends the command to the mobile device through the Bluetooth connection. The TikTok app in the mobile device receives the user’s command in the form of event notification, and based on the received event notification, the TikTok app performs the functionality (such as liking/scrolling the video) corresponding to the received command. |

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| | For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is transferred to the mobile device on which the TikTok app is installed along with an event notification.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("event notification and the new-data") on AirPods or earphones, the TikTok app receives the user's command as an event notification in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as an event notification in order to like or scroll the subsequent video.<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote. As is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT as part of their BLE functionality that defines a framework for organizing and exchanging data between the BLE devices. When a GATT server, has new data or an event to notify the GATT client, it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, "Double Tap" and "Scroll Down" command) to Bluetooth enabled mobile device on which the TikTok app is installed.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/ |

393

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| | The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br>  <br><br>*Figure 2.3: Attribute Protocol PDU*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2225<br>**6.5 GATT-BASED PROFILE HIERARCHY**<br>The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.<br>The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255 |

394

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| | 29.3 RegisterNotification<br>  <br><br>*Figure 29.4: Example of using RegisterNotification*<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 139 |

395

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| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2267 |

396

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.

ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).

ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

397

### 25.21 Get Item Attributes

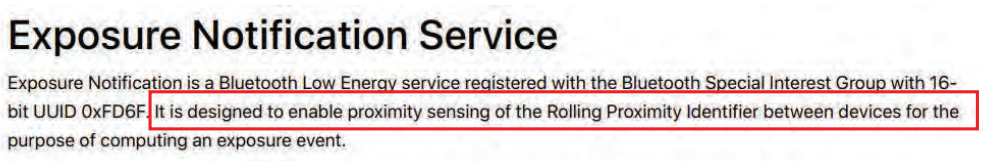
Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

| | | |
|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

398

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| | Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br><br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

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|---|---|
| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

400

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| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified. This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

### 5.13 Browsing

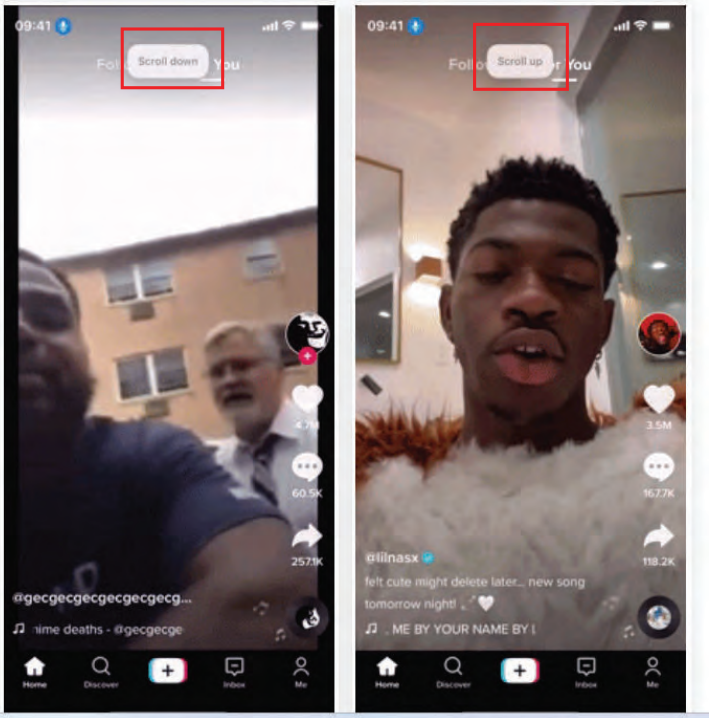
Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

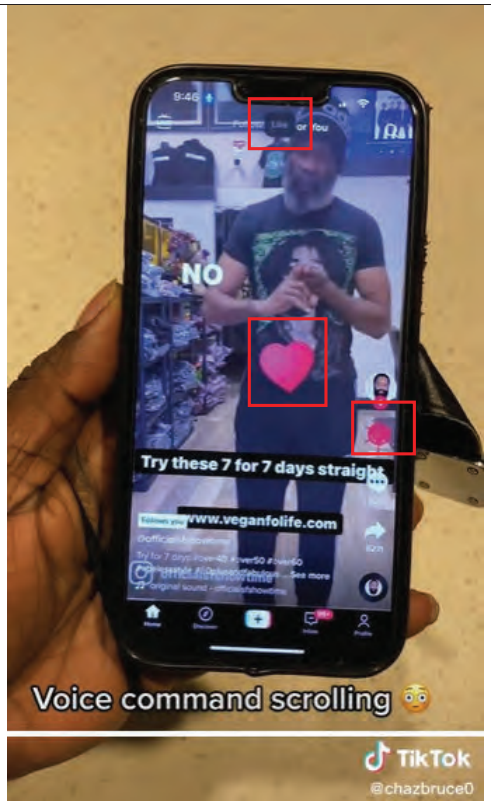
401

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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|---|---|
| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

404

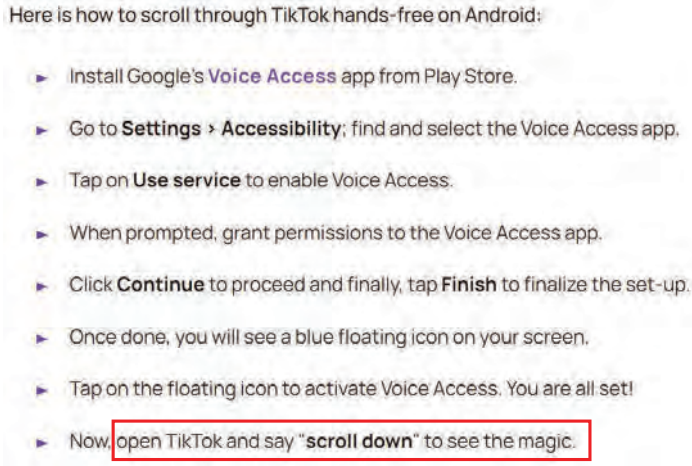



Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

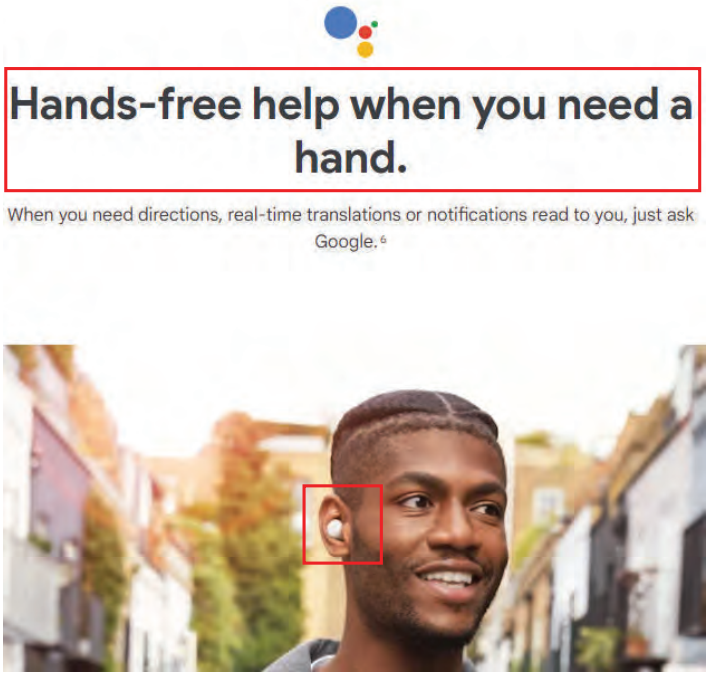
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

405

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| |  <br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>  <br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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|---|---|
| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

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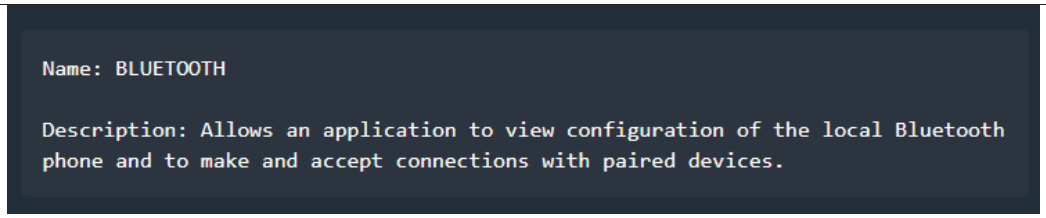



Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

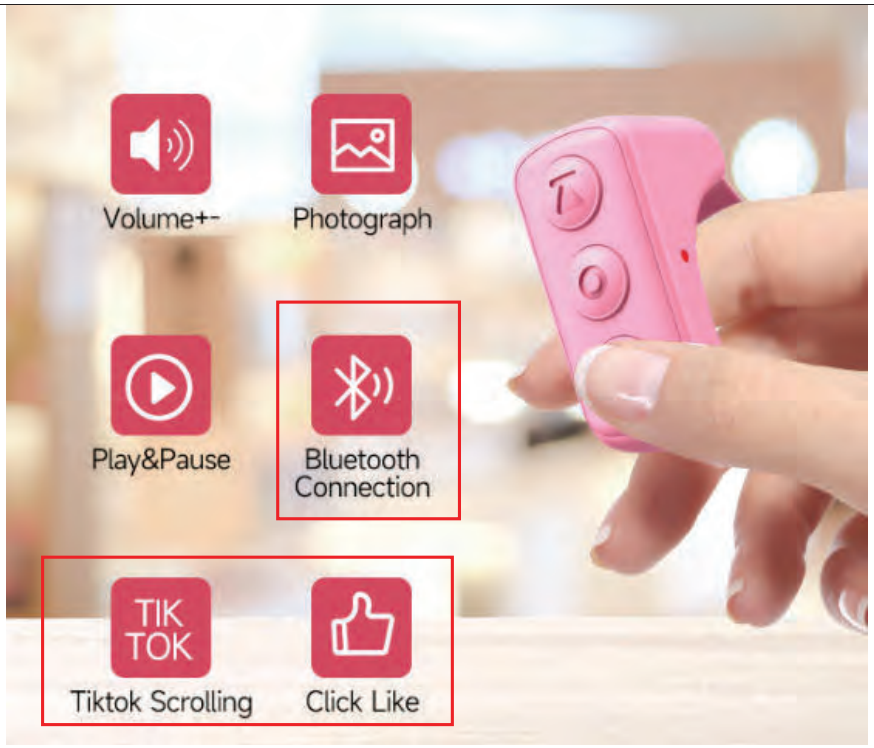
408



LifeScan, Inc. Ex. 1036
Page 1677 of 2225
IPR2025-00102

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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

409




Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

410

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|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

411



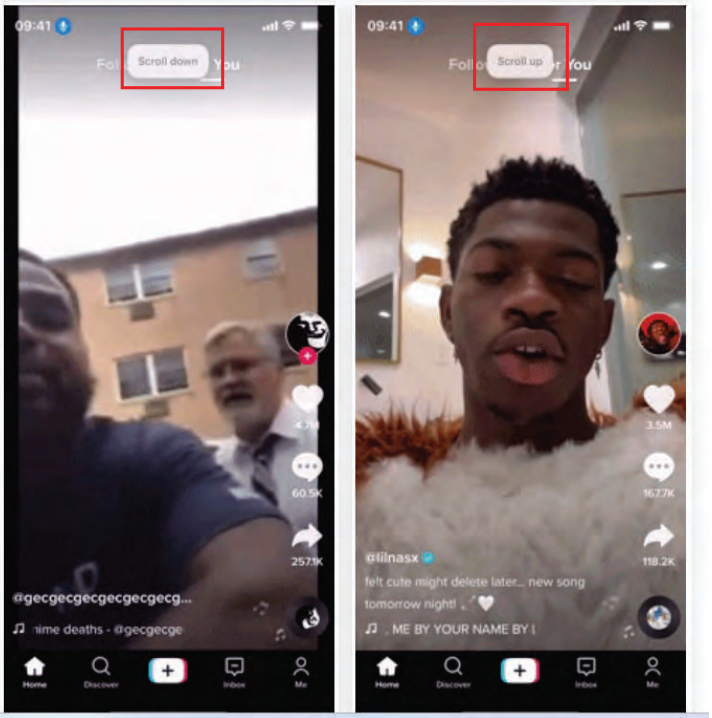
LifeScan, Inc. Ex. 1036
Page 1680 of 2225
IPR2025-00102

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.7] process the event notification and store the received new-data in the memory device; | Defendant provides a mobile client application that process the event notification and store the received new-data in the memory device and store a user authentication credential in the memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

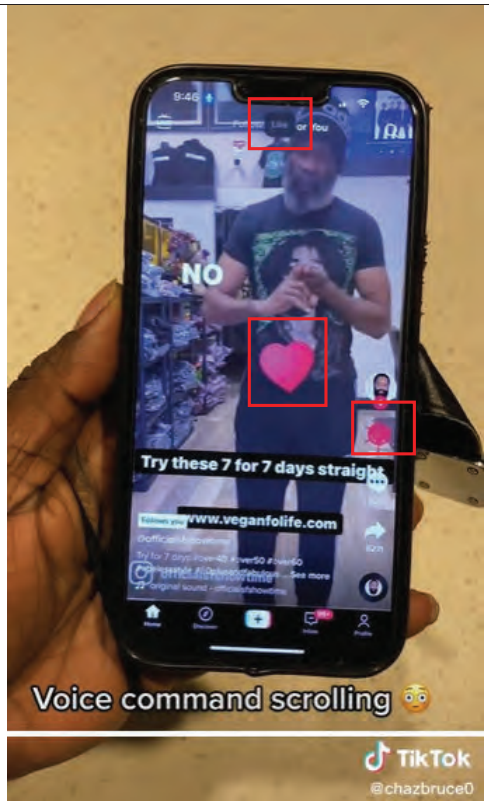
| | |
|---|---|
| store a user authentication credential in the memory device; | For example, the TikTok app in the mobile device receives the user command (provided through the Bluetooth devices) in the form of event notification that comprises the information related to the command. Further, the TikTok app processes the received notification to perform the corresponding functionality. For example, when the user provides the audio command such as “Double Tap” or “Scroll Down” on AirPods or earphones, the TikTok app receives the user’s command and processes it to ‘like’ or ‘scroll down’ the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user’s command and processes it to like or scroll the subsequent video.<br><br>For example, the TikTok app stores the user’s activity (liked and watched videos) including the commands (“received new-data”) at least temporarily in the cache memory of the mobile device (in which the TikTok app is installed) along with the user credentials. Further, the user's login credentials are stored within the mobile device's memory, facilitating automatic authentication upon subsequent logins to their TikTok app account.<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/ |

413

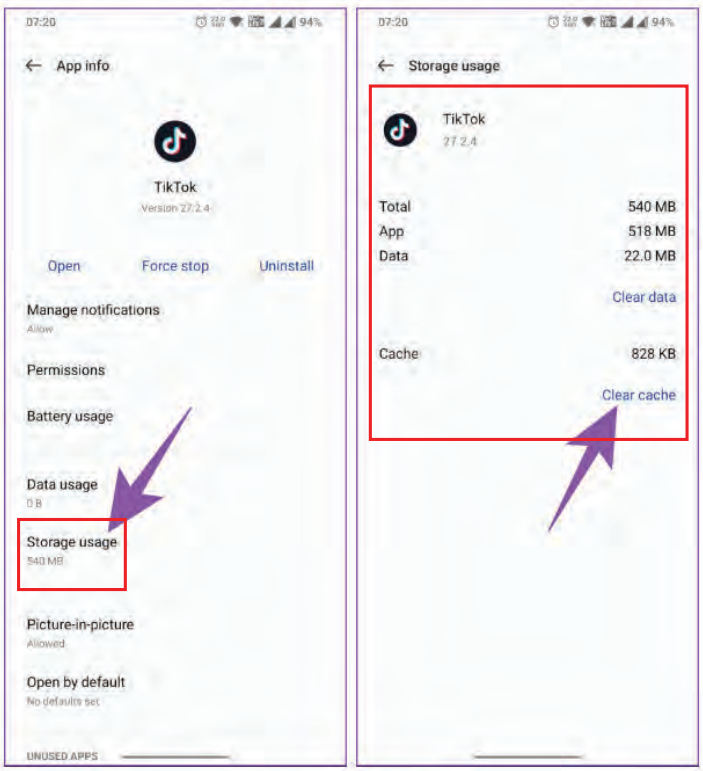
| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

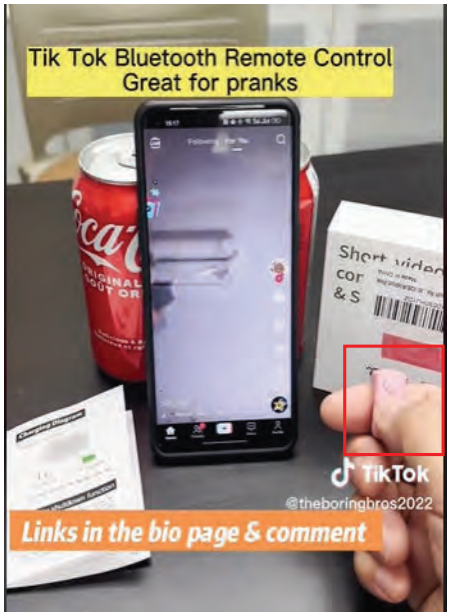
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| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br><br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

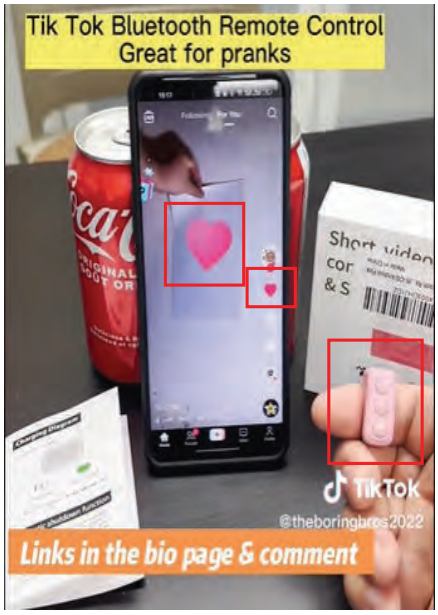
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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

421

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>However, some have been noticing that the app is taking up a huge amount of space on their devices, sometimes gigabytes worth of storage. If you're looking to make more space on your device, here's how to reduce the amount of room TikTok is using on your phone.<br><br>Source: https://www.dexerto.com/entertainment/tiktok-storage-free-up-space-1775839/<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/ |

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| | **There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage<br>**Information You Provide**<br>• **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.<br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |

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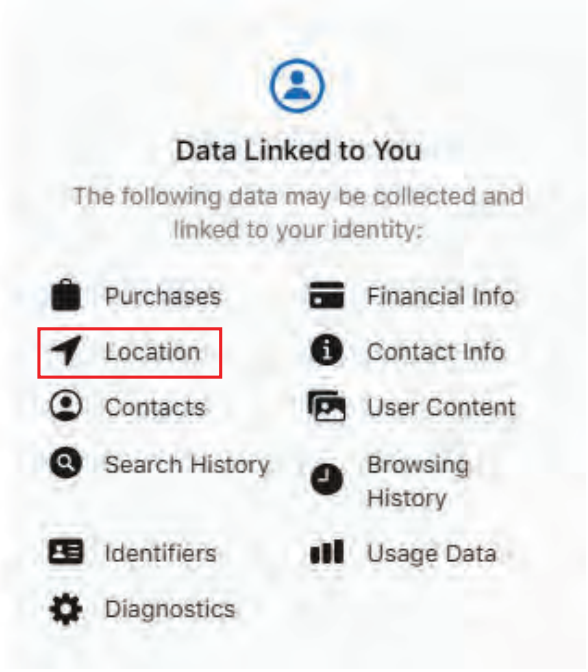
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| | You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

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| |  <br>Source: https://www.tiktok.com/@akirasashmi/video/7129576154465422619<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.8] use HTTP to send a user preference to a user data publishing web service over the cellular data network, wherein the user preference comprises global positioning system information; | Defendant provides mobile client application that uses HTTP to send a user preference to a user data publishing web service over the cellular data network, wherein the user preference comprises global positioning system information.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data such as user's precise location, utilizing the mobile device's Global Positioning System (GPS) (“user preference”) functionality over the cellular data network to the Defendant’s servers. |

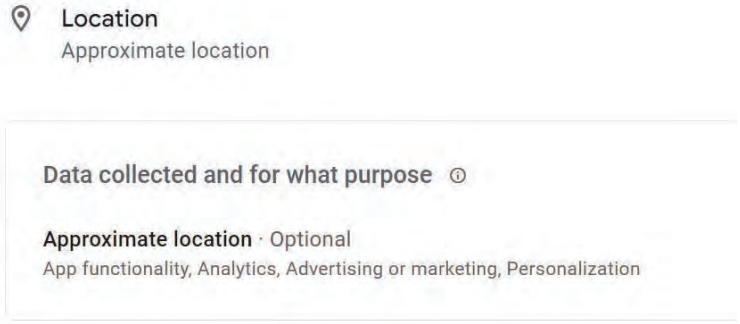
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| | **Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>**How TikTok collects location information**<br><br>TikTok collects your approximate location information based on your device or network information, such as SIM card and IP address.<br><br>In regions where Location Services are available for the TikTok app, and when you turn it on, TikTok will also collect your location information based on your device's GPS. Learn more about your device's location settings in the Android Help Center and Apple Support. Note: Location Services may not be available in all regions, including the U.S. and South Korea.<br><br>Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok |

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| | • **Location Information.** We collect information about your approximate location, including location information based on your SIM card and/or IP address. With your permission, we may also collect precise location data (such as GPS). In addition, we collect location information (such as tourist attractions, shops, or other points of interest) if you choose to add location information to your User Content.<br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en<br><br>**Location Targeting**<br>Last updated, November 2023<br>TikTok Ads allow you to tailor messages and offers to specific locations including countries, regions, states, provinces, metro areas, cities, zip codes and more. Some targeting options are not available in all countries or regions.<br>Note:<br>• If you are targeting multiple countries, locations may have regional descriptions (ex. Counties, Districts, etc.) in Ads Manager aligning with local definitions.<br>• Where available, TikTok enables advertisers to target up to 1500 location selections at a time, per ad group.<br>• Zip code targeting can be used in instances where an advertiser needs to target a more granular location than DMA or city. For example, if an advertiser provides services to only a portion of a city.<br>• A zip code or postal code prefix might not be targetable because it's either invalid, has not been made available due to ad policy requirements, or has not launched in those areas.<br>• TikTok does not support zip code + 4 targeting. If an advertiser tries to upload zip + 4, they will receive an error message.<br>• Targeting ad campaigns to small geographic areas or sets of zip codes can significantly reduce the number of impressions and clicks delivered, and may result in a higher CPA.<br>• Some advertisers may be subject to the Housing, Employment, and Credit ad policy.<br>Location targeting is based on a variety of signals to serve ads to users who align with your location targeting selections. Due to the fact that signals vary, our delivery is not guaranteed and accuracy is not guaranteed in every situation.<br>**Location Targeting Options**<br>Location Type \| Example<br>City \| Salt Lake City, Utah<br>Country / Region \| United States<br><br>Source: https://ads.tiktok.com/help/article/location-targeting?lang=en |

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| |  <br>Source: https://apps.apple.com/us/app/tiktok/id835599320 |

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| |  <br>Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

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## Ad Targeting

TikTok Ads Manager supports the following targeting dimensions:

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| **Audience** | Include | Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account) |
| | Exclude | Exclude Lookalike or Custom Audiences |
| **Demographics** | Gender | Male, Female |
| | Age | 13-17, 18-24, 25-34, 35-44, 45-54, 55+ |
| | Location | Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only) |

Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en

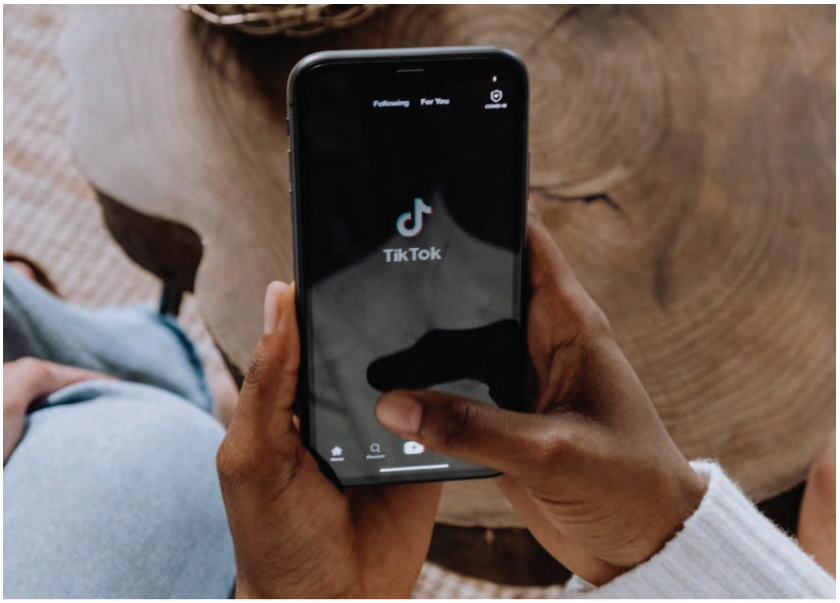
Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant.
</td></tr>
<tr><td>[7.9] further use the HTTP to upload the received new-data and the user authentication credential to the user data publishing web service over the cellular data, wherein the upload is</td><td>Defendant provides mobile client application that use the HTTP to upload the received new-data and the user authentication credential to the user data publishing web service over the cellular data, wherein the upload is based on a timer setting on the single mobile client application, and wherein the timer setting is no wait automatic or wait X minutes automatic.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.</td></tr>
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| based on a timer setting on the single mobile client application, and wherein the timer setting is no wait automatic or wait X minutes automatic; and | For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user authentication credential") associated with the user's account of TikTok app for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app. Further, the data provided by the user is uploaded automatically ("timer setting is no wait automatic") on the TikTok app's cloud.<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>**File upload**<br><br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br><br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide |

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| | **Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br><br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance |

433

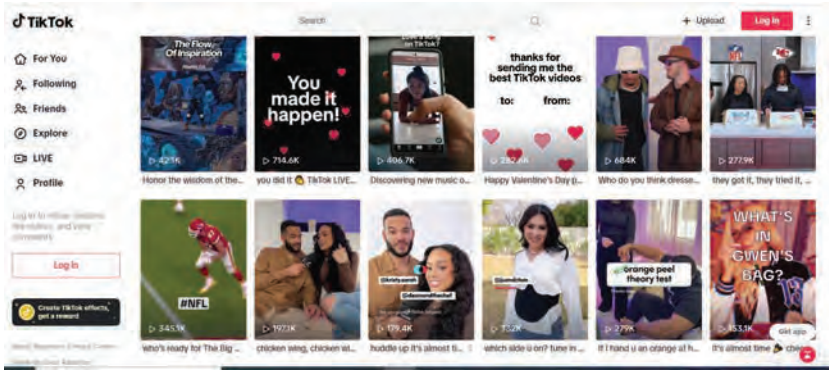
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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.10] provide a touch based graphical user interface for the received new-data. | Defendant provides a touch based graphical user interface for the received new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app installed on the mobile device comprises graphical user interface (GUI) which allows the user to access the liked and watched videos ("new-data").<br><br>  <br>Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber |

## Onboarding - It starts with a Swipe

The process of getting hooked to TikTok starts right away in the users onboarding experience. TikTok asks users to choose their interests. This information is used for personalizing each user's feed. This is a common practice for products with curated content and used by many different apps.

But TikTok's user onboarding is really smart. It encourages users to scroll through the feed and tells them that the content will become more relevant and personalized the more they use it. While this is true for many algorithms, many apps don't tell users this explicitly. By doing so, TikTok encourages users to continue using the app for a better experience

Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber



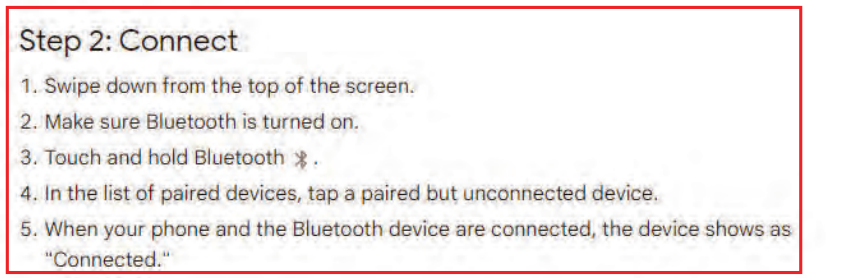

Source: https://www.tiktok.com/@tiktok

435

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [8] The short-range wireless enabled cellular phone of claim 7, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing. | Defendant provides the short-range wireless enabled cellular phone of claim 7, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device ("short-range wireless enabled cellular phone") which comprises Bluetooth ("short-range paired wireless connection"). Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>`Name: BLUETOOTH`<br><br>`Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.`<br><br>Source: https://blog.malcore.io/p/tiktok63<br><br>**Bluetooth** — Allows to to connect to paired bluetooth devices.<br><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill |

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity Bluetooth 5.0 wireless technology<br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

437

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| | **Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US<br>  <br>Step 1: Pair a Bluetooth accessory<br>**Important:** Your devices stay paired until you unpair them.<br>Option 1: Use the Settings app (all Bluetooth accessories)<br>Option 2: Use notifications (Fast Pair accessories only)<br>Step 2: Connect<br>1. Swipe down from the top of the screen.<br>2. Make sure Bluetooth is turned on.<br>3. Touch and hold Bluetooth .<br>4. In the list of paired devices, tap a paired but unconnected device.<br>5. When your phone and the Bluetooth device are connected, the device shows as "Connected."<br>Source: https://support.google.com/android/answer/9075925?hl=en |

438



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classll(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

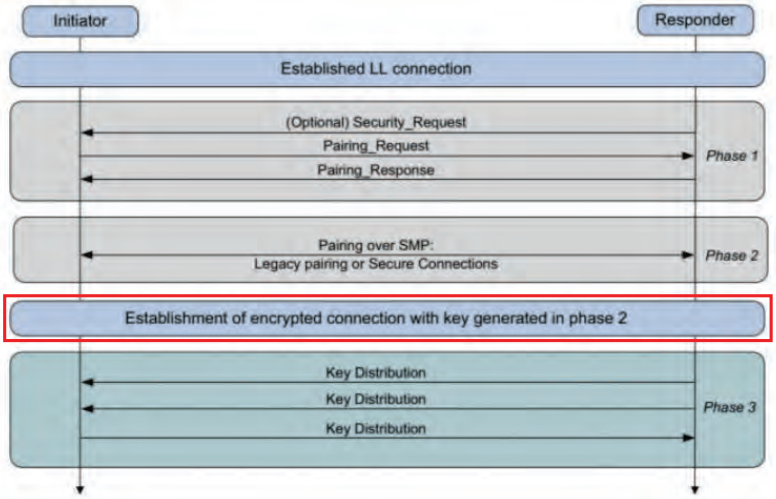
**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth

439

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| | In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>  <br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

440

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

## Use More Voice Commands on TikTok

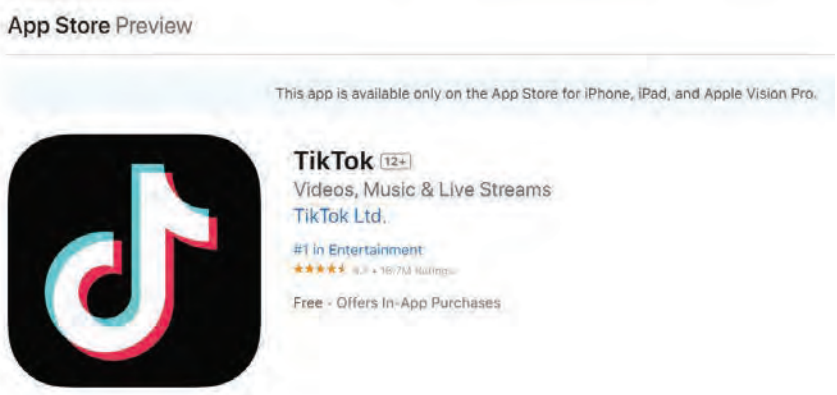
You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

441

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9] A short-range wireless enabled data capture device, comprising: | ByteDance (“Defendant”) makes, uses, sells, and/or offers to sell a short-range wireless enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

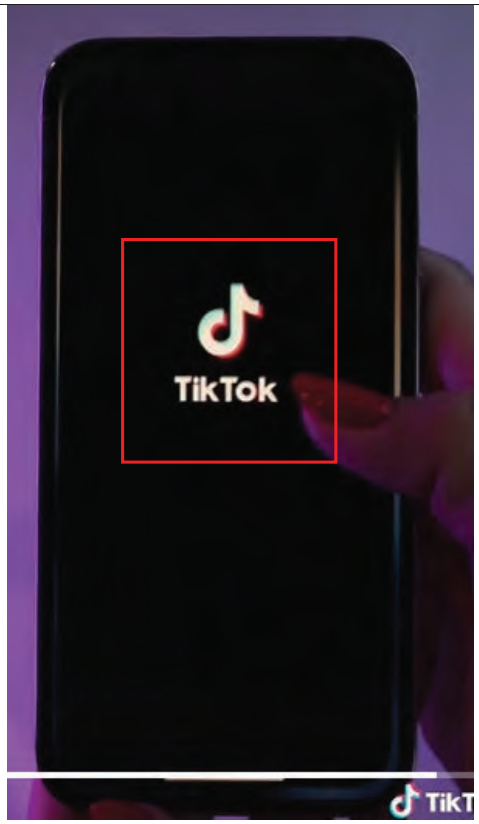
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| | For example, Defendant provides TikTok[7] app which includes the functionality of TikTok Shop that enables merchants to sell products and allows users to buy products from within the TikTok app. For example, TikTok app enables merchants to sell products including, but not limited to, Bluetooth-enabled earphones, AirPods, and Bluetooth remotes[8] ("a short-range wireless enabled data capture device") to TikTok app's users.<br><br>For example, the TikTok app is installed in a mobile device such as an iPhone or an Android phone and remotely controlled through Bluetooth devices such as Bluetooth enabled earphones, AirPods and Bluetooth remotes. The TikTok app utilizes the Bluetooth technology of the Bluetooth devices and the mobile device to perform functions such as 'scrolling'/'liking' a video based on inputs provided to the Bluetooth devices.<br><br>  <br><br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

[7] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

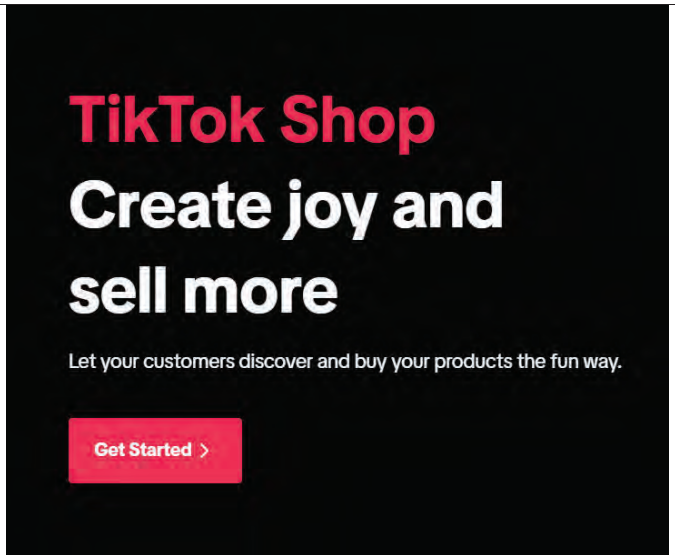
[8] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

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| |  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

445

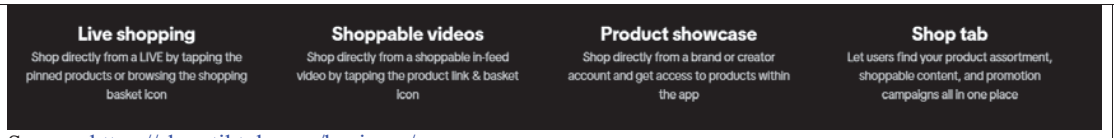


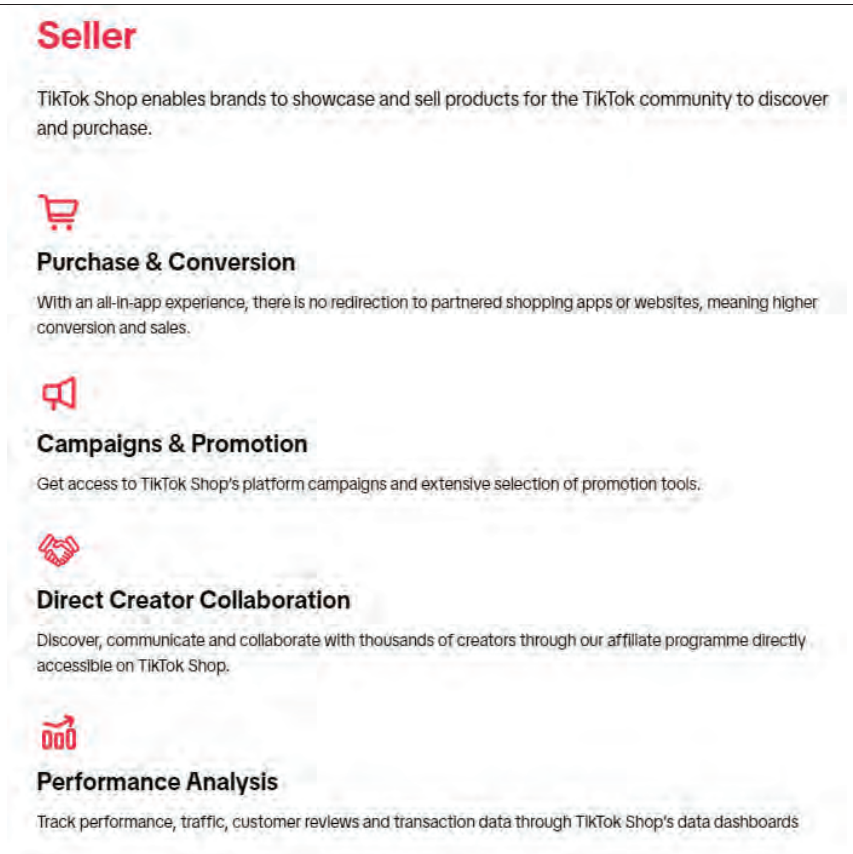

Source: https://shop.tiktok.com/business/en




Source: https://shop.tiktok.com/business/en

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| |  <br>Source: https://shop.tiktok.com/business/en |




Source: https://shop.tiktok.com/business/en

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| | **How does TikTok Commerce work?**<br><br>TikTok Commerce offers two paths for brands and sellers who want to sell their products directly on their TikTok account: Shopping Ads and TikTok Shop.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en<br><br>**About TikTok Shop**<br><br>TikTok Shop enables an E-commerce experience where creators and merchants to run an e-commerce business directly on the TikTok platform. With TikTok Seller Center and Affiliate Center, merchants can manage their e-commerce business in a marketplace model. Creators can also participate in the TikTok Affiliate Program to earn commissions from their partnered merchants.<br><br>Customers can discover products from merchants' accounts or creators' accounts via Livestream, Video content, and Showcase (shopping tab under account profile), and can enjoy seamless and native shopping experiences within TikTok App.<br><br>• See TikTok Shop and Showcase<br>• See How to Add Product Links to TikTok Videos<br><br>With TikTok Shop, TikTok offers a fully native shopping experience where product discovery, product detail pages, product management, shipping, billing, purchases, and returns are powered and performed on TikTok. TikTok Shop is available in Indonesia, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, the United States, and Vietnam.<br><br>Source: https://ads.tiktok.com/help/article/tiktok-commerce?lang=en |

449



LifeScan, Inc. Ex. 1036
Page 1718 of 2225
IPR2025-00102

## Electrical Products and Electronics

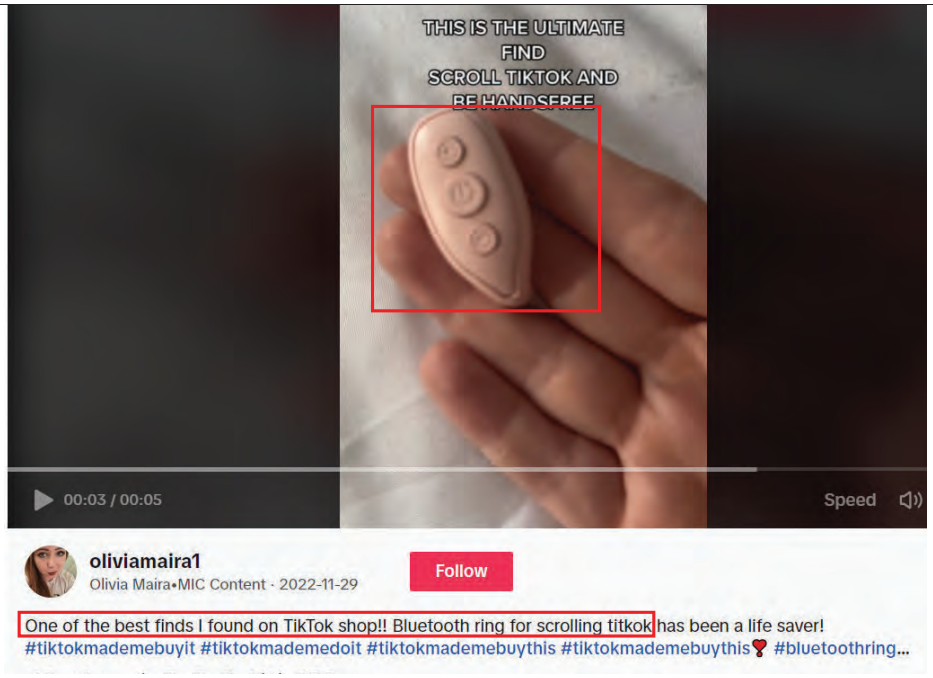
Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.

Electrical and electronic products include but are not limited to:

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy

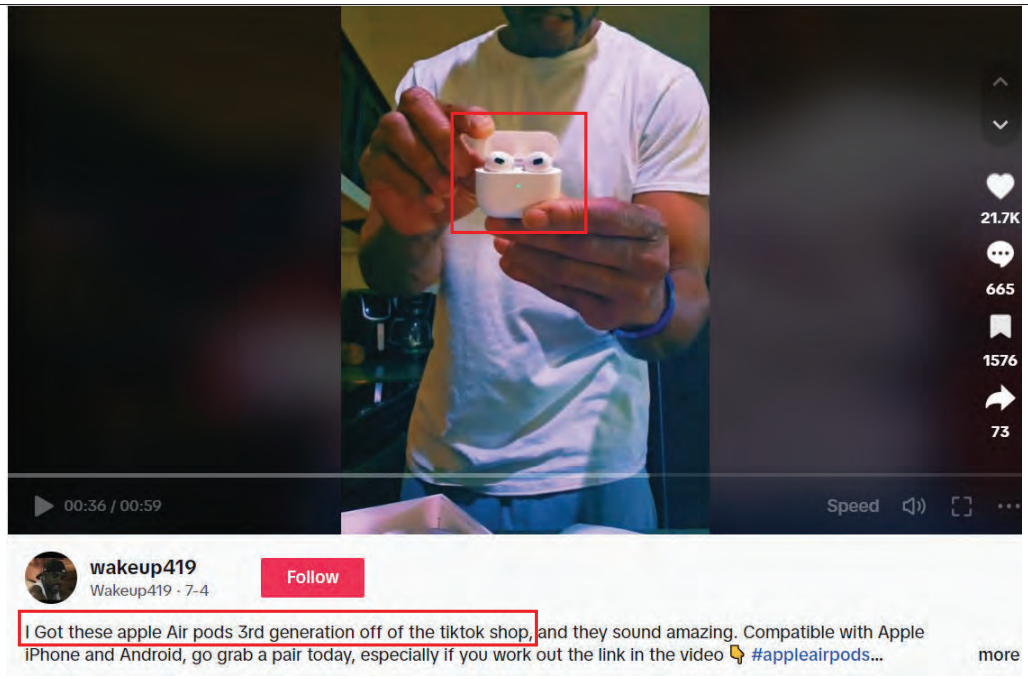
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| | | • Other electronic household and similar appliances such as:<br>◦ string lights<br>◦ mobile phone batteries<br>◦ mobile phones<br>◦ car chargers<br>◦ mobile phone wall chargers |
| Electronics - Wireless and Bluetooth Devices | • Valid US Product Electrical Safety<br>• FCC Certification ID | • All electronic products with wireless capability, such as Wi-Fi-enabled devices<br>• All electronic products with Bluetooth capability |

Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy



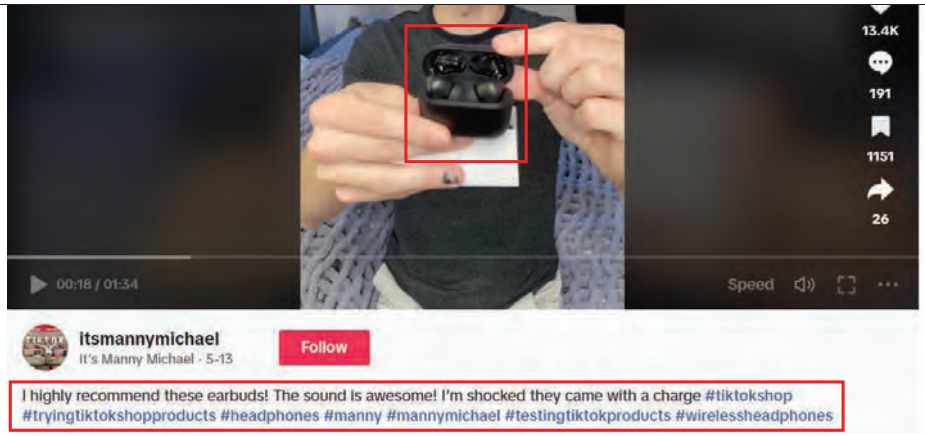

Source: https://www.tiktok.com/@oliviamaira1/video/7171162583678946566, at 0:03

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Source: https://www.tiktok.com/@wakeup419/video/7251981896937213226, at 0:36

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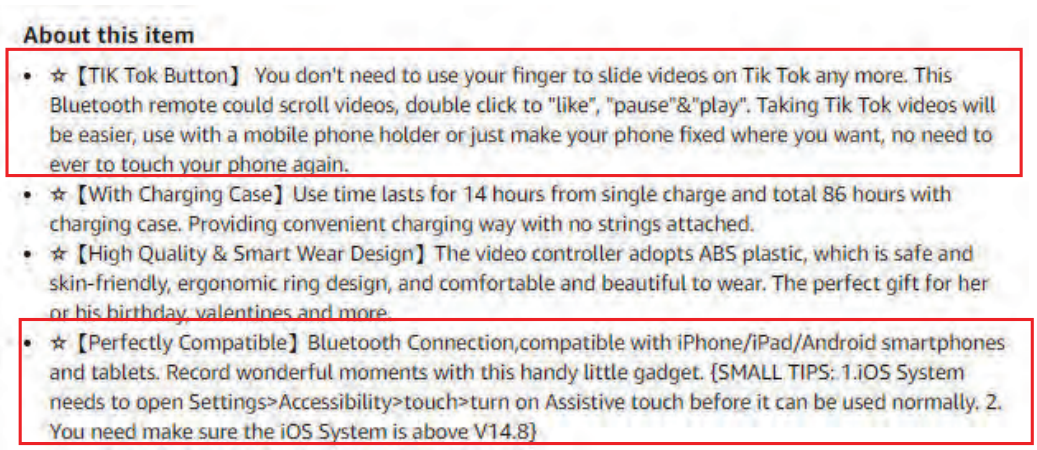

Source: https://www.tiktok.com/@itsmannymichael/video/7232432938531671342, at 0:18

## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

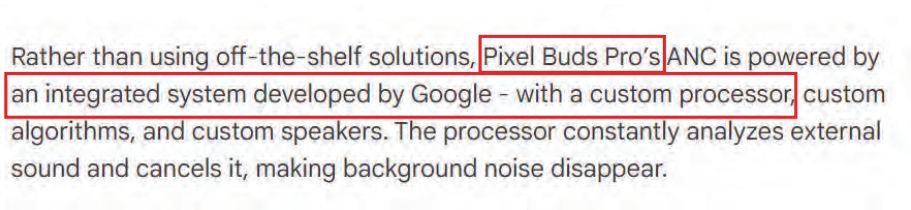
You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

453

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| | Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br><br>  <br>**About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.1] a memory device; a processor coupled to the memory device; | Defendant provides a memory device; a processor coupled to the memory device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, AirPods and Bluetooth enabled earphones that comprises a memory ("memory device") and a processor coupled to the memory. The memory is used for temporary storage of audio data locally in the Bluetooth device such as AirPods and Bluetooth enabled earphones. The processor processes the user's data and sends it for execution to the mobile device, where the TikTok app is installed. |

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| | For example, the users of the TikTok app, while operating the TikTok app on a mobile device, utilize Bluetooth devices including, but not limited to, Bluetooth remote that upon information and belief comprises a memory ("memory device") and a processor coupled to the memory. The memory is used for temporary storing the user's selection of the clicked button locally. The processor processes the user's data and sends it for execution to the mobile device, where the TikTok app is installed.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>  <br>Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471 |

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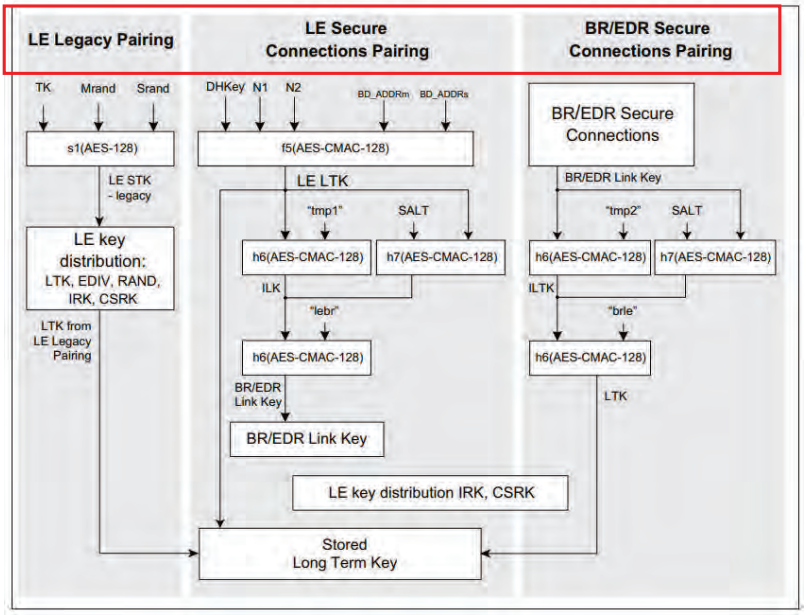
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| |  <br>Source: https://store.google.com/product/pixel_buds_pro<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.2] a short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled data capture device and a short-range wireless enabled cellular phone, wherein establishing the short-range paired wireless connection comprises the short-range wireless enabled data capture device cryptographically authenticating identity of the short-range wireless enabled cellular phone; | Defendant provides a short-range wireless communication device configured to establish a short-range paired wireless connection between the short-range wireless enabled data capture device and a short-range wireless enabled cellular phone, wherein establishing the short-range paired wireless connection comprises the short-range wireless enabled data capture device cryptographically authenticating identity of the short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app installed in the mobile device ("short-range wireless enabled cellular phone") using Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes ("short-range wireless enabled data capture device") which comprises Bluetooth ("short-range wireless communication device"). Using Bluetooth, the Bluetooth devices pairs with the mobile device. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the Bluetooth device and the mobile device are connected through an encrypted connection created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth-paired connection is established between the two devices. The authentication can be done using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB). |

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| | **Connectivity** Bluetooth 5.0 wireless technology<br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>**Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US<br><br>  <br>**SPECIFICATION**<br>• Bluetooth version:Bluetooth Ver.5.0<br>• Bluetooth name: D01<br>• Control Distance: 10 meters<br>• Transmit power: classII(- 6dBm~ + 4dBm)<br>• Battery Capacity: 200+25mAh<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1 |

457

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| | The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |

458




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

459

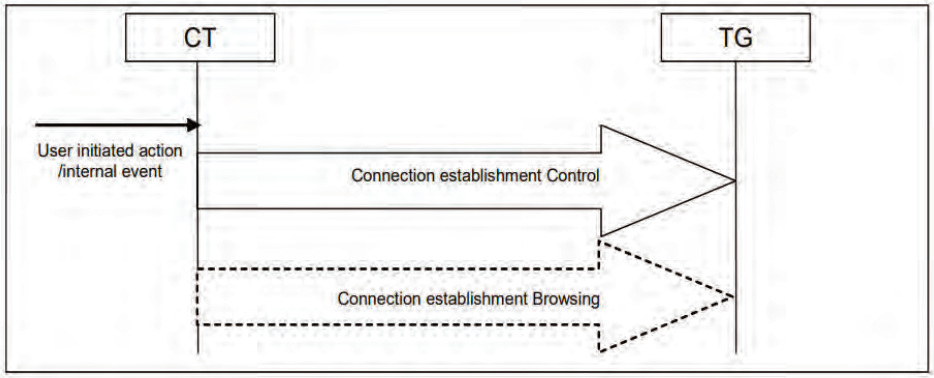



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

460

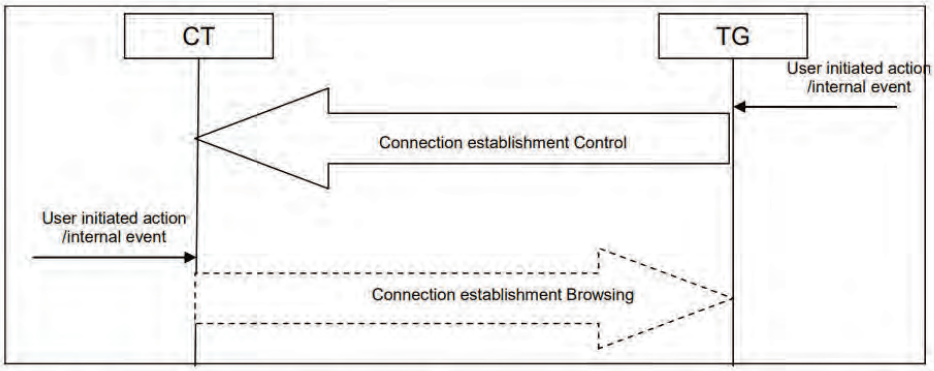



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

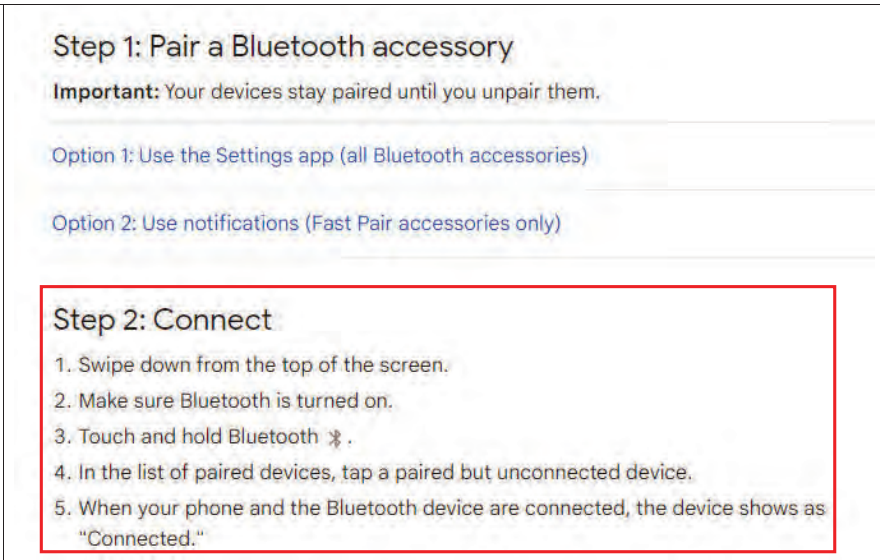
```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
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461

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| | Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>**Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web |

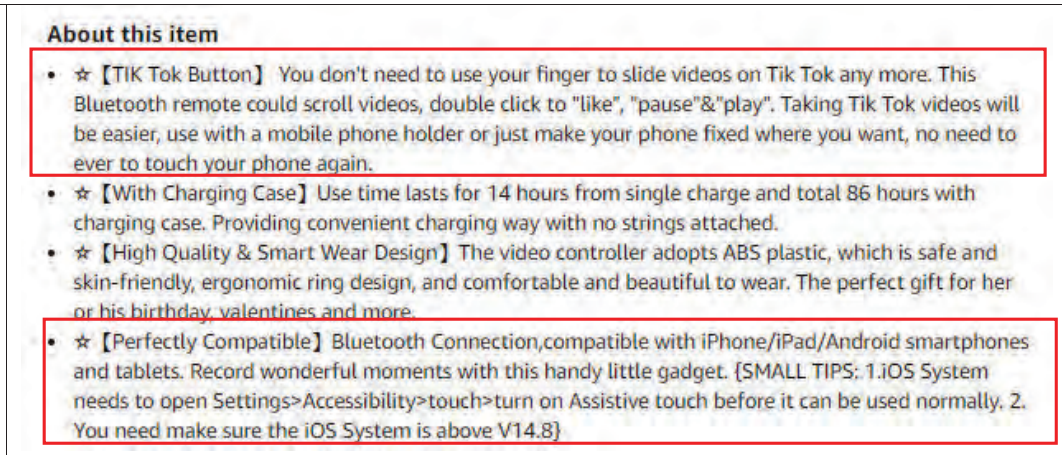
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Source: https://support.google.com/android/answer/9075925?hl=en

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| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |



**About this item**

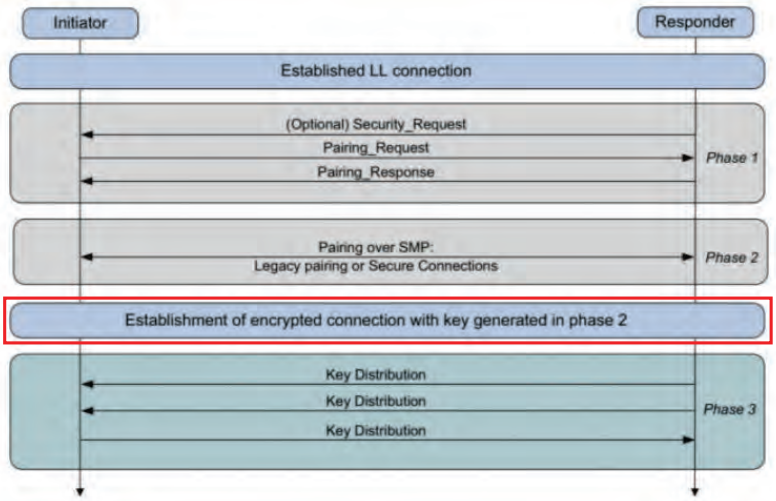
- ☆【TIK Tok Button】You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.

Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.

Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

467

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| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

468

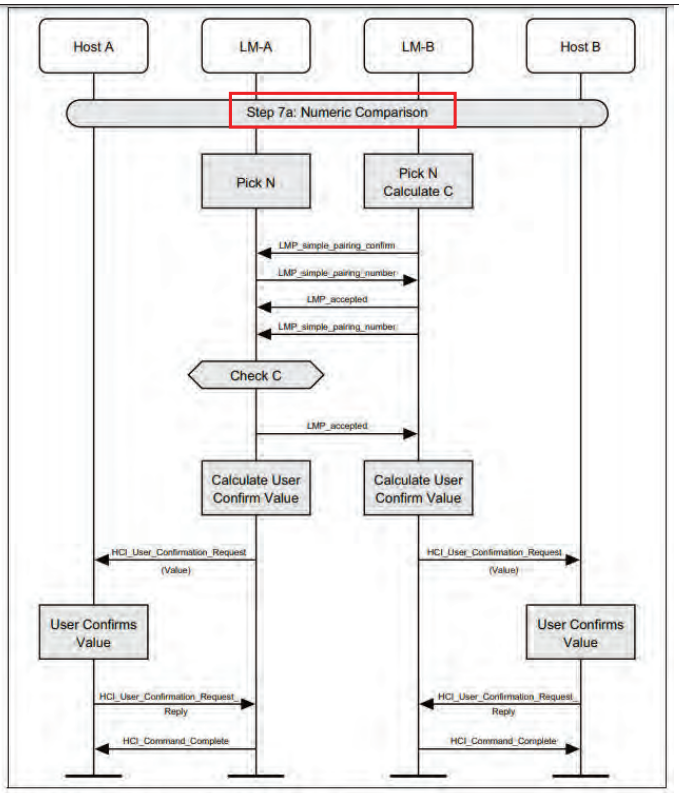



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

469

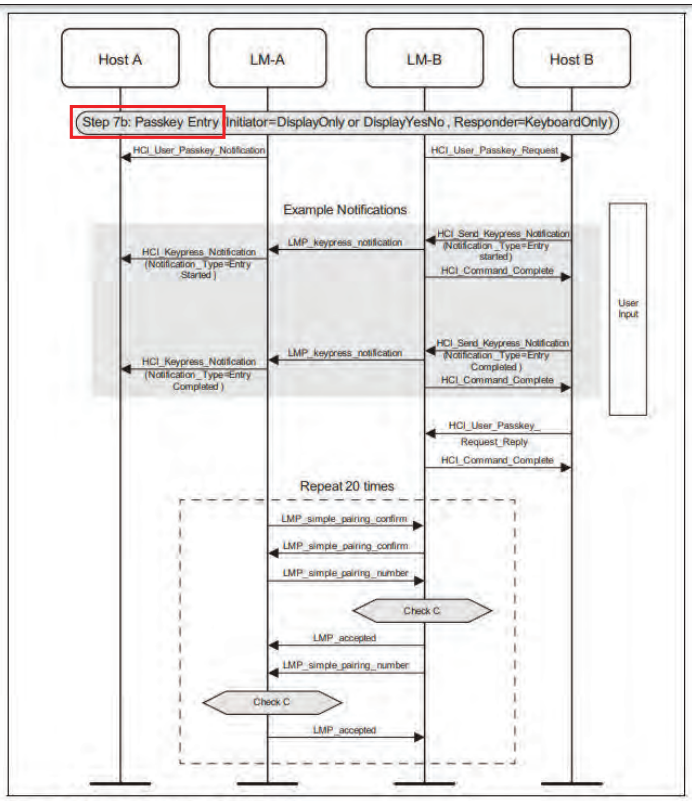



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

470

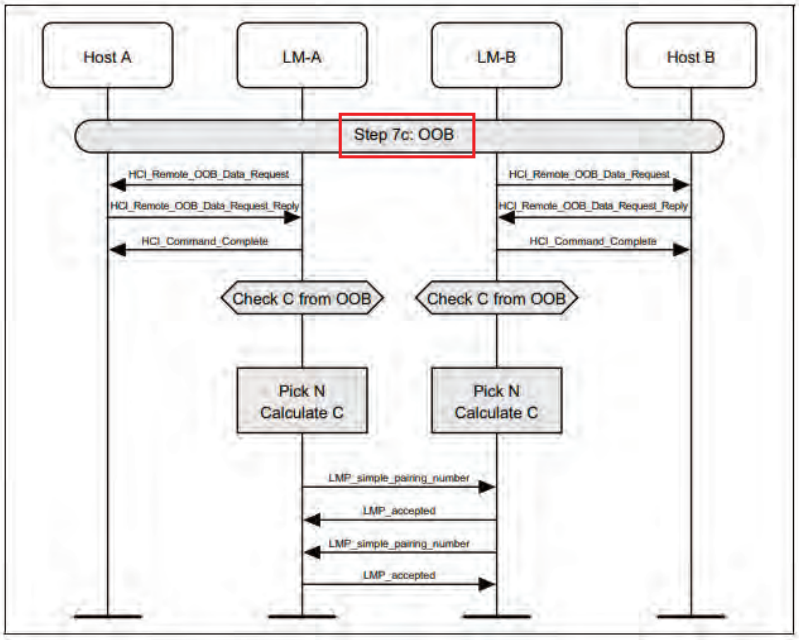
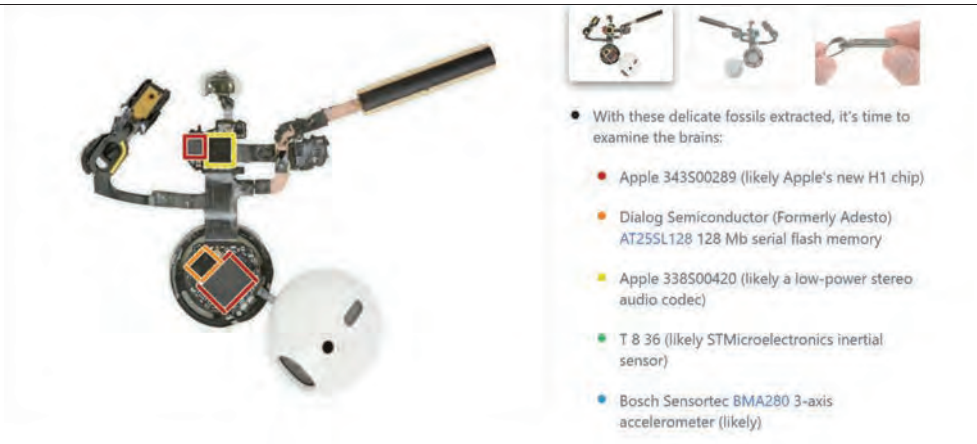



*Figure 4.20: OOB authentication (P-192)*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

471

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| | **Encryption Key Size Control Enhancements**<br>New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.<br>Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.<br>Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.3] a data capture circuitry; | Defendant provides a data capture circuitry.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as AirPods and Bluetooth-enabled earphones. The Bluetooth devices comprises microphone, sensors, chips, and controls among other components ("data capture circuitry") to capture user's audio commands.<br><br>For example, the user of the TikTok app remotely controls the TikTok app on the mobile device using Bluetooth devices such as Bluetooth remote. The Bluetooth remote comprises buttons and sensors ("data capture circuitry") to capture the user's selection of the clicked button. |




Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471

473

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| | **Audio Technology**<br>▪ Custom high-excursion Apple driver<br>▪ Custom high dynamic range amplifier<br>▪ Active Noise Cancellation<br>▪ Adaptive Transparency<br>▪ Vent system for pressure equalization<br>▪ Personalized Spatial Audio with dynamic head tracking[1]<br>▪ Adaptive EQ<br>**Sensors**<br>▪ Dual beamforming microphones<br>▪ Inward-facing microphone<br>▪ Skin-detect sensor<br>▪ Motion-detecting accelerometer<br>▪ Speech-detecting accelerometer<br>▪ Touch control<br>**Chip**<br>▪ Apple H2 headphone chip<br>▪ Apple U1 chip in MagSafe Charging Case<br>**Controls**<br>▪ Press once to play, pause, or answer a phone call<br>▪ Press twice to skip forward<br>▪ Press three times to skip back<br>▪ Press and hold to switch between Active Noise Cancellation and Adaptive Transparency<br>▪ Swipe up or down to adjust volume<br>▪ Say "Hey Siri" to do things like play a song, make a call, or get directions<br>Source: https://support.apple.com/kb/SP880?locale=en_US |

474

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| | **Set Microphone to left, right, or automatic**<br>There's a microphone in each AirPod, so you can make phone calls and use Siri. By default, Microphone is set to Automatic, so that either of your AirPods can act as the microphone. If you're using only one AirPod, that AirPod will be the microphone.<br>You can also set Microphone to Always Left or Always Right. You can also set Microphone to Always Left or Always Right to always have either the right or the left AirPod use the microphone even if you remove it from your ear or put it in the case.<br>Source: https://support.apple.com/en-us/HT207009<br>**Connectivity**<br>Each earbud: Bluetooth 5.0<br>**Audio**<br>Each earbud: Custom-designed 11 mm dynamic speaker driver · · Acti...<br>**Voice**<br>Each earbud: · · Three microphones · · Bluetooth Super Wideband · ...<br>**Sensors**<br>Each earbud: Capacitive touch (tap and swipe) sensors for music, call...<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US |

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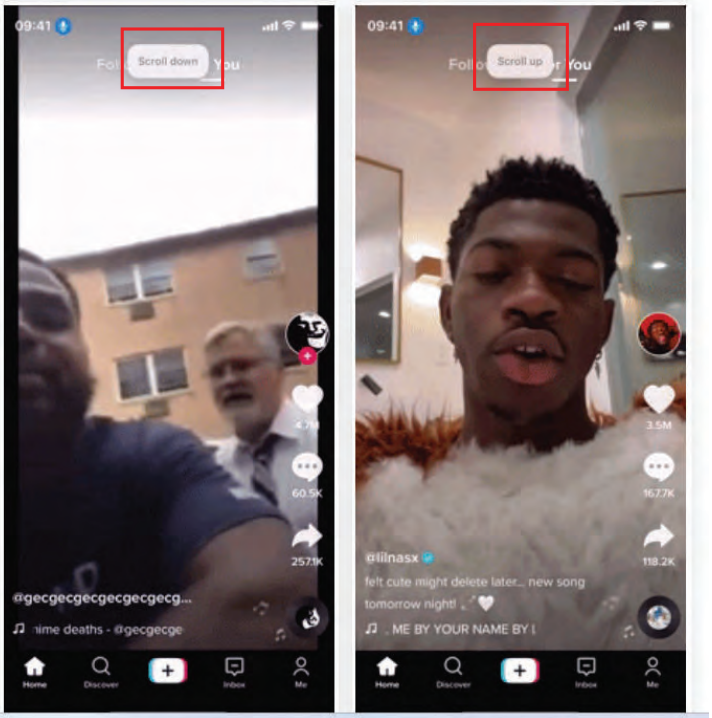
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.4] said processor configured to acquire new-data in the short-range wireless enabled | Defendant provides a processor configured to acquire new-data in the short-range wireless enabled data capture device using the data capture circuitry, wherein the new-data is data acquired after establishing the short-range paired wireless connection between the short-range wireless enabled data capture device and the short-range wireless enabled cellular phone; |

476

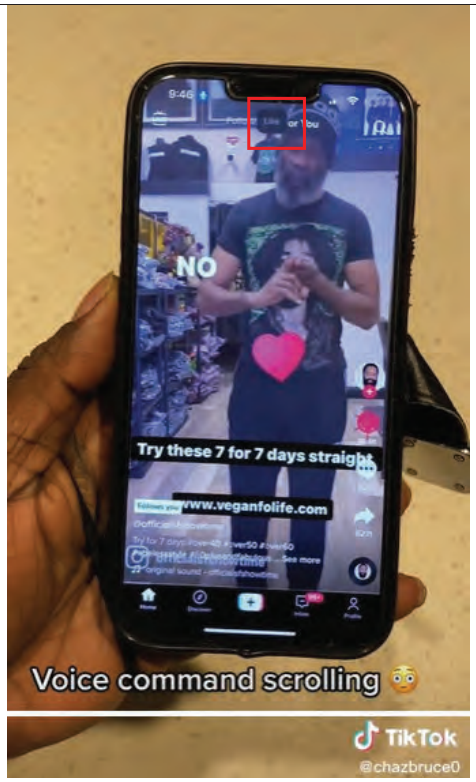
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| data capture device using the data capture circuitry, wherein the new-data is data acquired after establishing the short-range paired wireless connection between the short-range wireless enabled data capture device and the short-range wireless enabled cellular phone; | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth device captures the user's command ("new-data") using its data capture circuitry, processes it and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is processed and transferred to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down", the Bluetooth devices such as AirPods or earphones capture the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button, the Bluetooth remote captures the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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| | Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br><br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br><br>  <br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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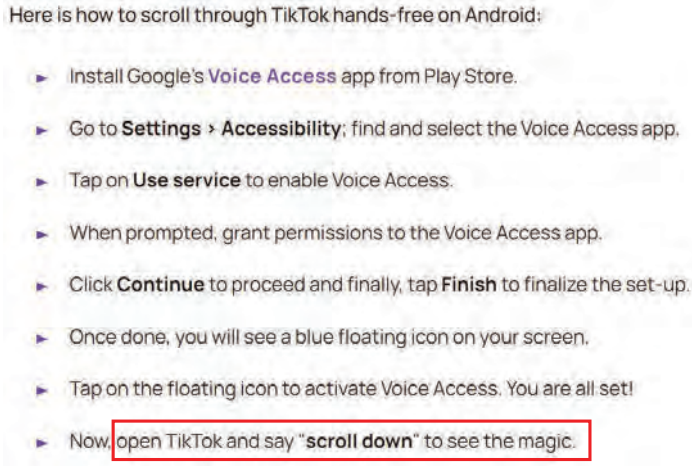



Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

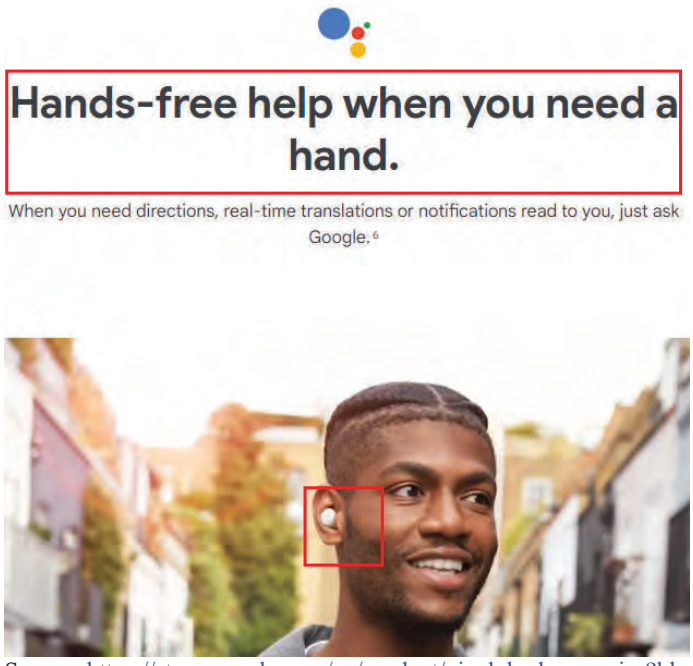
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

481

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| |  <br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>  <br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| | • **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

483




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

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Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
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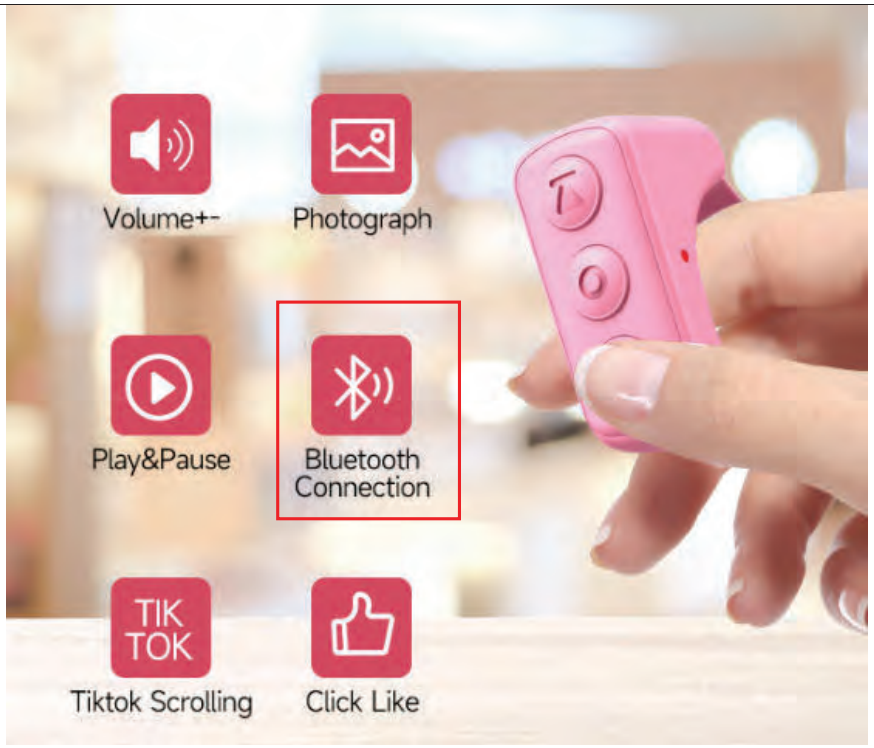
Source: https://blog.malcore.io/p/tiktok63

484

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

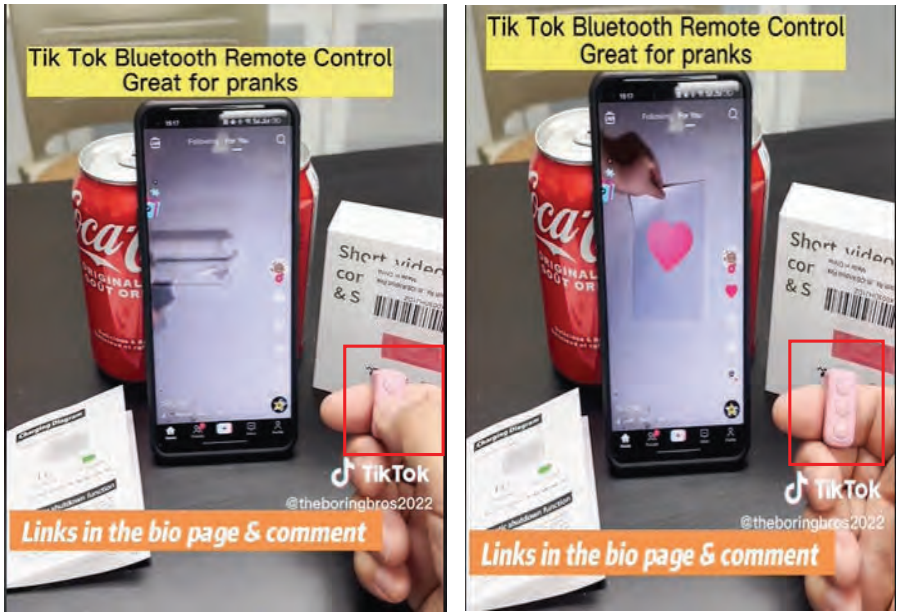
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

488



LifeScan, Inc. Ex. 1036
Page 1757 of 2225
IPR2025-00102

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.5] said processor further configured to store the new-data in the memory device of the short-range wireless | Defendant provides a processor further configured to store the new-data in the memory device of the short-range wireless enabled data capture device.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

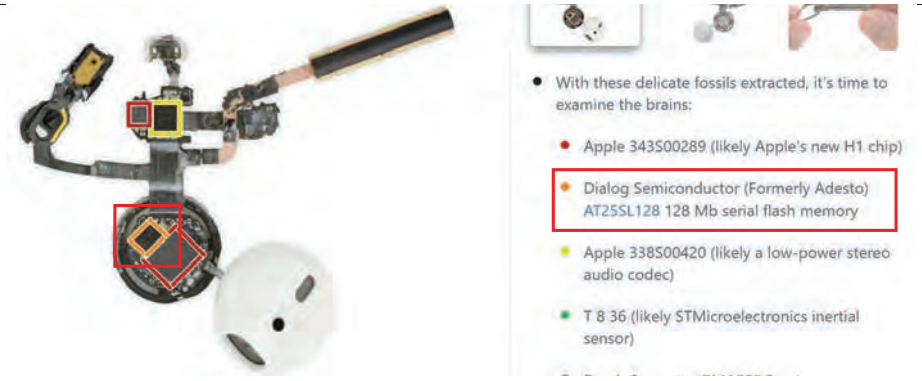
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| enabled data capture device; | For example, after a Bluetooth connection is established between the mobile device and the Bluetooth device, the Bluetooth device captures the user's command ("new-data"), processes it, temporarily stores it before buffering and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user, temporarily stores the audio data locally, processes, and transfers the command to the mobile device on which the TikTok app is installed. Similarly, the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote, upon information and belief, temporarily stores the user's selection of the clicked button locally prior to buffering and transfer the command to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the audio command is stored, at least temporally, processed and sent for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, upon information and belief, the user's selection is stored locally prior to buffering, processed and sent for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>**Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

490



LifeScan, Inc. Ex. 1036
Page 1759 of 2225
IPR2025-00102




Source: https://www.ifixit.com/Teardown/AirPods+2+Teardown/121471

Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.

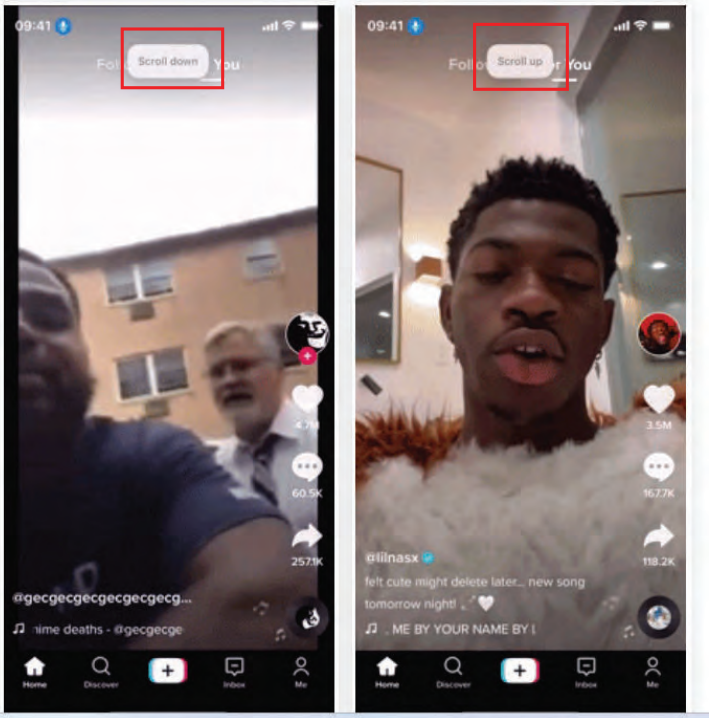
Source: https://store.google.com/product/pixel_buds_pro

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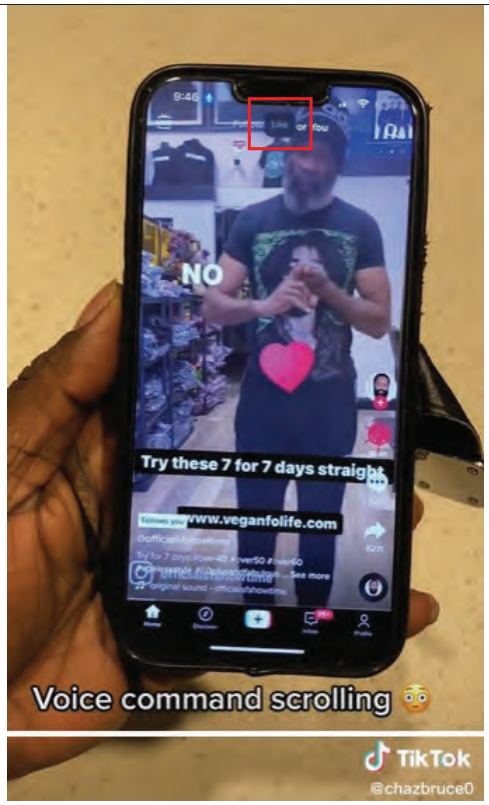
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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

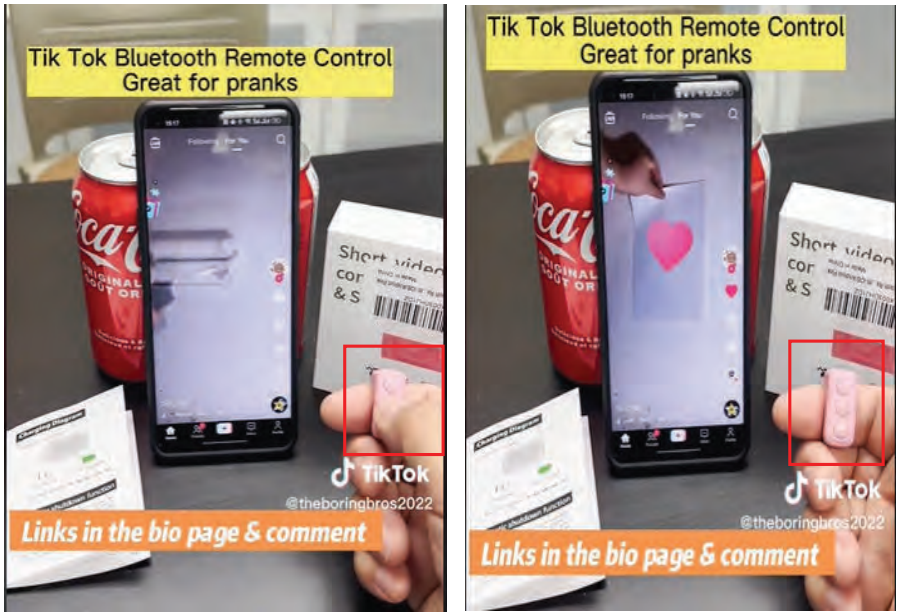
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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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|---|---|
| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.6] said processor further configured to listen to a polling request from a single mobile client application on the short-range wireless | Defendant provides a processor further configured to listen to a polling request from a single mobile client application on the short-range wireless enabled cellular phone, over the established paired short-range wireless connection, wherein the polling request is for the new-data, wherein the single mobile client application on the short-range wireless enabled cellular phone is configured to detect the new-data for transfer from the short-range wireless enabled data capture device to the paired and the cryptographically authenticated short-range wireless enabled cellular phone. |

499

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| enabled cellular phone, over the established paired short-range wireless connection, wherein the polling request is for the new-data, wherein the single mobile client application on the short-range wireless enabled cellular phone is configured to detect the new-data for transfer from the short-range wireless enabled data capture device to the paired and the cryptographically authenticated short-range wireless enabled cellular phone, | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device ("short-range wireless enabled data capture device"), the Bluetooth devices ("Bluetooth enabled data capture device") capture the user's command and send the command to the mobile device through the Bluetooth connection. As is inherent to how the Bluetooth Low Energy (BLE) works, POLL packets are sent to the Bluetooth device, requesting to transmit a response message including either the new acquired data or a NULL packet when there is no new acquired data by the Bluetooth device. Further, the Bluetooth device captures the user's command ("new-data"), processes it and sends the commands meant for the TikTok app in the mobile device in response to the POLL packet. Upon information and belief, the TikTok app accesses the mobile device's Bluetooth capability to send the POLL requests to the Bluetooth device.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command ("new data") provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further the TikTok app installed on the mobile device sends a request to the Bluetooth device (audio command and information corresponding to the button pressed) to check if the data is acquired and available for transfer, so that, the TikTok app performs the functionality corresponding to the command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is processed and transferred to the mobile device on which the TikTok app is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down", the Bluetooth devices such as AirPods or earphones capture the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button, the Bluetooth remote captures the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video. |

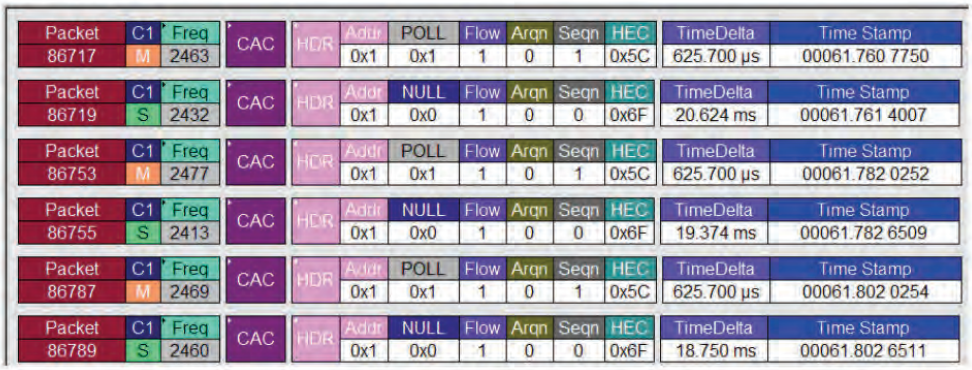
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| | LE employs two multiple access schemes: Frequency division multiple access (FDMA) and time division multiple access (TDMA). Forty (40) physical channels, separated by 2 MHz, are used in the FDMA scheme. Three (3) are used as primary advertising channels and 37 are used as secondary advertising channels and as data channels. A TDMA based polling scheme is<br>General Description 06 December 2016<br>Bluetooth SIG Proprietary<br>BLUETOOTH SPECIFICATION Version 5.0 \| Vol 1, Part A page 170<br>*Architecture*<br>used in which one device transmits a packet at a predetermined time and a corresponding device responds with a packet after a predetermined interval.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 412 |

501

*Figure 1: Slot time and uncertainty window*

Each time the slave device receives a packet from the master, it will update its local timing data using the actual packet arrival time. This allows the slave to begin looking for the next transmission at the received packet arrival time plus 1240 µs (two slot times minus the 10 µs, i.e. one half of the uncertainty window). The implication is that the slave must receive periodic transmissions in order to keep in sync with the master. If the transmissions are spread further apart, the slave must widen its uncertainty window, or it may never be able to re-sync with the master, causing a link loss due to link supervision timeout. When two connected devices are unable to exchange packets for an agreed-up period of time, the link supervision timeout value, the connection is automatically terminated.

Consider an example from two real devices. The trace snapshot in Figure 2 below illustrates the link maintenance packet exchanges using POLL and NULL packets. Since neither packet carries payload data they are very small, which reduces power consumption. The master device sends a POLL (slaves are not permitted to send POLL packets). A POLL packet requires the slave to respond even if it has no data to transmit at the time. If the link is not currently carrying LMP or higher protocol data, the slave will respond with a NULL packet.



| Packet | C1 | Freq | CAC | HDR | Addr | | Flow | Arqn | Seqn | HEC | TimeDelta | Time Stamp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 86717 | M | 2463 | | | 0x1 | POLL | 1 | 0 | 1 | 0x5C | 625.700 µs | 00061.760 7750 |
| 86719 | S | 2432 | | | 0x1 | NULL | 1 | 0 | 0 | 0x6F | 20.624 ms | 00061.761 4007 |
| 86753 | M | 2477 | | | 0x1 | POLL | 1 | 0 | 1 | 0x5C | 625.700 µs | 00061.782 0252 |
| 86755 | S | 2413 | | | 0x1 | NULL | 1 | 0 | 0 | 0x6F | 19.374 ms | 00061.782 6509 |
| 86787 | M | 2469 | | | 0x1 | POLL | 1 | 0 | 1 | 0x5C | 625.700 µs | 00061.802 0254 |
| 86789 | S | 2460 | | | 0x1 | NULL | 1 | 0 | 0 | 0x6F | 18.750 ms | 00061.802 6511 |

*Figure 2: POLL and NULL packets in sniffer trace window*

Source: https://www.bluetooth.com/wp-content/uploads/2019/03/Sniff-and-Sniff-Sub-rating-Modes_WP_V10.pdf, Page 8.

502

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| | ***6.5.1.3 POLL Packet***<br>The POLL packet is very similar to the NULL packet. It does not have a payload. In contrast to the NULL packet, it requires a confirmation from the recipient. It is not a part of the ARQ scheme. The POLL packet does not affect the ARQN and SEQN fields. Upon reception of a POLL packet the slave shall respond with a packet even when the slave does not have any information to send unless the slave has scatternet commitments in that timeslot. This return packet is an implicit acknowledgment of the POLL packet. This packet can be used by the master in a piconet to poll the slaves. Slaves shall not transmit the POLL packet. POLL packets shall not be sent on a Connectionless Slave Broadcast logical transport.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 412<br><br>***4.5.1.5 Default Packet Types***<br>On the ACL links, the default type is always **NULL** both for the master and the slave. This means that if no user information needs to be sent, either a **NULL** packet is sent if there is **ACK** or **STOP** information, or no packet is sent at all. The **NULL** packet can be used by the master to allocate the next slave-to-master slot to a certain slave (namely the one addressed). However, the slave is not forced to respond to the **NULL** packet from the master. If the master requires a response, it sends a **POLL** packet.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 394. |

503

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| | If the slave's response is received, the master shall change to using the master parameters, so it shall use the channel access code and the master clock. The lower clock bits $CLK_0$ and $CLK_1$ shall be reset to zero at the start of the **FHS** packet transmission and are not included in the **FHS** packet. Finally, the master enters the **CONNECTION** state in step 5. The master BD_ADDR shall be used to change to a new hopping sequence, the *basic channel hopping sequence*. The basic channel hopping sequence uses all 79 hop channels in a pseudo-random fashion, see also Section 2.6.4.7. The master shall now send its first traffic packet in a hop determined with the new (master) parameters. This first packet shall be a POLL packet. See Section 8.5. This packet shall be sent within *newconnectionTO* number of slots after reception of the FHS packet acknowledgment. The slave may respond with any type of packet. If the POLL packet is not received by the slave or the POLL packet response is not received by the master within *newconnectionTO* number of slots, the master and the slave shall return to **page** and **page scan** substates, respectively.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 454. |

504

The Bluetooth device transmits a constant bit pattern. This pattern is transmitted periodically with packets aligned to the slave TX timing of the piconet formed by tester and DUT. The same test packet is repeated for each transmission.

The transmitter test is started when the master sends the first POLL packet. In non-hopping mode the agreed frequency is used for this POLL packet.

The tester (master) transmits control or POLL packets in the master-to-slave transmission slots. The DUT (slave) shall transmit packets in the following slave-to-master transmission slot. The tester's polling interval is fixed and defined by the LMP_test_control PDU. The device under test may transmit its burst according to the normal timing even if no packet from the tester was received. In this case, the ARQN bit is shall be set to NAK.

The burst length may exceed the length of a one slot packet. In this case the tester may take the next free master TX slot for polling. The timing is illustrated in Figure 1.2.

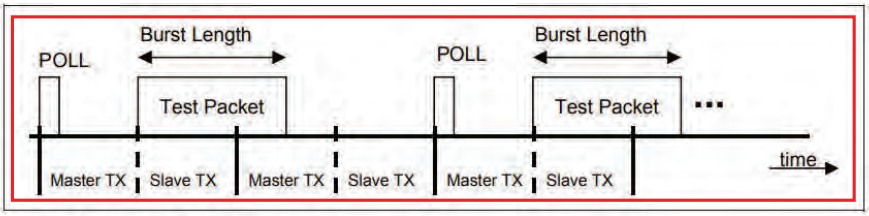
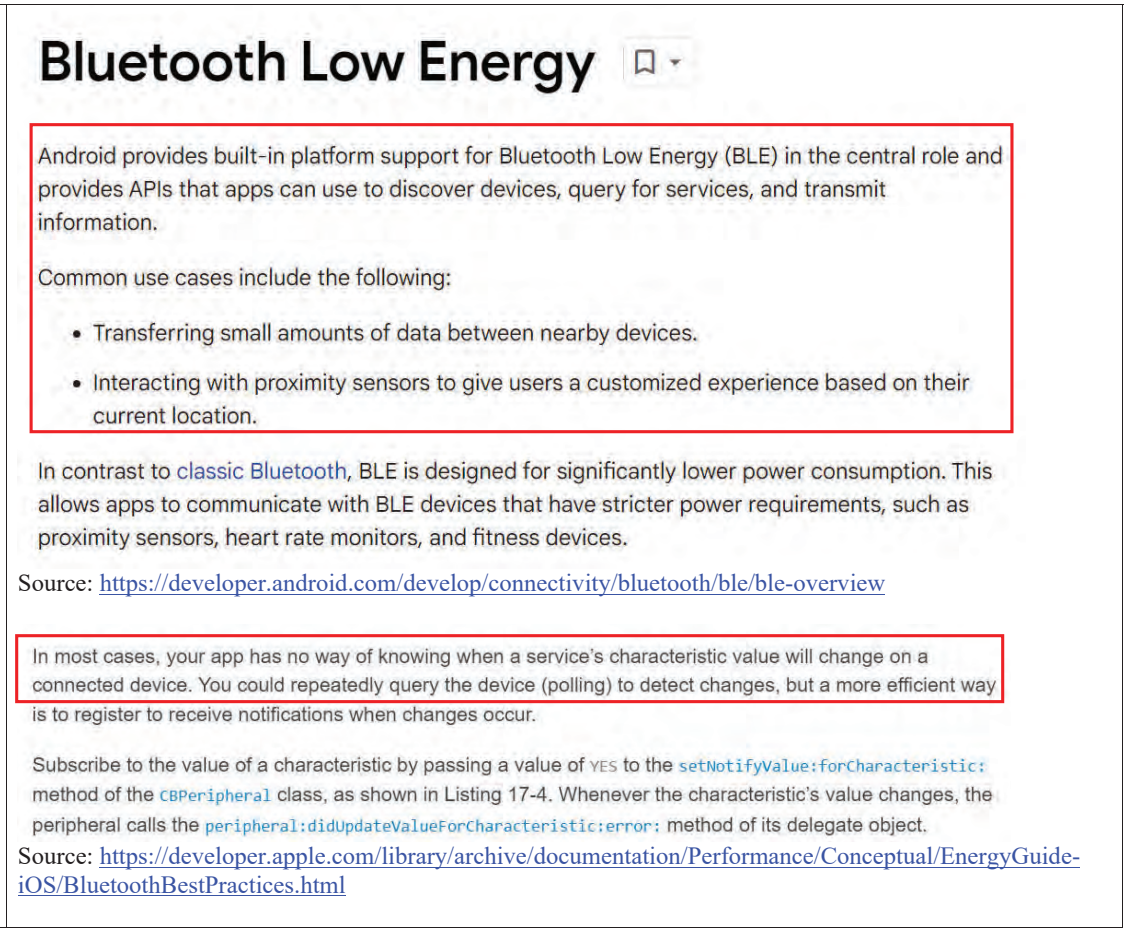



*Figure 1.2: Timing for Transmitter Test*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2116.

505



# Bluetooth Low Energy

Android provides built-in platform support for Bluetooth Low Energy (BLE) in the central role and provides APIs that apps can use to discover devices, query for services, and transmit information.

Common use cases include the following:

- Transferring small amounts of data between nearby devices.
- Interacting with proximity sensors to give users a customized experience based on their current location.

In contrast to classic Bluetooth, BLE is designed for significantly lower power consumption. This allows apps to communicate with BLE devices that have stricter power requirements, such as proximity sensors, heart rate monitors, and fitness devices.

Source: https://developer.android.com/develop/connectivity/bluetooth/ble/ble-overview

In most cases, your app has no way of knowing when a service's characteristic value will change on a connected device. You could repeatedly query the device (polling) to detect changes, but a more efficient way is to register to receive notifications when changes occur.

Subscribe to the value of a characteristic by passing a value of `YES` to the `setNotifyValue:forCharacteristic:` method of the `CBPeripheral` class, as shown in Listing 17-4. Whenever the characteristic's value changes, the peripheral calls the `peripheral:didUpdateValueForCharacteristic:error:` method of its delegate object.

Source: https://developer.apple.com/library/archive/documentation/Performance/Conceptual/EnergyGuide-iOS/BluetoothBestPractices.html

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

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| **Chip** | H1 headphone chip |

Source: https://www.apple.com/airpods-2nd-generation/specs/

Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.

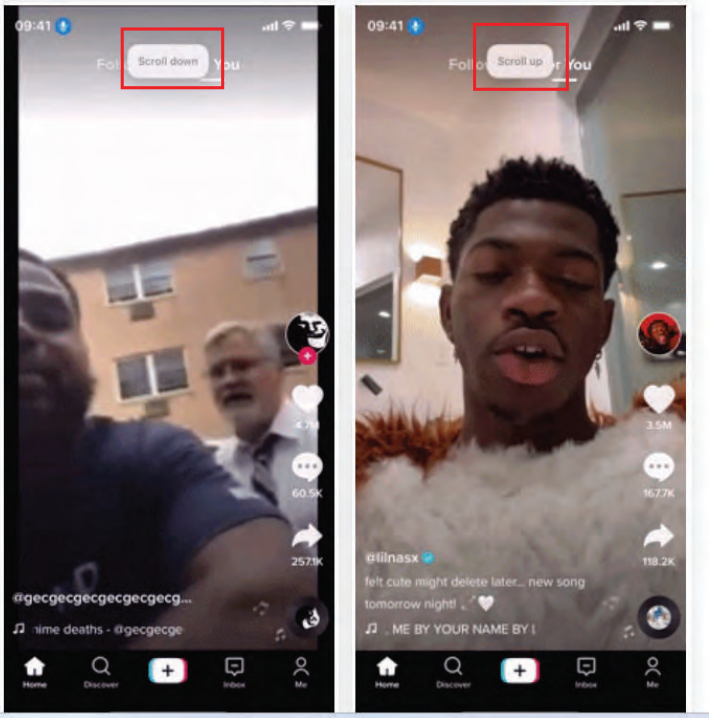
507

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| | Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

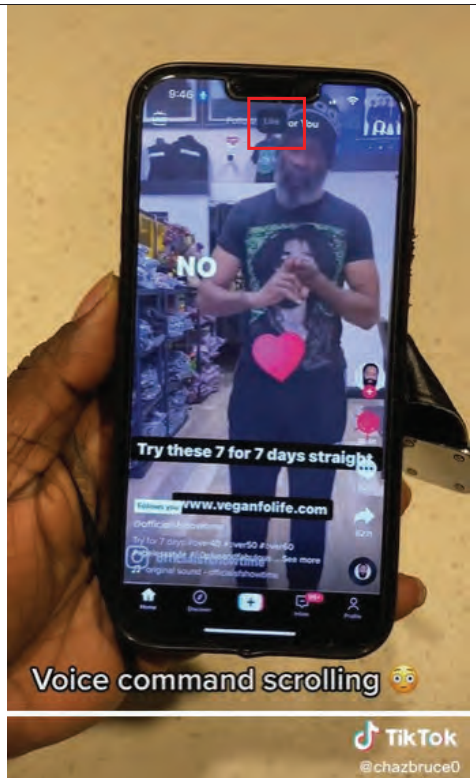
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| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

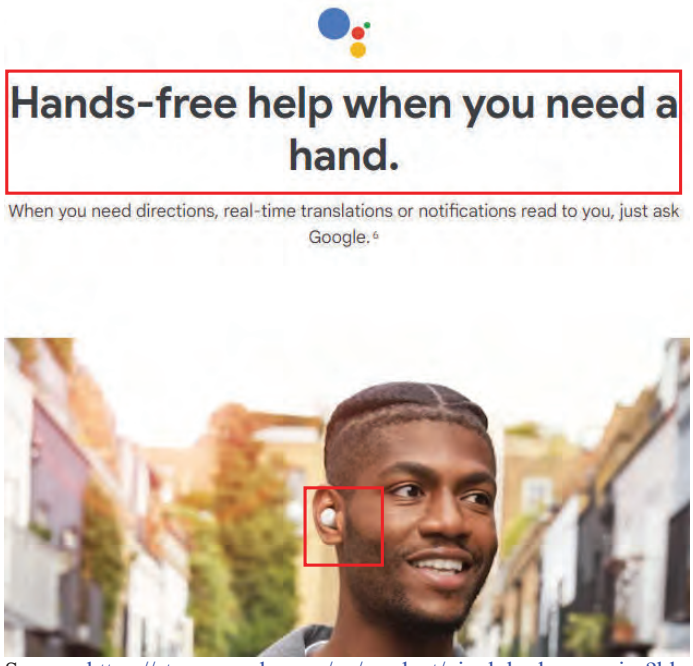
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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

511

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

512




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

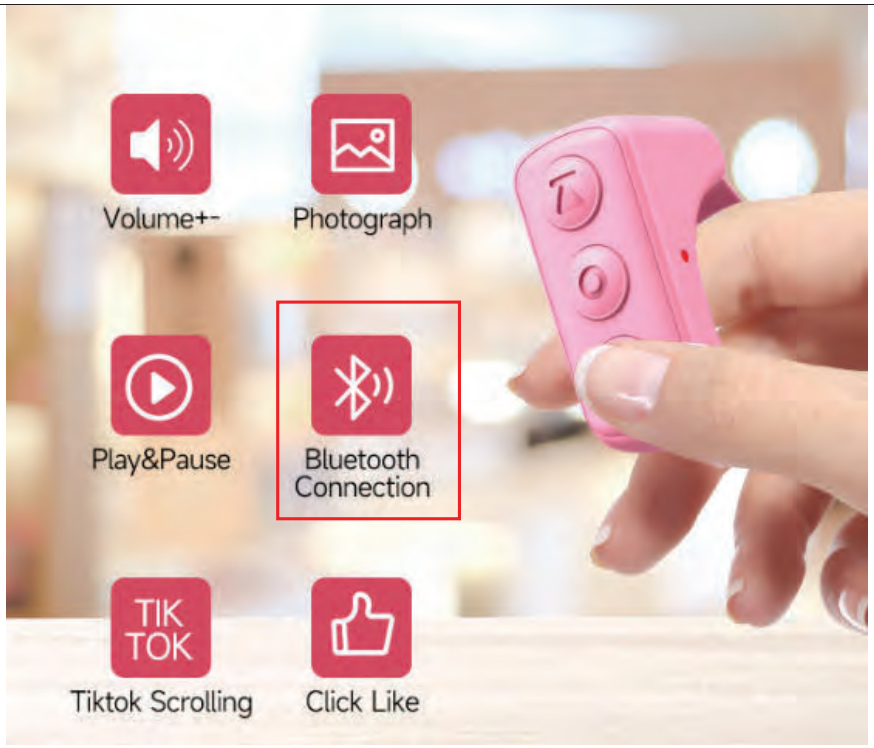
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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

514

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

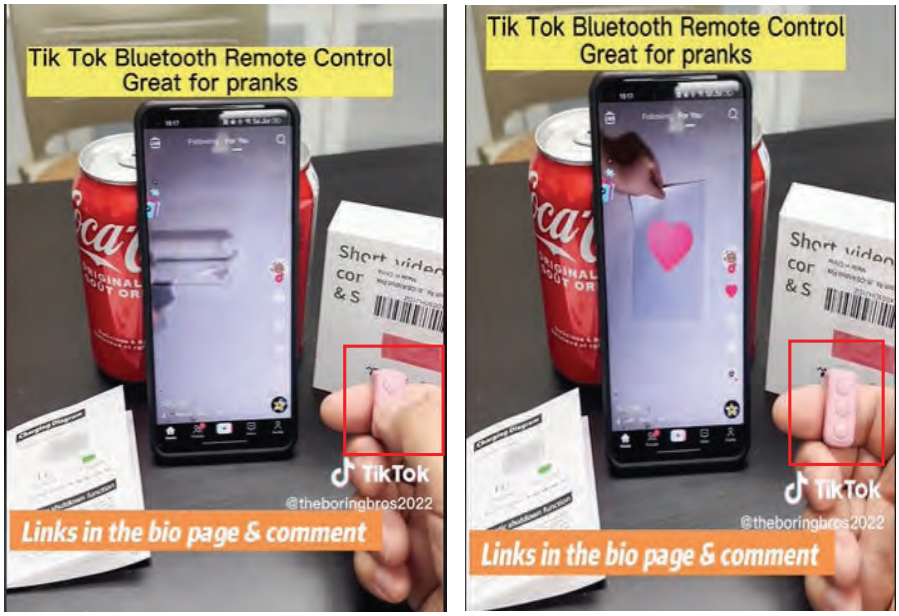
515

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|---|---|
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516

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

517

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.7] wherein detecting the new-data for transfer comprises: polling the short-range wireless enabled data capture device by the short-range | Defendant provides a processor configured to listen to a polling request wherein detecting the new-data for transfer comprises: polling the short-range wireless enabled data capture device by the short-range wireless enabled cellular phone, using the single mobile client application on the short-range wireless enabled cellular phone, over the established paired short-range wireless connection.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| wireless enabled cellular phone, using the single mobile client application on the short-range wireless enabled cellular phone, over the established paired short-range wireless connection; | For example, the TikTok app utilize the Bluetooth functionality of the mobile device to receive user's commands captured by the Bluetooth device. As is inherent to how the BLE works, the mobile device sends POLL packets at a regular interval to the Bluetooth device. The Bluetooth device sends a response message including either the data captured by the Bluetooth device or a NULL packet when there is no new captured data. The Bluetooth device captures the user's command ("new-data") using its data capture circuitry, and processes it. Further, when a POLL packet is received by the Bluetooth device, the Bluetooth device sends the captured user's command in response to the POLL packet.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further, the captured data (audio command and information corresponding to button press) is processed and transferred to the mobile device on which the TikTok app ("single mobile client application") is installed.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down", the Bluetooth devices such as AirPods or earphones capture the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to 'like' or 'scroll down' to the subsequent video. Similarly, when the user provides a command by double clicking the designated button, the Bluetooth remote captures the user's data and sends it for execution to the mobile device, where the TikTok app is installed in order to like or scroll the subsequent video.<br><br>Connectionless Slave Broadcast packets are transmitted at each scheduled Connectionless Slave Broadcast Instant. If no new data is available, the Connectionless Slave Broadcast Transmitter shall transmit a packet with the last available data in the payload.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 441 |

519

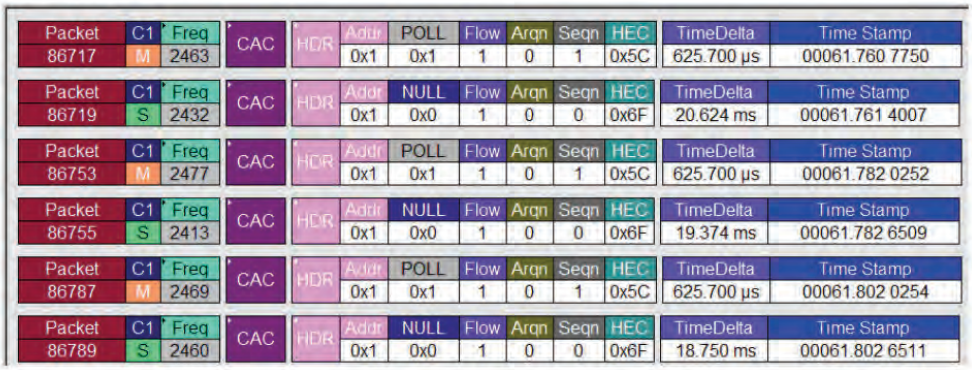
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520

*Figure 1: Slot time and uncertainty window*

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| 86787 | M | 2469 | | | 0x1 | POLL | 1 | 0 | 1 | 0x5C | 625.700 µs | 00061.802 0254 |
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*Figure 2: POLL and NULL packets in sniffer trace window*

Source: https://www.bluetooth.com/wp-content/uploads/2019/03/Sniff-and-Sniff-Sub-rating-Modes_WP_V10.pdf, Page 8.

521

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| | If the slave's response is received, the master shall change to using the master parameters, so it shall use the channel access code and the master clock. The lower clock bits $CLK_0$ and $CLK_1$ shall be reset to zero at the start of the **FHS** packet transmission and are not included in the **FHS** packet. Finally, the master enters the **CONNECTION** state in step 5. The master BD_ADDR shall be used to change to a new hopping sequence, the *basic channel hopping sequence*. The basic channel hopping sequence uses all 79 hop channels in a pseudo-random fashion, see also Section 2.6.4.7. The master shall now send its first traffic packet in a hop determined with the new (master) parameters. This first packet shall be a POLL packet. See Section 8.5. This packet shall be sent within *newconnectionTO* number of slots after reception of the FHS packet acknowledgment. The slave may respond with any type of packet. If the POLL packet is not received by the slave or the POLL packet response is not received by the master within *newconnectionTO* number of slots, the master and the slave shall return to **page** and **page scan** substates, respectively.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 454. |

523

The Bluetooth device transmits a constant bit pattern. This pattern is transmitted periodically with packets aligned to the slave TX timing of the piconet formed by tester and DUT. The same test packet is repeated for each transmission.

The transmitter test is started when the master sends the first POLL packet. In non-hopping mode the agreed frequency is used for this POLL packet.

The tester (master) transmits control or POLL packets in the master-to-slave transmission slots. The DUT (slave) shall transmit packets in the following slave-to-master transmission slot. The tester's polling interval is fixed and defined by the LMP_test_control PDU. The device under test may transmit its burst according to the normal timing even if no packet from the tester was received. In this case, the ARQN bit is shall be set to NAK.

The burst length may exceed the length of a one slot packet. In this case the tester may take the next free master TX slot for polling. The timing is illustrated in Figure 1.2.

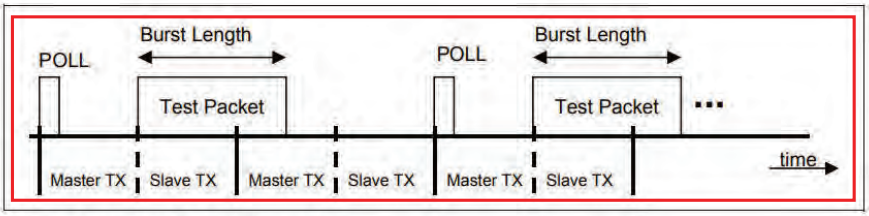



*Figure 1.2: Timing for Transmitter Test*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2116.

524

# Bluetooth Low Energy

Android provides built-in platform support for Bluetooth Low Energy (BLE) in the central role and provides APIs that apps can use to discover devices, query for services, and transmit information.

Common use cases include the following:

- Transferring small amounts of data between nearby devices.
- Interacting with proximity sensors to give users a customized experience based on their current location.

In contrast to classic Bluetooth, BLE is designed for significantly lower power consumption. This allows apps to communicate with BLE devices that have stricter power requirements, such as proximity sensors, heart rate monitors, and fitness devices.

Source: https://developer.android.com/develop/connectivity/bluetooth/ble/ble-overview

In most cases, your app has no way of knowing when a service's characteristic value will change on a connected device. You could repeatedly query the device (polling) to detect changes, but a more efficient way is to register to receive notifications when changes occur.

Subscribe to the value of a characteristic by passing a value of `YES` to the `setNotifyValue:forCharacteristic:` method of the `CBPeripheral` class, as shown in Listing 17-4. Whenever the characteristic's value changes, the peripheral calls the `peripheral:didUpdateValueForCharacteristic:error:` method of its delegate object.

Source: https://developer.apple.com/library/archive/documentation/Performance/Conceptual/EnergyGuide-iOS/BluetoothBestPractices.html

525

## What is polling (computing)?

In computer science, polling or a polled operation denotes the process of repeatedly sampling the status of external devices by a client program. The term *polling* is often used when describing input/output and referred to as *software-driven I/O* or *polled I/O*. This process can occur thousands of times a second.

Specifically, in multipoint or multidrop communication, the controlling device -- with multiple devices attached that share the same line -- sends a message to each device, one at a time, asking each whether it has anything to communicate, i.e., whether it wants to use the line.

Source: https://www.techtarget.com/whatis/definition/polling

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

526

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| | **Chip** H1 headphone chip<br><br>Source: https://www.apple.com/airpods-2nd-generation/specs/<br><br>Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.<br><br>Source: https://store.google.com/product/pixel_buds_pro |

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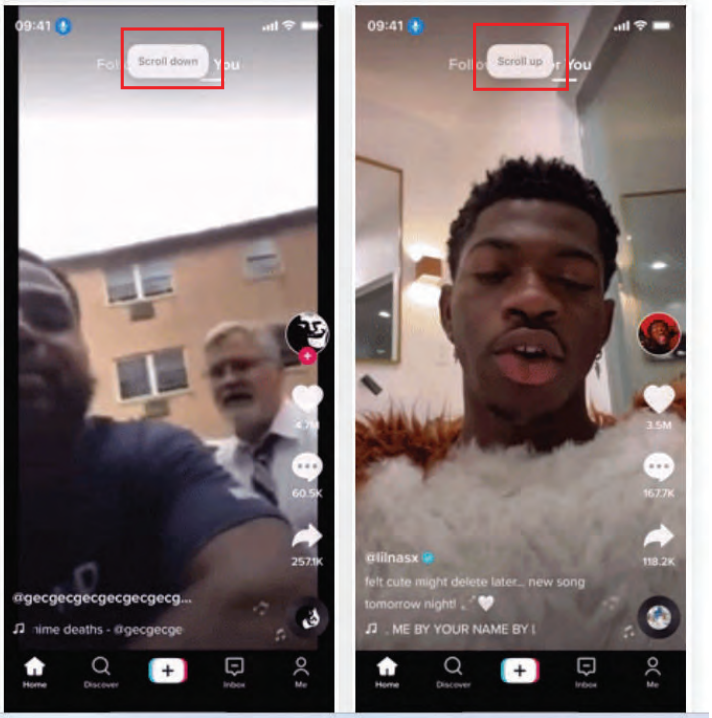


LifeScan, Inc. Ex. 1036
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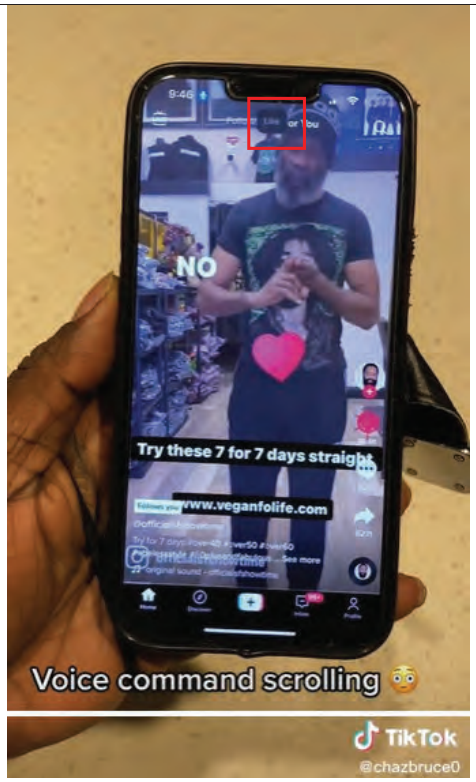
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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

528

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| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

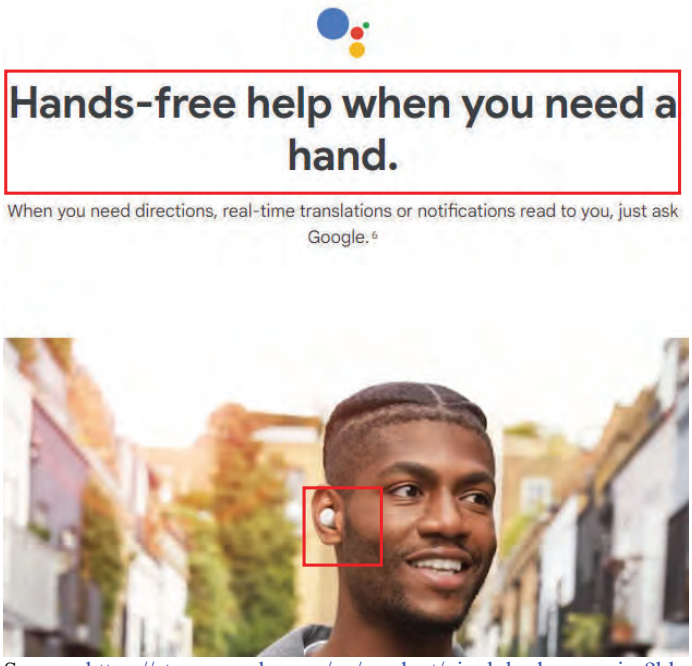
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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

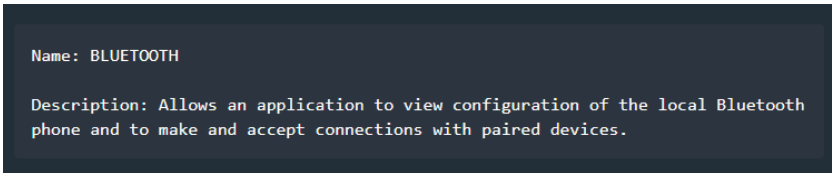
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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

532




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help




Source: https://blog.malcore.io/p/tiktok63

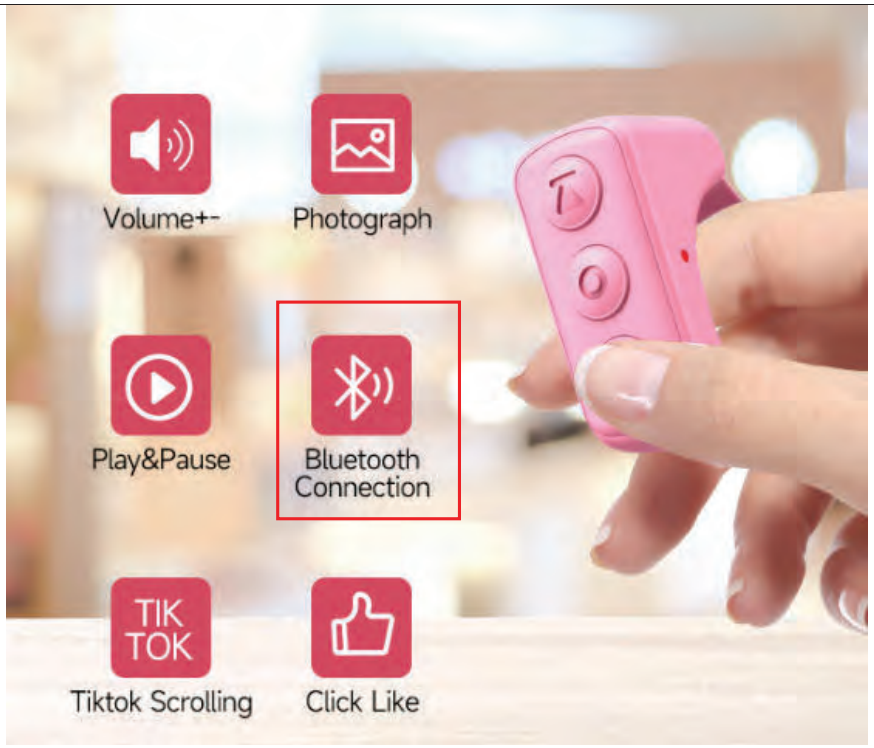
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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

534

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

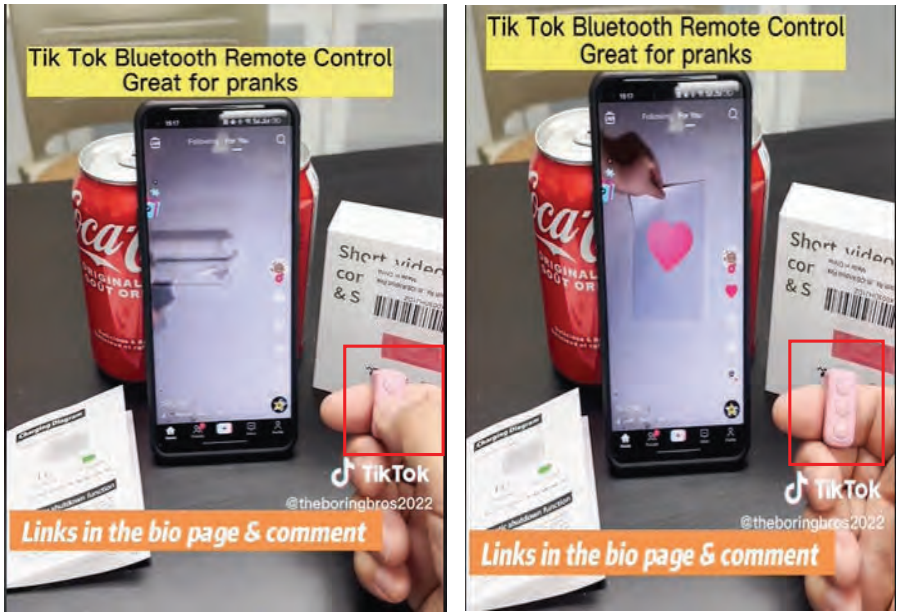
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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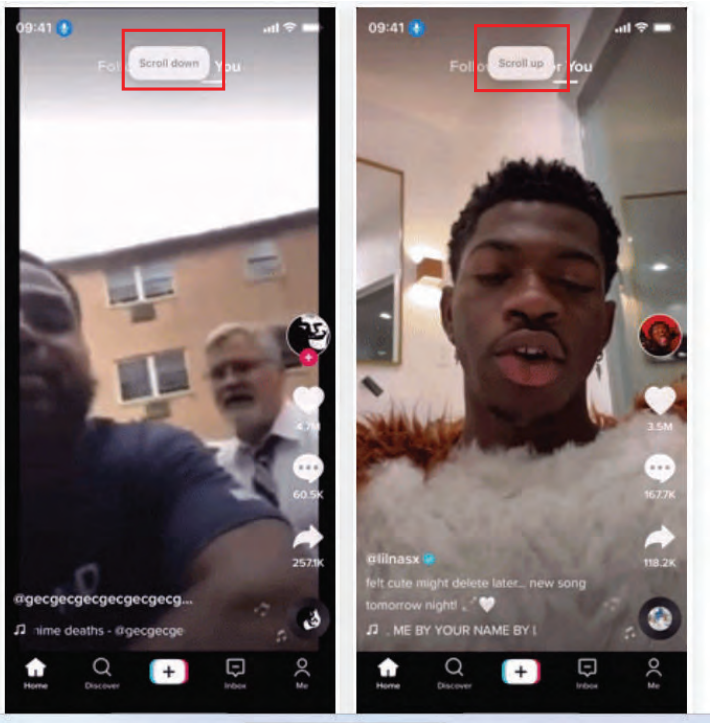
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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

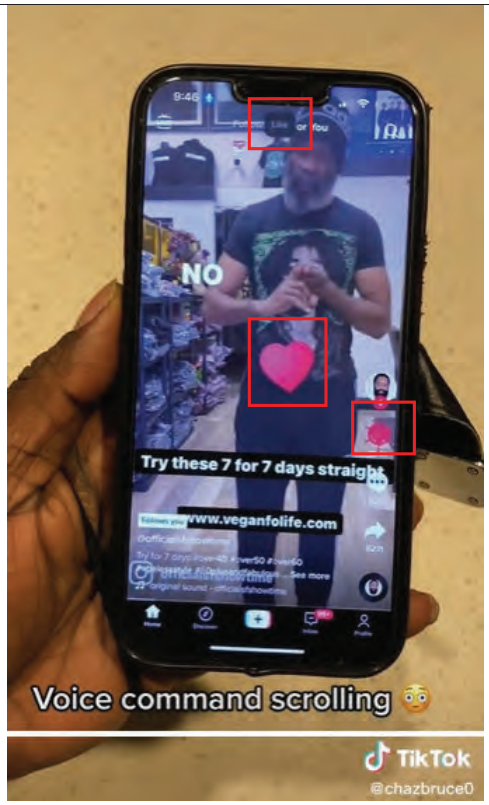
537

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.8] said processor further configured to transfer the new-data from the short-range wireless enabled data capture device to the | Defendant provides a processor further configured to transfer the new-data from the short-range wireless enabled data capture device to the short-range wireless enabled cellular phone automatically over the established paired short-range wireless connection, wherein the single mobile client application on the short-range wireless enabled cellular phone is further configured to receive the new-data over the established short-range paired wireless connection, wherein the single mobile client application on the short-range wireless enabled cellular |

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| short-range wireless enabled cellular phone automatically over the established paired short-range wireless connection, wherein the single mobile client application on the short-range wireless enabled cellular phone is further configured to receive the new-data over the established short-range paired wireless connection, wherein the single mobile client application on the short-range wireless enabled cellular phone is further configured to store the received new-data in a memory device of the short-range wireless enabled cellular phone, | phone is further configured to store the received new-data in a memory device of the short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection ("short-range paired wireless connection") is established between the mobile device ("short-range wireless enabled cellular phone") and the Bluetooth device, such as AirPods, earphones and Bluetooth remote, the Bluetooth device captures the user's command ("new-data") and sends the command to the mobile device through the Bluetooth connection.<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command and processes it to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command and processes it to like or scroll the subsequent video. The TikTok app stores the user's activity (liked and watched videos) including the commands ("received new-data") at least temporarily in the cache memory of the mobile device ("memory device") in which the TikTok app is installed.<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below). |

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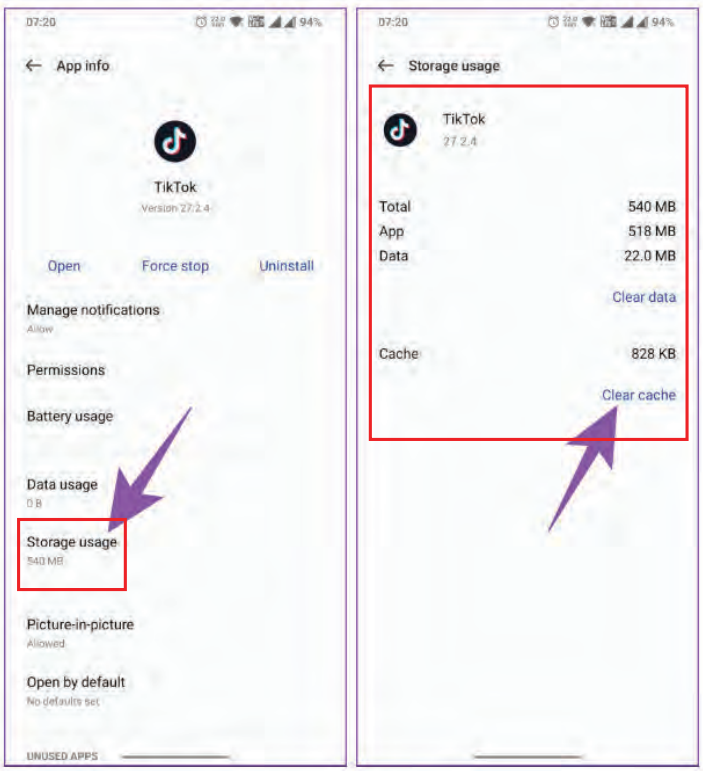
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| | Source: https://ios.gadgethacks.com/how-to/likedoll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br>  <br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

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| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br><br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

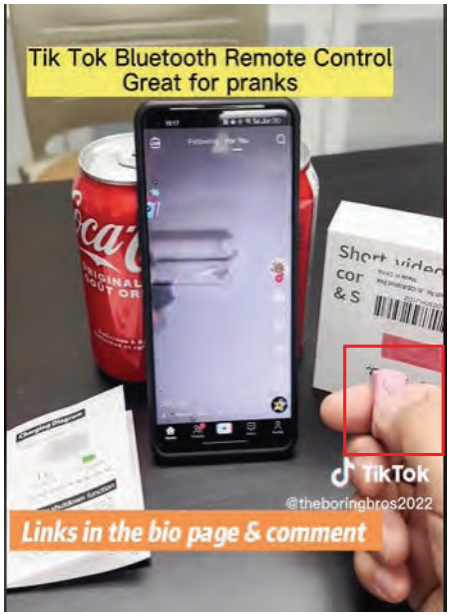
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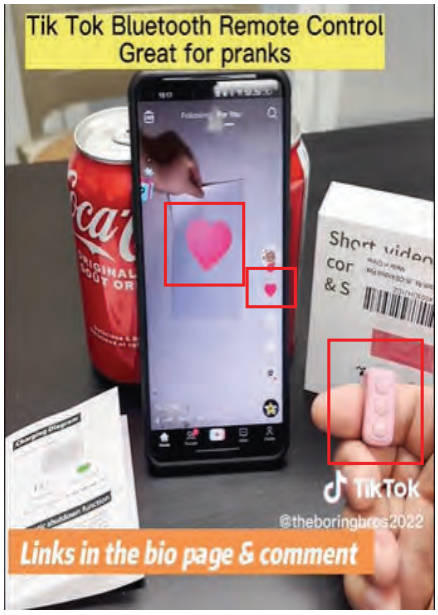
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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>However, some have been noticing that the app is taking up a huge amount of space on their devices, sometimes gigabytes worth of storage. If you're looking to make more space on your device, here's how to reduce the amount of room TikTok is using on your phone.<br><br>Source: https://www.dexerto.com/entertainment/tiktok-storage-free-up-space-1775839/<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/ |

547

**There are many reasons TikTok may take up a lot of storage.**

The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:

- **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.
- **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.
- **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.
- **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.

Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage

## Information You Provide

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

Source: https://www.tiktok.com/legal/page/row/privacy-policy/en

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| | You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

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| |  <br>Source: https://www.tiktok.com/@akirasashmi/video/7129576154465422619<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.9] wherein the single mobile client application for the short-range wireless enabled cellular phone stores a user authentication credential in the memory device of the short-range wireless enabled cellular phone, | Defendant provides a processor, wherein single mobile client application for the cryptographically authenticated short-range wireless enabled cellular phone stores a user authentication credential in the memory device of the cryptographically authenticated short-range wireless enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app (“single mobile client application”) in the mobile device (“short-range wireless enabled cellular phone”) stores the user's login credentials (“user authentication credential”) such as the username and password within the mobile device's memory, facilitating automatic authentication upon subsequent logins to their TikTok app’s account. |

## Information You Provide

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

Source: https://www.tiktok.com/legal/page/row/privacy-policy/en

You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.

You can save your login information:
- Across all devices using the same iCloud account on iOS.
- On a single device on Android.

To save or delete your login information:
1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.
2. Enter the 6-digit code that was sent to the phone number associated with your account.
3. Once you're logged in, tap the **Menu** button at the top.
4. Tap **Settings and privacy**.
5. Tap **Security**.
6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.

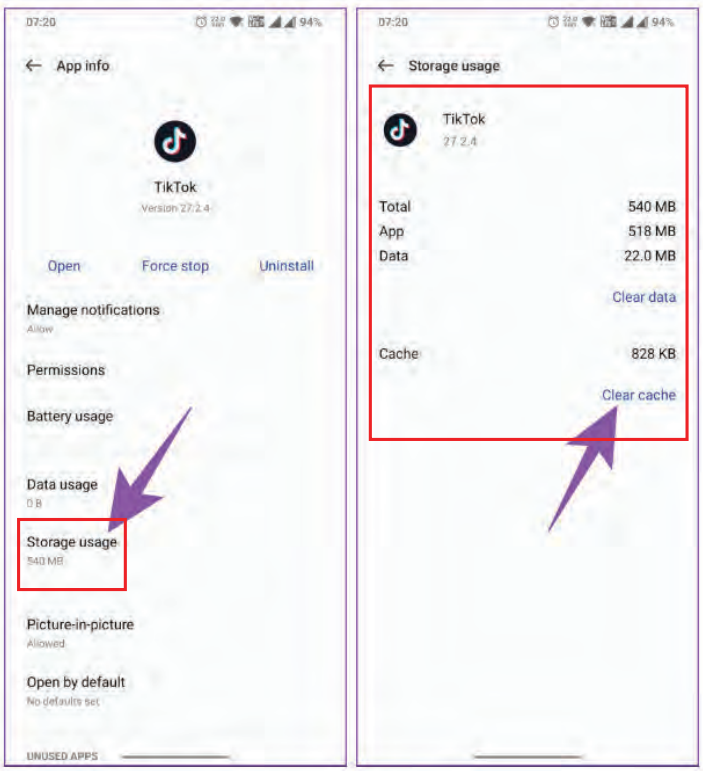
If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.

Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information

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| |  <br>Source: https://www.tiktok.com/@akirasashmi/video/7129576154465422619<br><br>**Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps |

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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.10] wherein the single mobile client application on the short-range wireless enabled cellular phone is further configured to use HTTP to send a user preference to a user data publishing website over a cellular data network, wherein the user preference comprise global positioning system information, | Defendant provides single mobile client application wherein the single mobile client application on the short-range wireless enabled cellular phone is further configured to use HTTP to send a user preference to a user data publishing website over a cellular data network, wherein the user preference comprise global positioning system information<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data such as user's precise location, utilizing the mobile device's Global Positioning System (GPS) ("user preference") functionality over the cellular data network to the Defendant's servers. |

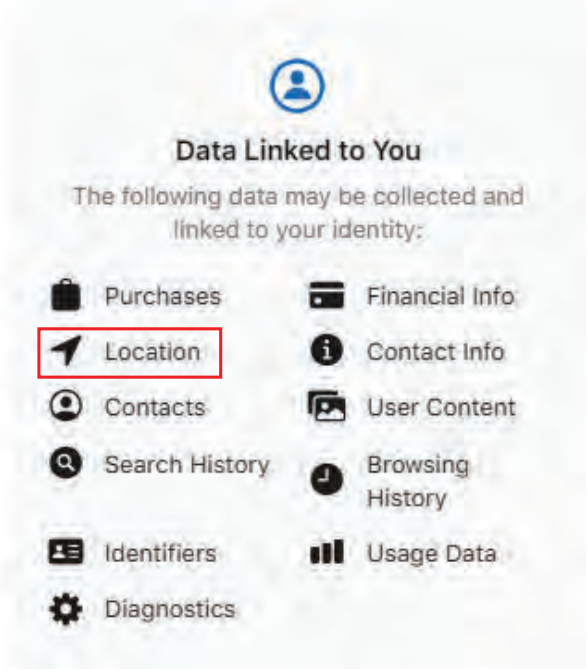


LifeScan, Inc. Ex. 1036
Page 1823 of 2225
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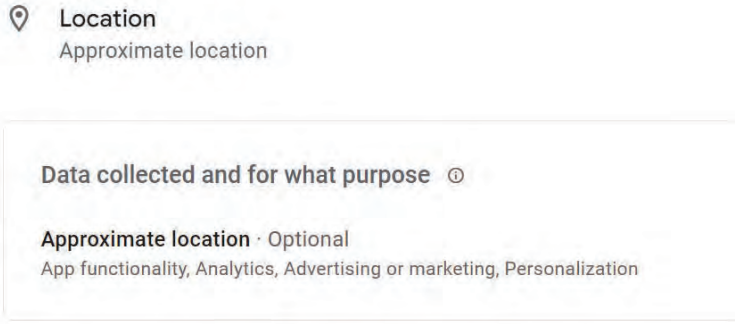
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| | **Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>**How TikTok collects location information**<br><br>TikTok collects your approximate location information based on your device or network information, such as SIM card and IP address.<br><br>In regions where Location Services are available for the TikTok app, and when you turn it on, TikTok will also collect your location information based on your device's GPS. Learn more about your device's location settings in the Android Help Center and Apple Support. Note: Location Services may not be available in all regions, including the U.S. and South Korea.<br><br>Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok |

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| | • **Location Information.** We collect information about your approximate location, including location information based on your SIM card and/or IP address. With your permission, we may also collect precise location data (such as GPS). In addition, we collect location information (such as tourist attractions, shops, or other points of interest) if you choose to add location information to your User Content.<br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en<br><br>**Location Targeting**<br>Last updated, November 2023<br>TikTok Ads allow you to tailor messages and offers to specific locations including countries, regions, states, provinces, metro areas, cities, zip codes and more. Some targeting options are not available in all countries or regions.<br>Note:<br>• If you are targeting multiple countries, locations may have regional descriptions (ex. Counties, Districts, etc.) in Ads Manager aligning with local definitions.<br>• Where available, TikTok enables advertisers to target up to 1500 location selections at a time, per ad group.<br>• Zip code targeting can be used in instances where an advertiser needs to target a more granular location than DMA or city. For example, if an advertiser provides services to only a portion of a city.<br>• A zip code or postal code prefix might not be targetable because it's either invalid, has not been made available due to ad policy requirements, or has not launched in those areas.<br>• TikTok does not support zip code + 4 targeting. If an advertiser tries to upload zip + 4, they will receive an error message.<br>• Targeting ad campaigns to small geographic areas or sets of zip codes can significantly reduce the number of impressions and clicks delivered, and may result in a higher CPA.<br>• Some advertisers may be subject to the Housing, Employment, and Credit ad policy.<br>Location targeting is based on a variety of signals to serve ads to users who align with your location targeting selections. Due to the fact that signals vary, our delivery is not guaranteed and accuracy is not guaranteed in every situation.<br>**Location Targeting Options**<br>Location Type \| Example<br>City \| Salt Lake City, Utah<br>Country / Region \| United States<br><br>Source: https://ads.tiktok.com/help/article/location-targeting?lang=en |

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| |  <br>Source: https://apps.apple.com/us/app/tiktok/id835599320 |

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| |  <br>Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

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| | **Ad Targeting**<br><br>TikTok Ads Manager supports the following targeting dimensions:<br><br>**Audience** — Include — Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account)<br>Exclude — Exclude Lookalike or Custom Audiences<br>**Demographics** — Gender — Male, Female<br>Age — 13-17, 18-24, 25-34, 35-44, 45-54, 55+<br>Location — Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only)<br><br>Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.11] wherein the single mobile client application on the short-range wireless enabled cellular phone is further configured to use the HTTP to upload the received new-data and the | Defendant provides single mobile client application wherein the single mobile client application on the short-range wireless enabled cellular phone is further configured to use the HTTP to upload the received new-data and the user authentication credential to the user data publishing website over the cellular data network, wherein the upload is based on a timer setting on the single mobile client application, and wherein the timer setting is no wait automatic or wait X minutes automatic<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| user authentication credential to the user data publishing website over the cellular data network, wherein the upload is based on a timer setting on the single mobile client application, and wherein the timer setting is no wait automatic or wait X minutes automatic, and | For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the Defendant's servers. TikTok app uses the user credentials such as username and password ("user authentication credential") associated with the user's account of TikTok app for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app. Further, the data provided by the user is uploaded automatically ("timer setting is no wait automatic") on the TikTok app's cloud.<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>**File upload**<br><br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br><br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide |

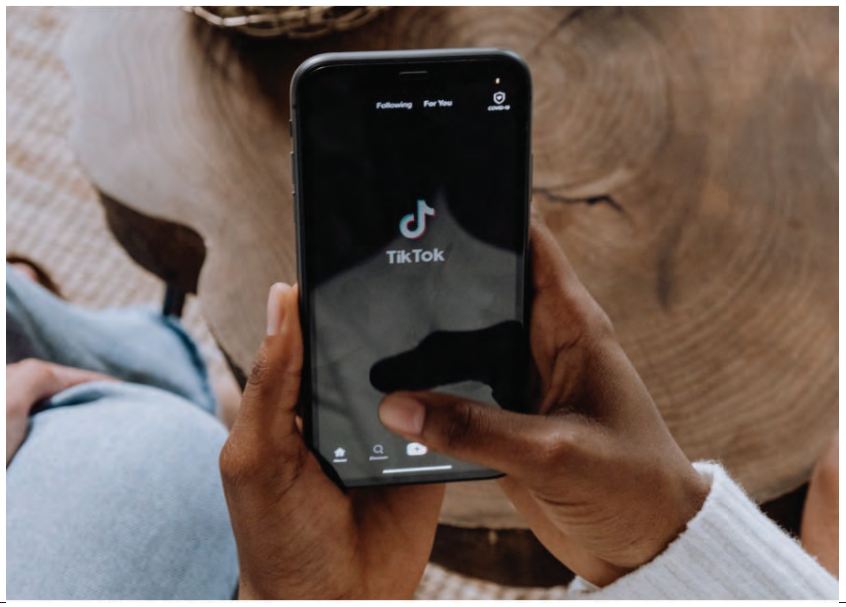
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| | **Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

561

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br><br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance |

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9.12] wherein the single mobile client application on the short-range wireless enabled cellular phone provides a touch based GUI for the received new-data. | Defendant provides a short-range wireless enabled data capture device, wherein the single mobile client application on the short-range wireless enabled cellular phone provides a touch based GUI for the received new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app ("single mobile client application") installed on the mobile device ("short-range wireless enabled cellular phone") comprises touch based graphical user interface (GUI) which allows the user to access the liked and watched videos ("new-data").<br><br>  |

563

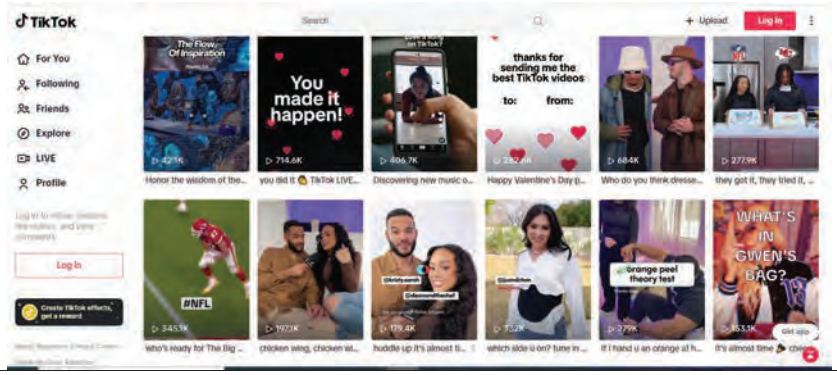
Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber

**Onboarding - It starts with a Swipe**

The process of getting hooked to TikTok starts right away in the users onboarding experience. TikTok asks users to choose their interests. This information is used for personalizing each user's feed. This is a common practice for products with curated content and used by many different apps.

But TikTok's user onboarding is really smart. It encourages users to scroll through the feed and tells them that the content will become more relevant and personalized the more they use it. While this is true for many algorithms, many apps don't tell users this explicitly. By doing so, TikTok encourages users to continue using the app for a better experience

Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber



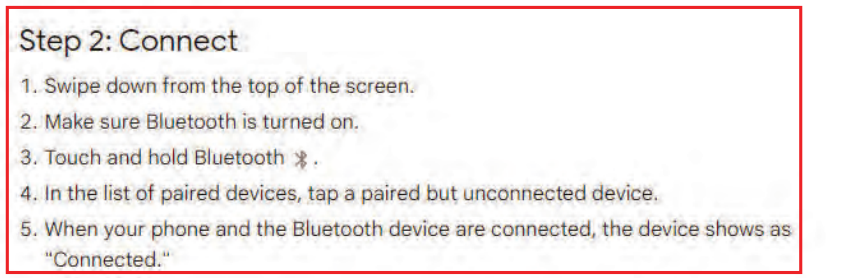

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| | Source: https://www.tiktok.com/@tiktok<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [10] The short-range wireless enabled data capture device of claim 9, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing. | Defendant provides the short-range wireless enabled data capture device of claim 9, wherein the short-range paired wireless connection is one of a Bluetooth paired wireless connection, a Wi-Fi paired wireless connection, and other wireless personal area networking technologies that use pairing.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the user of the TikTok app, while operating the TikTok app, utilizes the mobile device ("short-range wireless enabled cellular phone") which comprises Bluetooth ("short-range paired wireless connection"). Using the Bluetooth, the mobile device pairs with the Bluetooth devices such as AirPods, Bluetooth-enabled earphones, and Bluetooth remotes. The paired Bluetooth devices are used to remotely control the TikTok app installed in the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>`Name: BLUETOOTH`<br><br>`Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.`<br><br>Source: https://blog.malcore.io/p/tiktok63<br><br>**Bluetooth** — Allows to to connect to paired bluetooth devices.<br><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br><br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill |

565

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63<br><br>BLUETOOTH<br>pair with Bluetooth devices<br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Connectivity Bluetooth 5.0 wireless technology<br>Source: https://www.apple.com/airpods-2nd-generation/specs/ |

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| | **Connectivity**<br>Each earbud: Bluetooth 5.0<br>Source: https://store.google.com/product/pixel_buds_pro_specs?hl=en-US<br>  <br>Step 1: Pair a Bluetooth accessory<br>**Important:** Your devices stay paired until you unpair them.<br>Option 1: Use the Settings app (all Bluetooth accessories)<br>Option 2: Use notifications (Fast Pair accessories only)<br>Step 2: Connect<br>1. Swipe down from the top of the screen.<br>2. Make sure Bluetooth is turned on.<br>3. Touch and hold Bluetooth .<br>4. In the list of paired devices, tap a paired but unconnected device.<br>5. When your phone and the Bluetooth device are connected, the device shows as "Connected."<br>Source: https://support.google.com/android/answer/9075925?hl=en |



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classll(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

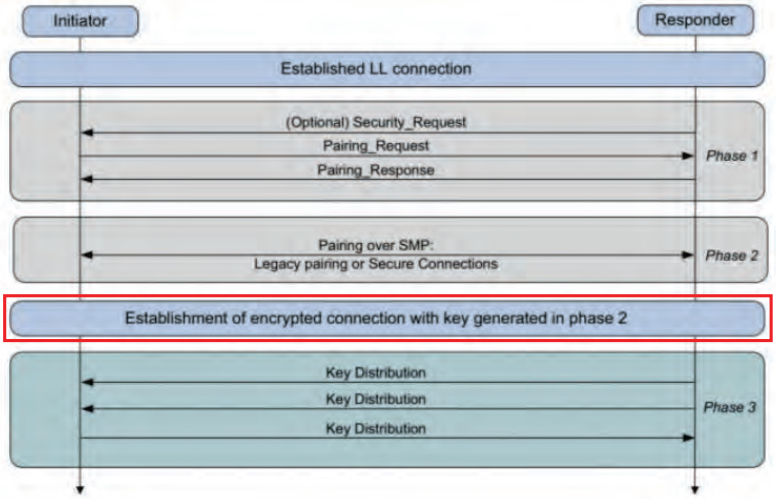
**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth

568

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| | In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>  <br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

569

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20

## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |

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Exhibit 1 to the Patent Local Rule 3-1 and 3-2 Disclosures

# U.S. Patent No. 11,659,381 v. ByteDance
# Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

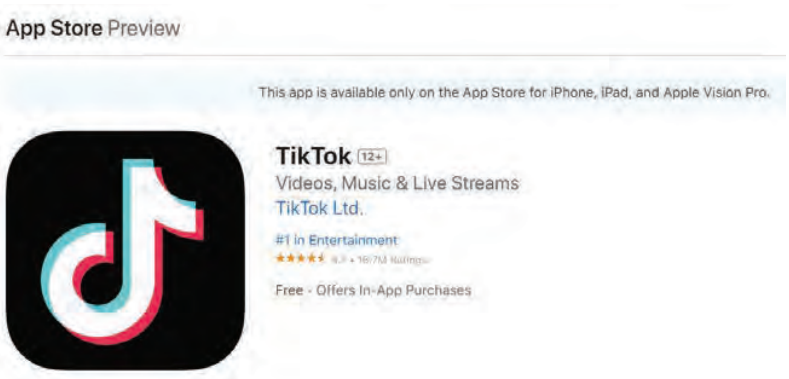
[382 pages]

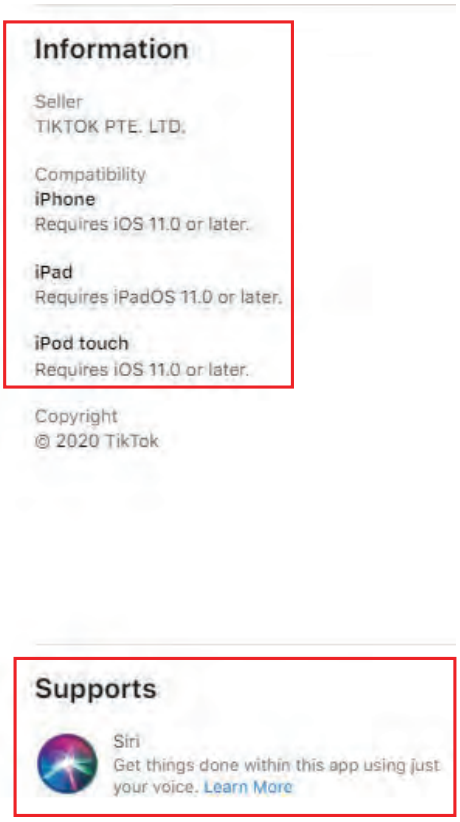
## 1. Claim Chart

| Claim | Analysis |
|---|---|
| [1.P] A system, comprising:<br>a mobile software application for a Bluetooth enabled cellular phone, wherein the mobile software application is embodied as executable program instructions that, when executed by a processor of the Bluetooth enabled cellular phone, configured to: | ByteDance ("Defendant") makes, uses, sells, and/or offers to sell a system, comprising: a mobile software application for a Bluetooth enabled cellular phone, wherein the mobile software application is embodied as executable program instructions.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, Defendant provides TikTok[1] app ("mobile software application") which is installed in a mobile device ("Bluetooth enabled cellular phone") and can be remotely controlled through Bluetooth devices such as AirPods and Bluetooth remotes[2]. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the TikTok app for iOS allows a user to configure gestures for phrases such that when the user provides an audio command corresponding to the phrase, a gesture is automatically performed on the user interface of the TikTok app causing a functionality such as 'liking' or 'scrolling' of a video in the app. The custom phrases and corresponding gestures for the TikTok app are set in the Voice Control settings of iOS. For example, when the phrase "double tap" and a custom gesture causing a double tap on the screen is configured for the TikTok app, then the audio command "double tap" provided by the user on the Bluetooth device (such as AirPods) causes the double tapping gesture to be performed in the TikTok app leading to 'liking' of the video.<br><br>Further, the TikTok app includes the functionality of TikTok Shop that enables merchants to sell and users to buy iPhones from the TikTok app. |

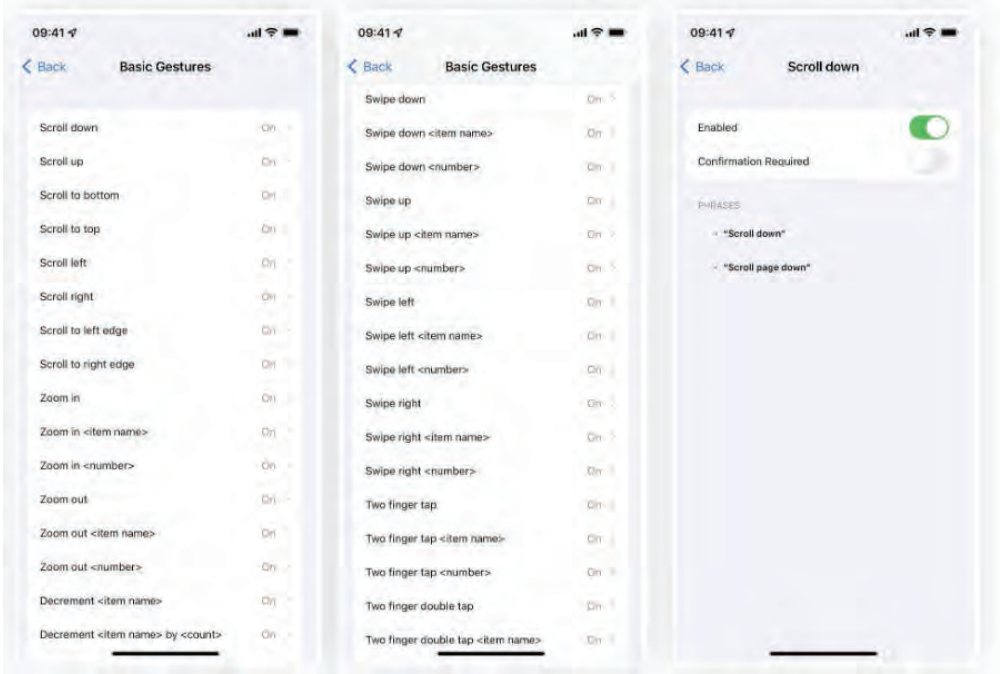
[1] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

[2] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

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| |  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |

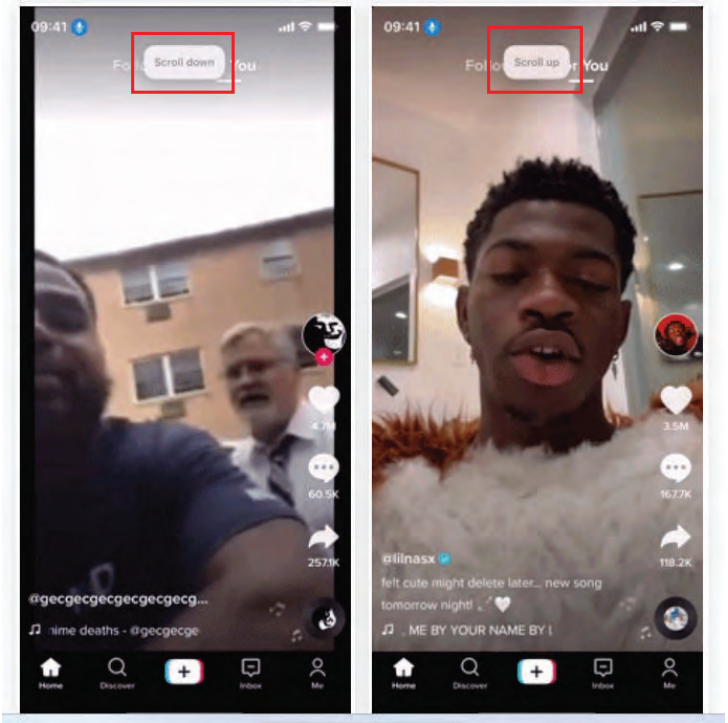



Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320



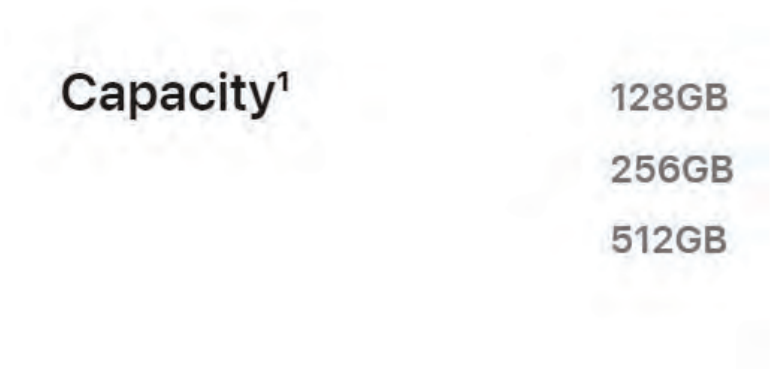
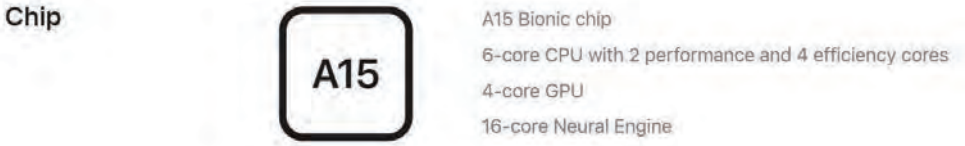

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/#

| | |
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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| | **If an app would like to use Bluetooth on your device**<br>Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.<br><br>**About Bluetooth privacy settings**<br>Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.<br>Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.<br>Source: https://support.apple.com/en-us/HT210578 |

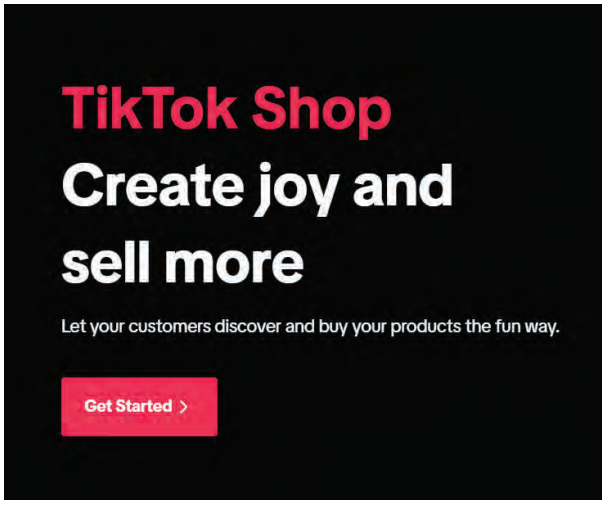
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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| |  <br>Source: https://www.apple.com/iphone-13/specs/<br>  <br>Source: https://www.apple.com/iphone-13/specs/ |





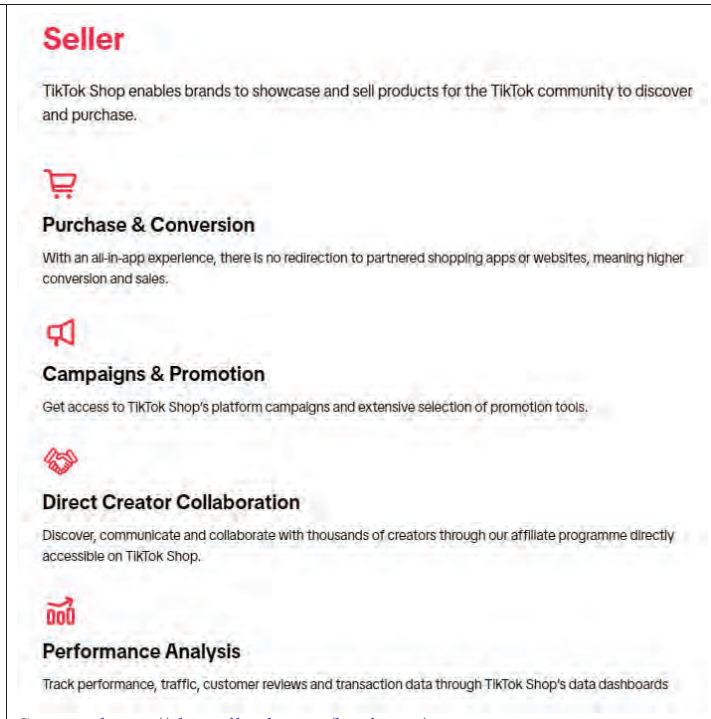
LifeScan, Inc. Ex. 1036
Page 1853 of 2225
IPR2025-00102

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| |  <br>Source: https://shop.tiktok.com/business/en |

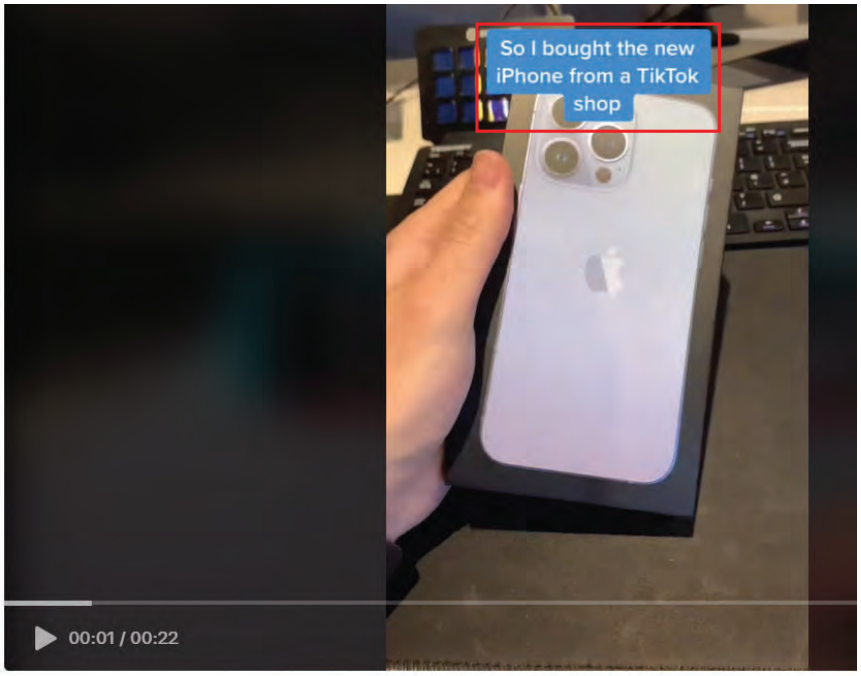




LifeScan, Inc. Ex. 1036
Page 1854 of 2225
IPR2025-00102




Source: https://shop.tiktok.com/business/en

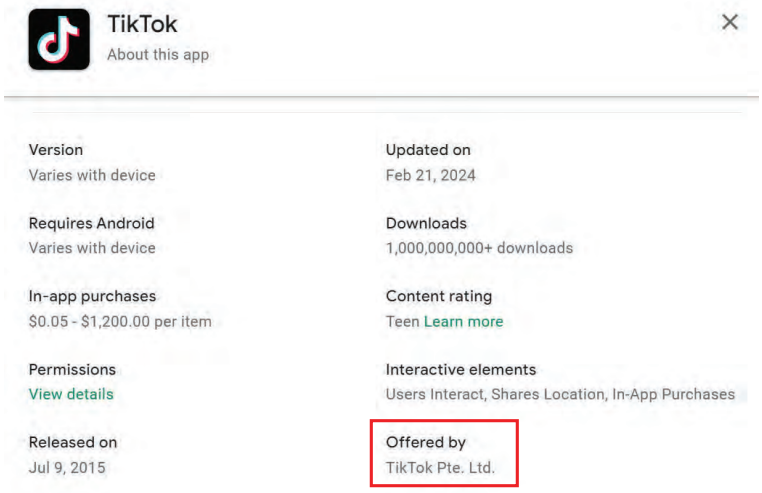



So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime

Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502, at 0:01

For example, the TikTok app when installed on an Android phone such as Pixel 6a (used herein as an exemplary Android-based device), allows the user to turn on Voice Access feature in the Android phone's Accessibility settings to perform multiple functionalities such as 'liking' the content and 'scrolling' the videos while accessing the TikTok app. When an audio command corresponding to the desired functionality is provided

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| | through the Bluetooth device, Pixel 6a receives the command and the TikTok app processes the executed command and performs the corresponding functionality such as scrolling/liking the video. For example, when Voice Access is enabled while surfing the TikTok app and the user provides an audio input "Scroll down" on the Bluetooth device such as an earphone, the TikTok app scrolls down to load the next video.<br><br>Further, the TikTok app includes the functionality of TikTok Shop that enables merchants to sell and the users to buy the Android phones from the TikTok app.<br><br>  <br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

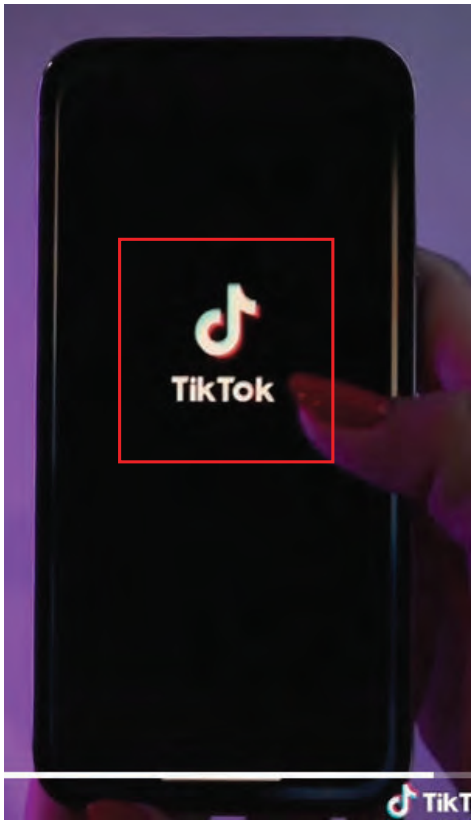



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US



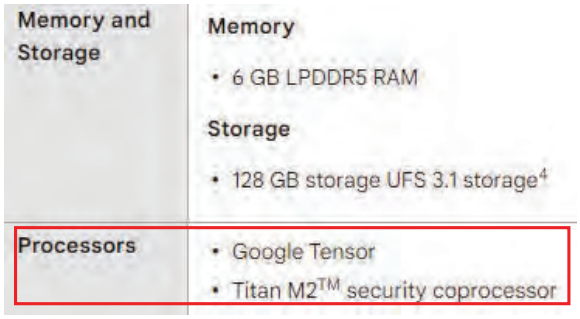


LifeScan, Inc. Ex. 1036
Page 1858 of 2225
IPR2025-00102

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |



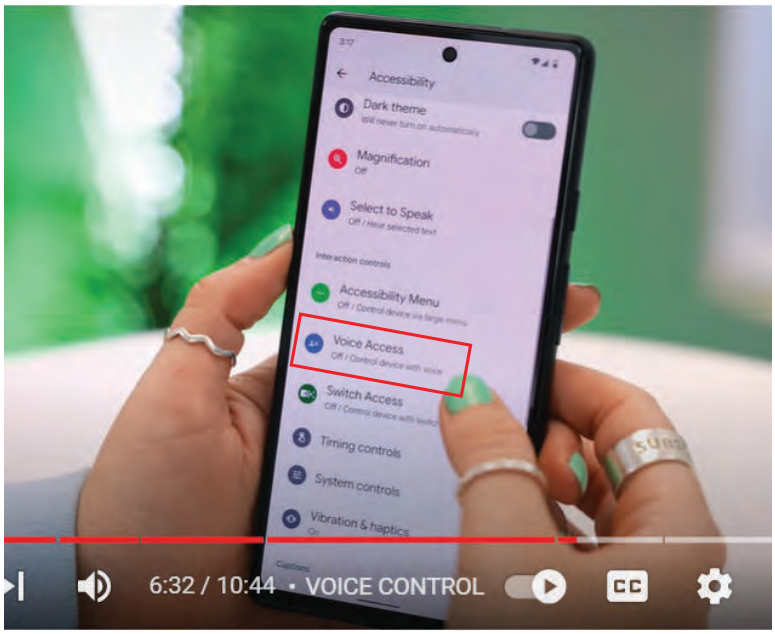
LifeScan, Inc. Ex. 1036
Page 1859 of 2225
IPR2025-00102

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| |  <br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en |

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| | **Step 3: Start using Voice Access**<br>To turn on Voice Access, follow these steps:<br>1. Open your device's Settings app.<br>2. Tap **Accessibility**, then tap **Voice Access.**<br>3. Tap **Use Voice Access**.<br>4. Start Voice Access in one of these ways:<br>• If "Hey Google" detection is on, you can say "Hey Google, Voice Access."<br>• Open your notification shade and tap **Touch to start**.<br>• On your Home screen, tap the Voice Access app.<br>• Tap the Voice Access activation button. (You can set up the activation button in Settings > **Accessibility** > **Voice Access** > **Settings** > **Activation button**.)<br>5. Say a command, such as "Open Gmail." Learn more Voice Access commands.<br>The first time you turn on Voice Access, two extra steps help you get started:<br>• A guide to "Hey Google" settings helps set you up for a good hands-free experience.<br>• An interactive tutorial teaches you how Voice Access works.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |



LifeScan, Inc. Ex. 1036
Page 1861 of 2225
IPR2025-00102

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| |  <br>Source: https://www.youtube.com/watch?v=Ec52kzzqVRM, at 6:32 |

Here is how to scroll through TikTok hands-free on Android:

- Install Google's **Voice Access** app from Play Store.
- Go to **Settings** › **Accessibility**; find and select the Voice Access app.
- Tap on **Use service** to enable Voice Access.
- When prompted, grant permissions to the Voice Access app.
- Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.
- Once done, you will see a blue floating icon on your screen.
- Tap on the floating icon to activate Voice Access. You are all set!
- Now, open TikTok and say "**scroll down**" to see the magic.

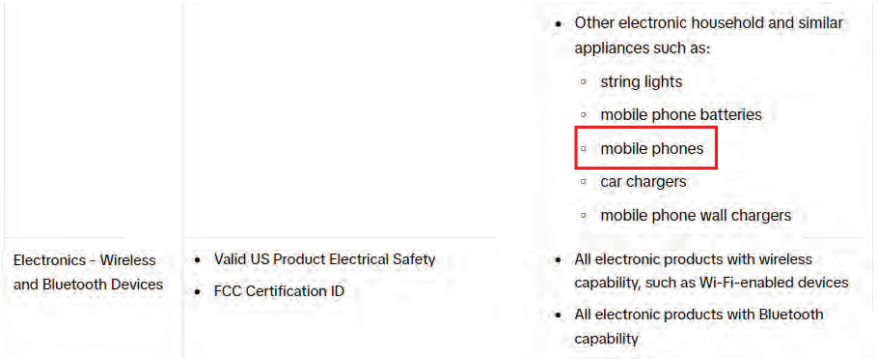
Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/

- **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:
  1. Connect your keyboard or switch to your device:
     - Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices.

Source: https://support.google.com/accessibility/android/answer/6151848?hl=en

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

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| | Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>**Electrical Products and Electronics**<br>Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.<br>Electrical and electronic products include but are not limited to:<br><br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

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| |  <br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy<br><br>For example, TikTok app is also configured to receive data from third-party Bluetooth remotes. These Bluetooth remotes connect to the mobile device via Bluetooth and allow the user to scroll through videos or 'like' a video using designated buttons on the remote (for example, a user can "like" a particular video on the TikTok app by double clicking a designated button). |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |





LifeScan, Inc. Ex. 1036
Page 1867 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



Source: https://www.youtube.com/shorts/rz7SWRCzdMg

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

BLUETOOTH
pair with Bluetooth devices
BLUETOOTH_CONNECT
connect to paired Bluetooth devices

Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O

**Finding your liked videos**

To find your liked videos:

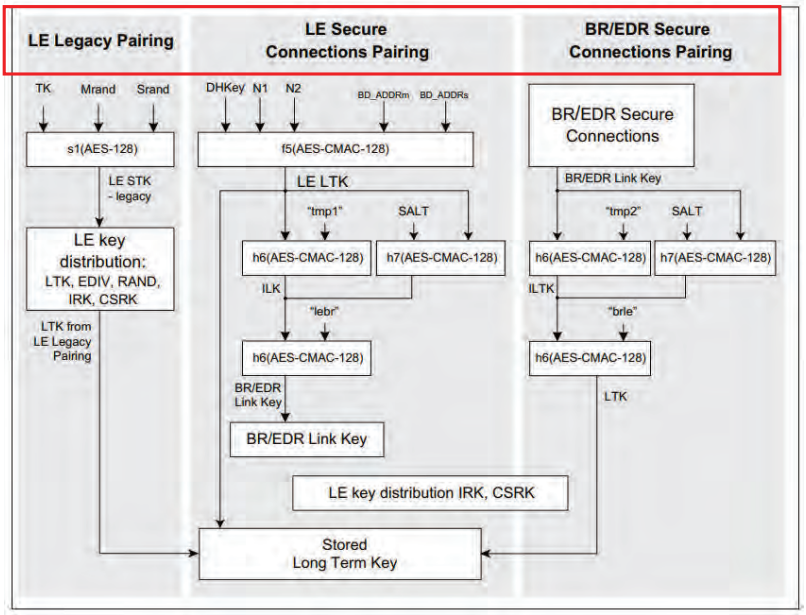
1. Tap **Profile** in the bottom right.
2. Tap **Heart**, located on the right side of the panel.

Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking

For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.

Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.1] detect and receive new-data acquired in a Bluetooth enabled data capture device, wherein the new-data is data acquired by the Bluetooth enabled data capture device after establishing a paired Bluetooth connection between the Bluetooth enabled data capture device and the Bluetooth enabled cellular phone, | Defendant provides a mobile software application that is configured to detect and receive new-data acquired in a Bluetooth enabled data capture device, wherein the new-data is data acquired by the Bluetooth enabled data capture device after establishing a paired Bluetooth connection between the Bluetooth enabled data capture device and the Bluetooth enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the Bluetooth devices such as, AirPods, Bluetooth-enabled earphones, and Bluetooth remote ("Bluetooth enabled data capture device") pair with the mobile device to establish a Bluetooth connection. After the Bluetooth connection is established, the TikTok app for iOS and Android can be controlled by giving commands from the Bluetooth devices.<br><br>For example, the TikTok app detects audio command ("new data") captured by a Bluetooth device such as AirPods or earphones. The audio command is first received at the mobile device in which the TikTok app is installed and then processed by the app to perform the functionality (such as liking/scrolling the video) corresponding to the audio command.<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries |

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| | Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240<br>  <br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242 |

31

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

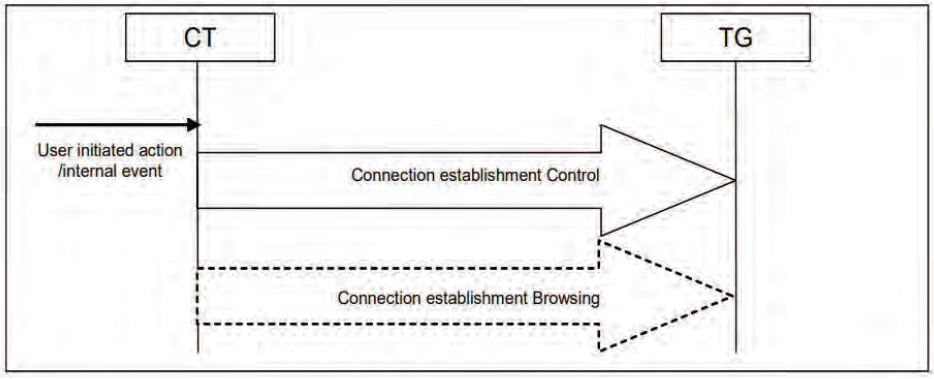



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

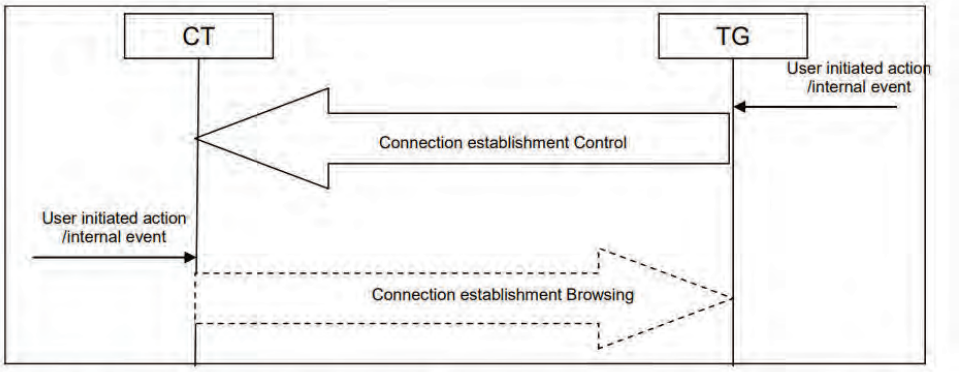



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

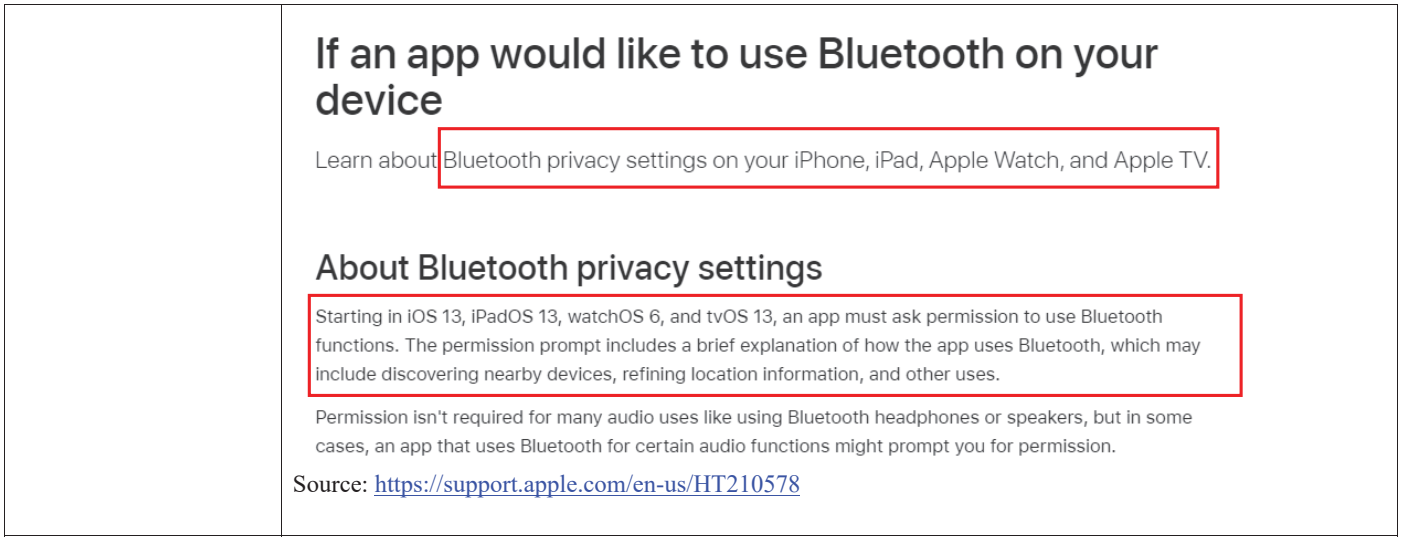
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |





LifeScan, Inc. Ex. 1036
Page 1877 of 2225
IPR2025-00102



## If an app would like to use Bluetooth on your device

Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.

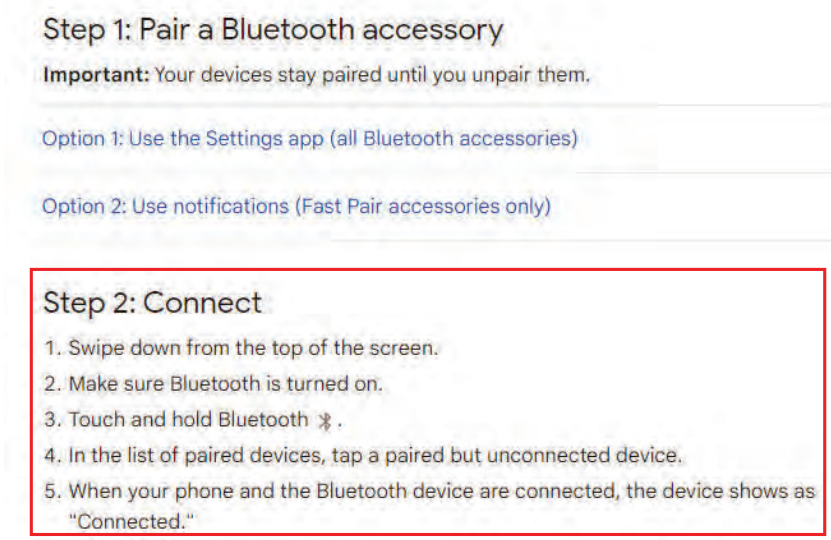
## About Bluetooth privacy settings

Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.

Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.

Source: https://support.apple.com/en-us/HT210578

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |



Step 1: Pair a Bluetooth accessory

**Important:** Your devices stay paired until you unpair them.

Option 1: Use the Settings app (all Bluetooth accessories)

Option 2: Use notifications (Fast Pair accessories only)

Step 2: Connect

1. Swipe down from the top of the screen.
2. Make sure Bluetooth is turned on.
3. Touch and hold Bluetooth .
4. In the list of paired devices, tap a paired but unconnected device.
5. When your phone and the Bluetooth device are connected, the device shows as "Connected."

Source: https://support.google.com/android/answer/9075925?hl=en

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br><br>`Name: BLUETOOTH`<br><br>`Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.`<br>Source: https://blog.malcore.io/p/tiktok63 |

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>For example, the TikTok app detects a command ("new data") captured at the Bluetooth remote when the user clicks a specific button on the Bluetooth remote. The command is first received at the mobile device (in which the TikTok app is installed) and then processed by the TikTok app to perform the functionality (such as liking/scrolling the video) corresponding to the command. |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |

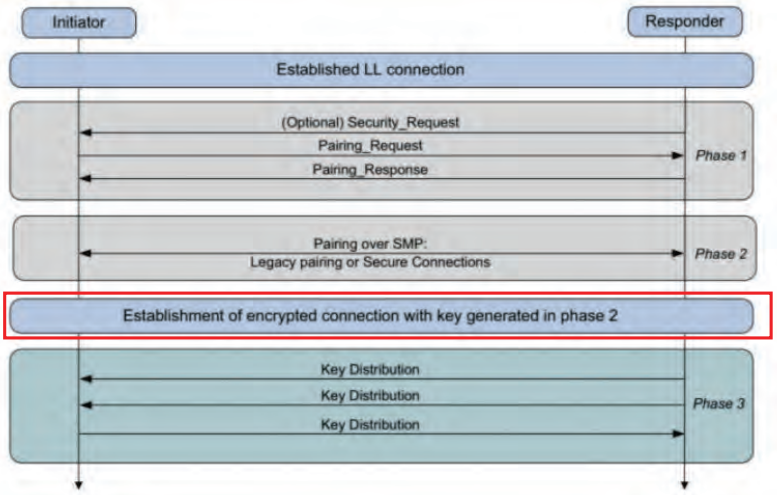
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| [1.2] wherein establishing the Bluetooth paired connection comprises the Bluetooth enabled data capture device cryptographically authenticating an identity of the Bluetooth enabled cellular phone | Defendant provides a mobile software application wherein establishing the Bluetooth paired connection comprises the Bluetooth enabled data capture device cryptographically authenticating an identity of the Bluetooth enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the mobile device ("Bluetooth enabled cellular phone") and the Bluetooth device (such as AirPods, Bluetooth-enabled earphones, and Bluetooth remote) ("Bluetooth enabled data capture device") are connected through an encrypted connection created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth paired connection is established between the two devices. The mobile device can be authenticated using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20




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| | Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>**4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

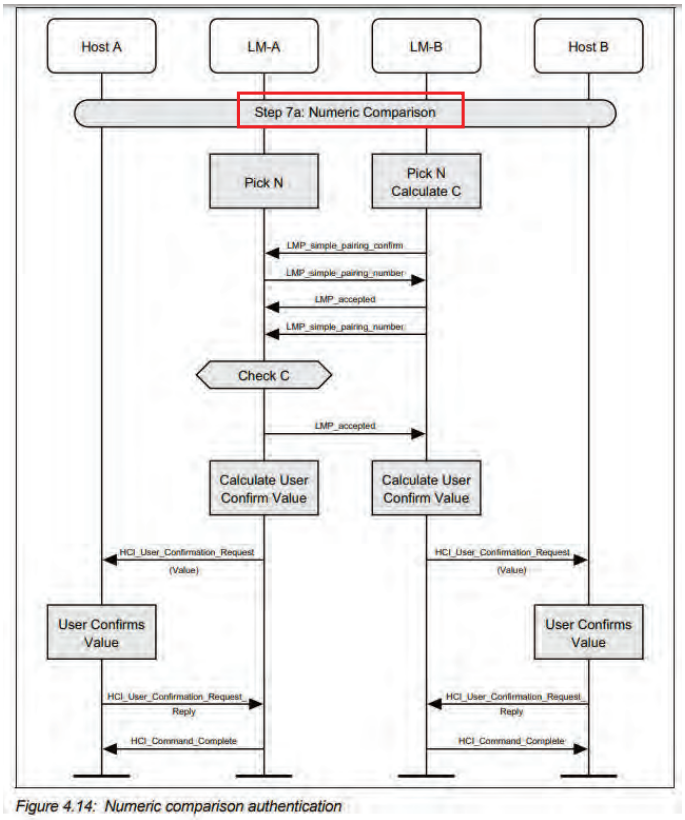



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

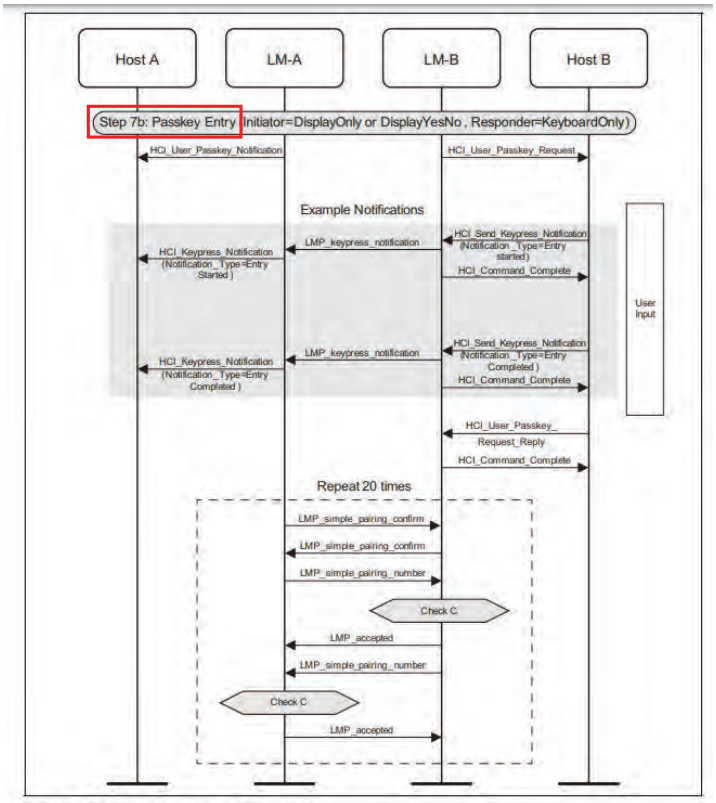



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

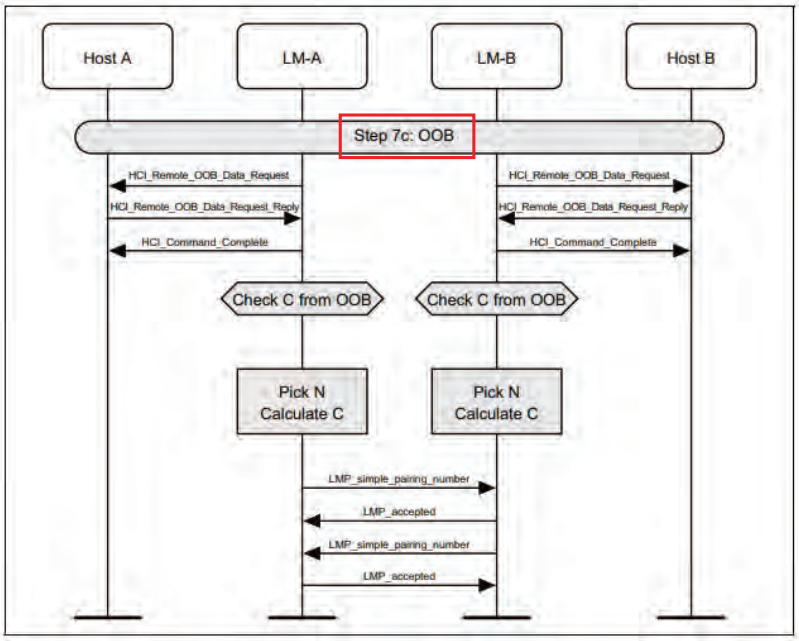


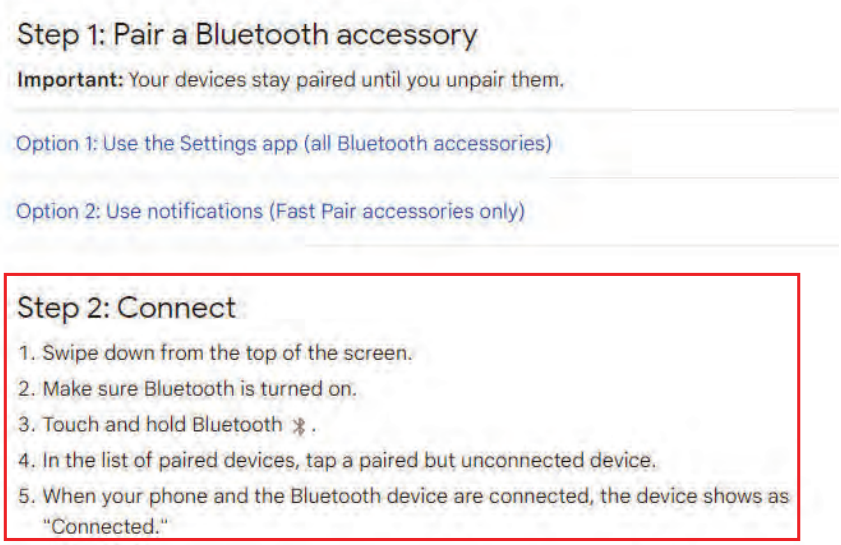

*Figure 4.20: OOB authentication (P-192)*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web |



LifeScan, Inc. Ex. 1036
Page 1893 of 2225
IPR2025-00102




Source: https://support.google.com/android/answer/9075925?hl=en

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|---|---|
| | In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth<br><br>  <br>**SPECIFICATION**<br>• Bluetooth version:Bluetooth Ver.5.0<br>• Bluetooth name: D01<br>• Control Distance: 10 meters<br>• Transmit power: classII(- 6dBm~ + 4dBm)<br>• Battery Capacity: 200+25mAh<br><br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1 |

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

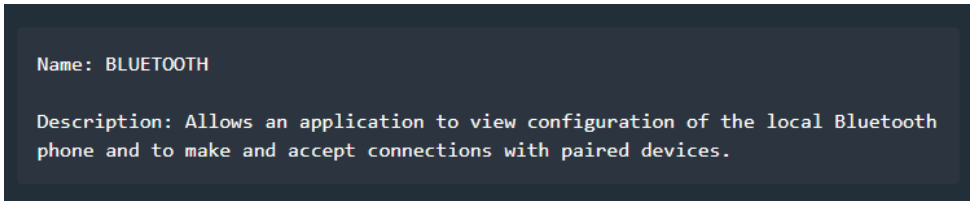
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br>  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.3] wherein detecting and receiving new-data acquired in the Bluetooth enabled data capture device comprises:<br>said mobile software application for the Bluetooth enabled cellular phone configured to listen for an event | Defendant provides mobile software application wherein detecting and receiving new-data acquired in the Bluetooth enabled data capture device comprises: said mobile software application for the Bluetooth enabled cellular phone configured to listen for an event notification, sent from the Bluetooth enabled data capture device, over the established paired Bluetooth connection, wherein the event notification corresponds to the acquired new-data and comprises sending a signal from the Bluetooth enabled data capture device to the Bluetooth enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| notification, sent from the Bluetooth enabled data capture device, over the established paired Bluetooth connection, wherein the event notification corresponds to the acquired new-data and comprises sending a signal from the Bluetooth enabled data capture device to the Bluetooth enabled cellular phone; and | For example, after a Bluetooth connection is established between the devices, the Bluetooth devices ("Bluetooth enabled data capture device") capture the user's command and send the command to the mobile device through the Bluetooth connection. The mobile device that has the TikTok application installed, listen for the event notification signal from the Bluetooth device, that comprises the information related to the command. Based on the received event notification, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command ("new data") provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further the mobile device on which the TikTok app is installed listens for the event notification captured by the Bluetooth device (audio command and information corresponding to the button pressed) and performs the functionality corresponding to the command.<br><br>Further, after establishing Bluetooth connection, when an audio command is sent from the Bluetooth devices, such as AirPods or earphones, or when a button is pressed on the Bluetooth remote control, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client (e.g., a mobile device) establishes a connection with a GATT server (e.g., a Bluetooth device), it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed. |

## Alert Notification Profile 1.0 Adopted

This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.

Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/

## Exposure Notification Service

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4

The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.

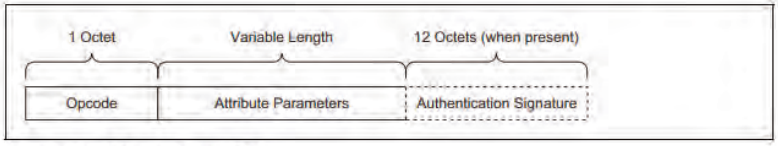



*Figure 2.3: Attribute Protocol PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225

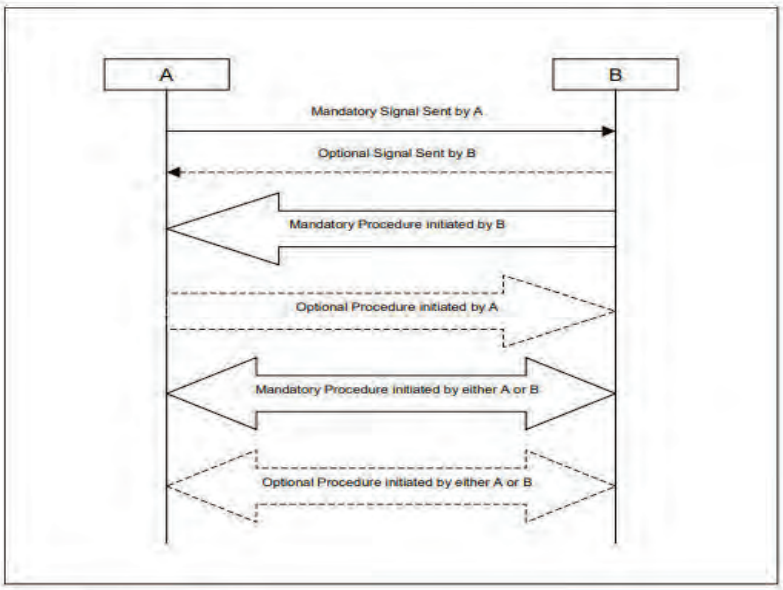



*Figure 1.2: Signaling conventions*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

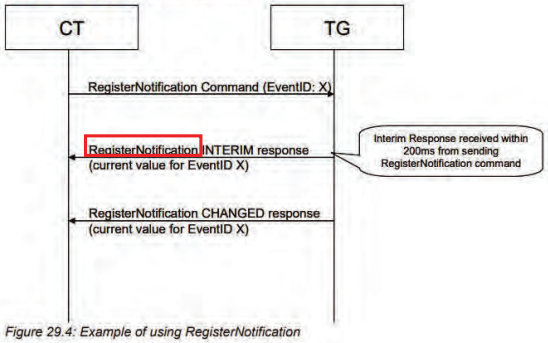



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139

58

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

59

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

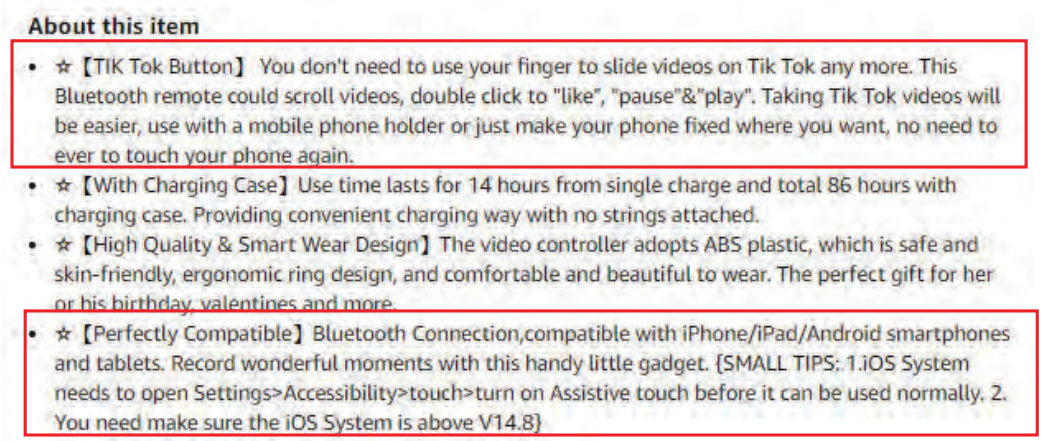
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

| | |
|---|---|
| | Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63 |

| | |
|---|---|
| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



**About this item**

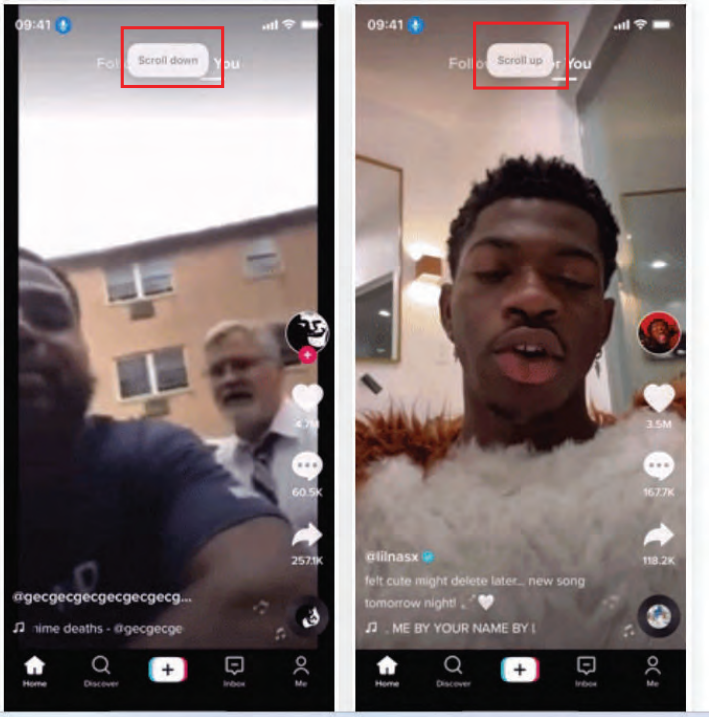
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

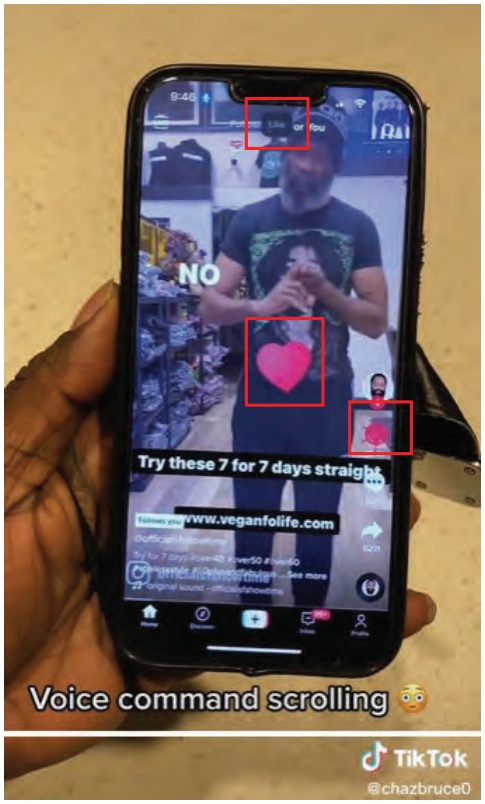
Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.4] said mobile software application for | Defendant provides mobile software application for the Bluetooth enabled cellular phone configured to receive, from the Bluetooth enabled data capture device, the event notification and the acquired new-data over the |

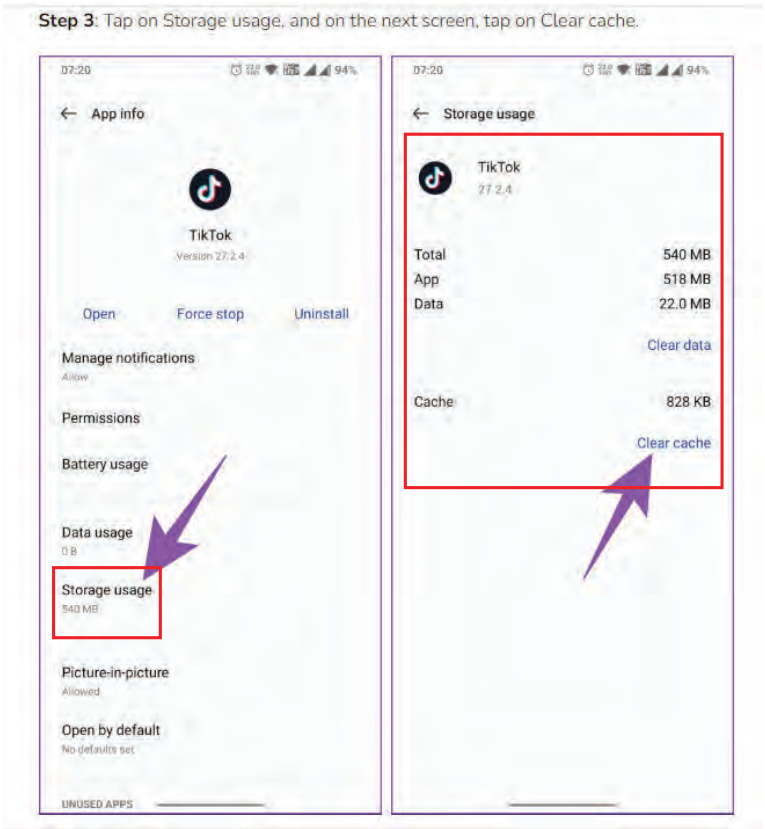
| | |
|---|---|
| the Bluetooth enabled cellular phone configured to receive, from the Bluetooth enabled data capture device, the event notification and the acquired new-data over the established paired Bluetooth connection;<br>store the received new-data in a memory of the Bluetooth enabled cellular phone; | established paired Bluetooth connection; store the received new-data in a memory of the Bluetooth enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app ("mobile software application") installed on the mobile device ("Bluetooth enabled cellular device") receives the command provided through AirPods, earphones or Bluetooth remote ("Bluetooth enabled data capture device").<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command as an event notification in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote, the TikTok app receives the user's command as an event notification in order to like or scroll the subsequent video. The TikTok app stores the user's activity including the commands ("received new-data") and the liked videos at least temporarily in the cache memory of the mobile device (in which the app is installed).<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote. As is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT as part of their BLE functionality that defines a framework for organizing and exchanging data between the BLE devices. When a GATT server, has new data or an event to notify the GATT client, it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, "Double Tap" and "Scroll Down" command) to Bluetooth enabled mobile device on which the TikTok app is installed. |

| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

| | |
|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

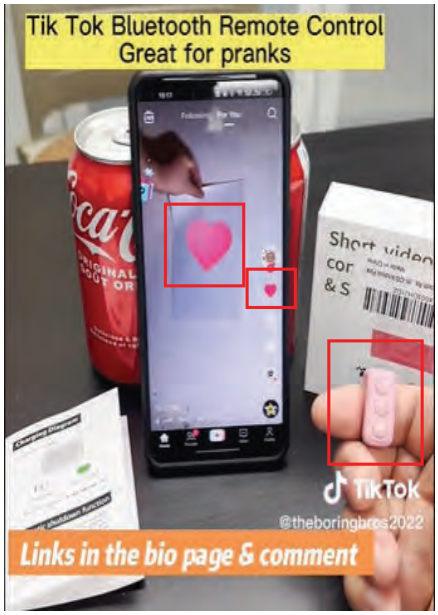
| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

| | |
|---|---|
| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings › Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br><br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |




Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

| | |
|---|---|
| |   <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09 |

| | |
|---|---|
| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>**Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br><br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>**Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br><br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.

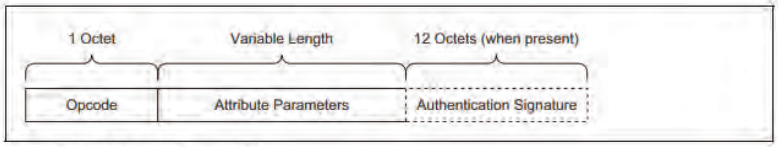



*Figure 2.3: Attribute Protocol PDU*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

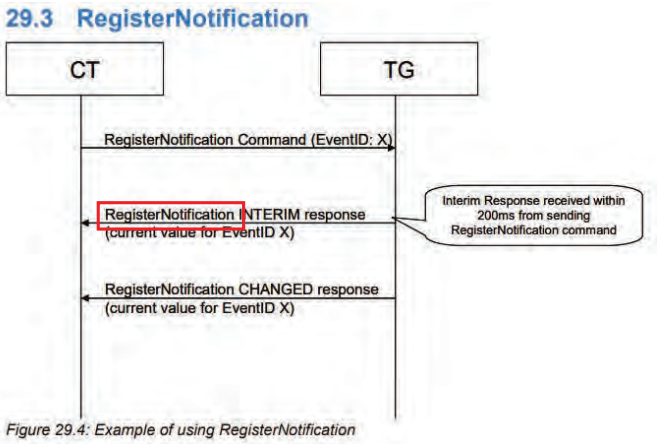



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139

78

| | |
|---|---|
| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2267 |

| | |
|---|---|
| | Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.<br><br>The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.<br><br>ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).<br><br>ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.<br><br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9 |

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

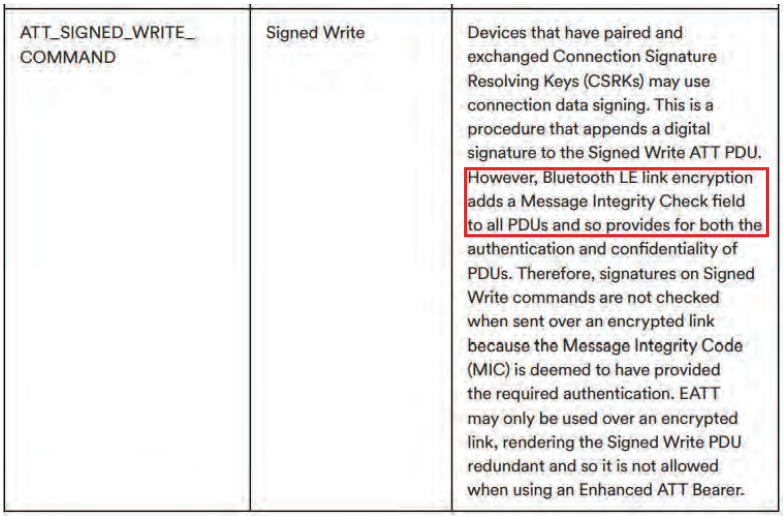
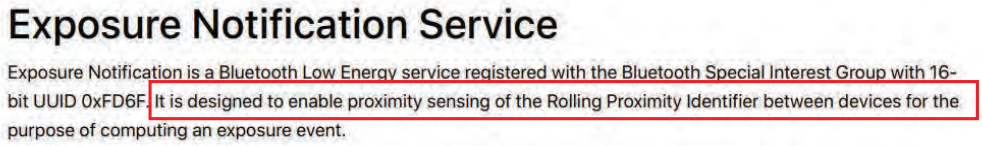
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

| | |
|---|---|
| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

| | | |
|---|---|---|
| ATT_SIGNED_WRITE_ COMMAND | Signed Write | Devices that have paired and exchanged Connection Signature Resolving Keys (CSRKs) may use connection data signing. This is a procedure that appends a digital signature to the Signed Write ATT PDU. However, Bluetooth LE link encryption adds a Message Integrity Check field to all PDUs and so provides for both the authentication and confidentiality of PDUs. Therefore, signatures on Signed Write commands are not checked when sent over an encrypted link because the Message Integrity Code (MIC) is deemed to have provided the required authentication. EATT may only be used over an encrypted link, rendering the Signed Write PDU redundant and so it is not allowed when using an Enhanced ATT Bearer. |

## Exposure Notification Service

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

| | |
|---|---|
| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

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|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

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| | **5.13 Browsing**<br>Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.<br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/<br><br>**Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking |

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| | However, some have been noticing that the app is taking up a huge amount of space on their devices, sometimes gigabytes worth of storage. If you're looking to make more space on your device, here's how to reduce the amount of room TikTok is using on your phone.<br>Source: https://www.dexerto.com/entertainment/tiktok-storage-free-up-space-1775839/<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/ |

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| | **There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.5] use Hypertext Transfer Protocol to transfer the received new-data along with a user authentication credential to a remote server over a | Defendant provides mobile software application that use Hypertext Transfer Protocol to transfer the received new-data along with a user authentication credential to a remote server over a cellular data network, wherein the mobile software application is further configured to use the Hypertext Transfer Protocol to send a user preference to the remote server over the cellular data network, and wherein the user preference comprises global positioning system information. |

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| cellular data network, wherein the mobile software application is further configured to use the Hypertext Transfer Protocol to send a user preference to the remote server over the cellular data network, and wherein the user preference comprises global positioning system information; and | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the TikTok app's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok app for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app. Further, the TikTok app fetches the Global Positioning System (GPS) information ("user preference") from the mobile device and updates the TikTok app's servers by sending user's location over HTTP.<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |

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| | **File upload**<br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.<br>Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide<br>**Information You Provide**<br>• **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.<br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en<br>**Automatically Collected Information**<br>• **Usage Information.** We collect information regarding your use of the Platform, *e.g.*, how you engage with the Platform, including how you interact with content we show to you, the advertisements you view, videos you watch and problems encountered, browsing and search history, the content you like, the content you save to 'My Favourites', the users you follow and how you engage with mutual followers.<br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |

## Send Video to TikTok Servers

Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.

Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.

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| HTTP URL | Returned in `upload_url` |
| HTTP Method | PUT |

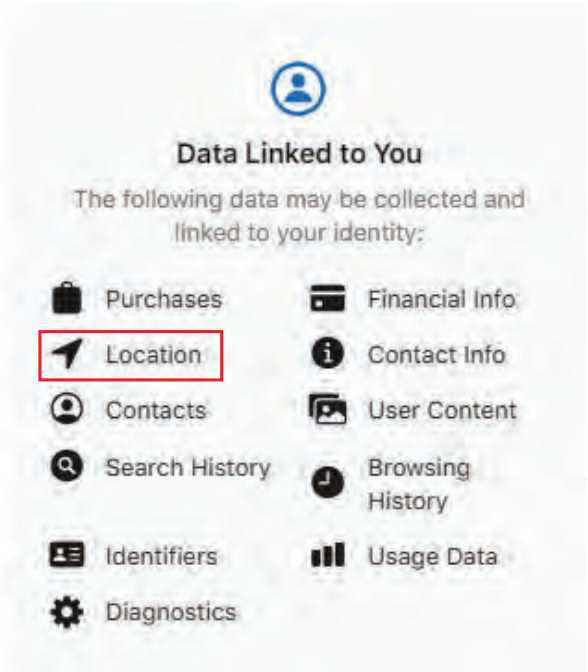
Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

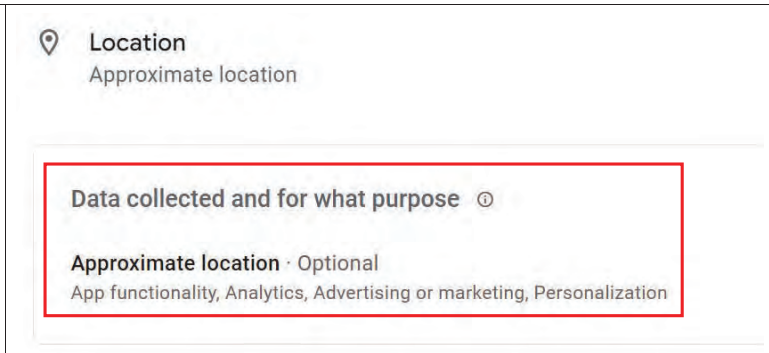
For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.

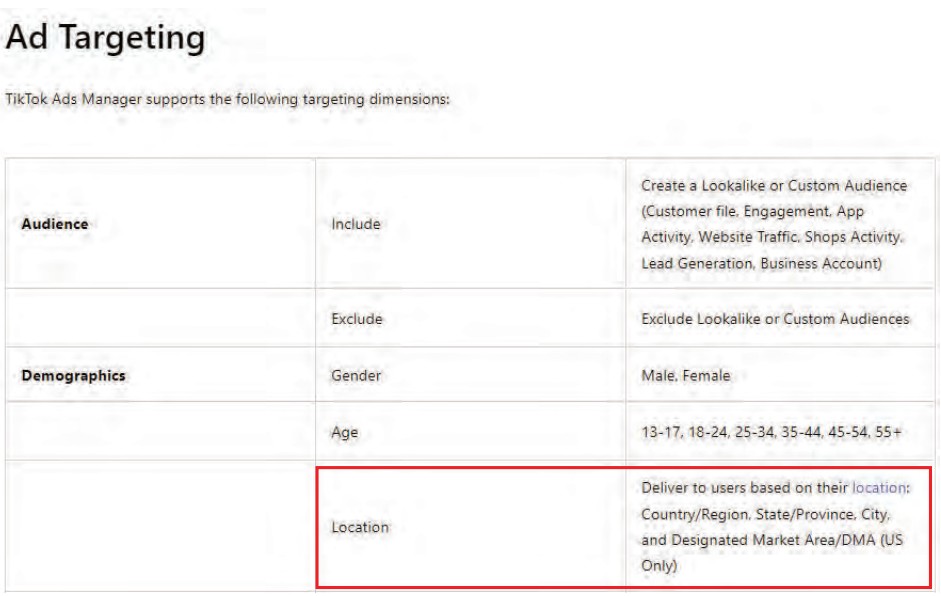
Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance

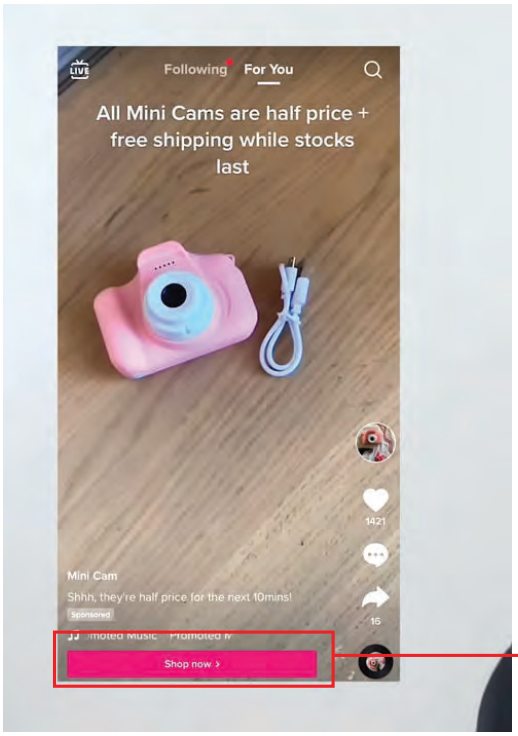
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| | **How TikTok collects location information**<br><br>TikTok collects your approximate location information based on your device or network information, such as SIM card and IP address.<br><br>In regions where Location Services are available for the TikTok app, and when you turn it on, TikTok will also collect your location information based on your device's GPS. Learn more about your device's location settings in the Android Help Center and Apple Support. Note: Location Services may not be available in all regions, including the U.S. and South Korea.<br><br>Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok<br><br>• **Location Information.** We collect information about your approximate location, including location information based on your SIM card and/or IP address. With your permission, we may also collect precise location data (such as GPS). In addition, we collect location information (such as tourist attractions, shops, or other points of interest) if you choose to add location information to your User Content.<br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |

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| | TikTok Ads allow you to tailor messages and offers to specific locations including countries, regions, states, provinces, metro areas, cities, zip codes and more. Some targeting options are not available in all countries or regions.<br><br>**Note:**<br>• If you are targeting multiple countries, locations may have regional descriptions (ex. Counties, Districts, etc.) in Ads Manager aligning with local definitions.<br>• Where available, TikTok enables advertisers to target up to 1500 location selections at a time, per ad group.<br>• Zip code targeting can be used in instances where an advertiser needs to target a more granular location than DMA or city. For example, if an advertiser provides services to only a portion of a city.<br>• A zip code or postal code prefix might not be targetable because it's either invalid, has not been made available due to ad policy requirements, or has not launched in those areas.<br>• TikTok does not support zip code + 4 targeting. If an advertiser tries to upload zip + 4, they will receive an error message.<br>• Targeting ad campaigns to small geographic areas or sets of zip codes can significantly reduce the number of impressions and clicks delivered, and may result in a higher CPA.<br>• Some advertisers may be subject to the Housing, Employment, and Credit ad policy.<br><br>Location targeting is based on a variety of signals to serve ads to users who align with your location targeting selections. Due to the fact that signals vary, our delivery is not guaranteed and accuracy is not guaranteed in every situation.<br><br>**Location Targeting Options**<br><br>**Location Type** / **Example**<br>City / Salt Lake City, Utah<br>Country / Region / United States<br><br>Source: https://ads.tiktok.com/help/article/location-targeting?lang=en |

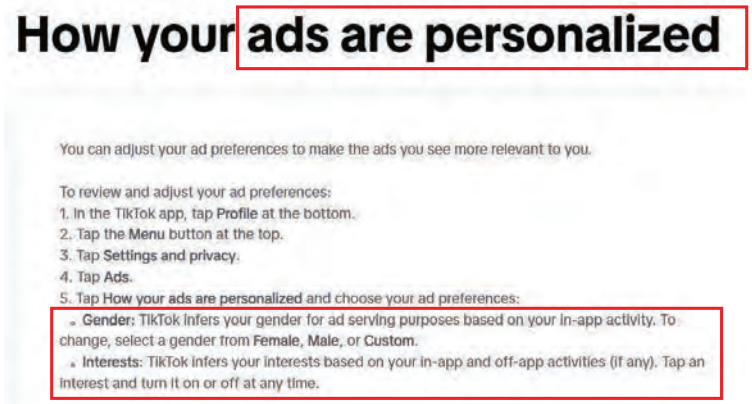
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| |  <br>Source: https://apps.apple.com/us/app/tiktok/id835599320 |

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| |  <br>Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

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| |  <br>Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.6] display a mobile advertisement inside the mobile software application; | Defendant provides a mobile software application that displays a mobile advertisement inside the mobile software application.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes the user's information such as their GPS location, gender, interests, activities, and other information to display customized advertisements in the TikTok app interface for the user. |




Source: https://www.youtube.com/watch?v=VRw0q8vpBY0, at 2:30 (annotated)

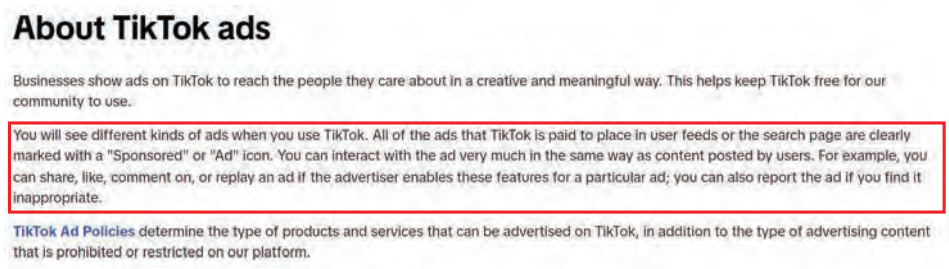


## How your ads are personalized

You can adjust your ad preferences to make the ads you see more relevant to you.

To review and adjust your ad preferences:
1. In the TikTok app, tap **Profile** at the bottom.
2. Tap the **Menu** button at the top.
3. Tap **Settings and privacy**.
4. Tap **Ads**.
5. Tap **How your ads are personalized** and choose your ad preferences:
   - **Gender:** TikTok infers your gender for ad serving purposes based on your in-app activity. To change, select a gender from **Female**, **Male**, or **Custom**.
   - **Interests:** TikTok infers your interests based on your in-app and off-app activities (if any). Tap an interest and turn it on or off at any time.

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/how-your-ads-are-personalized



## About TikTok ads

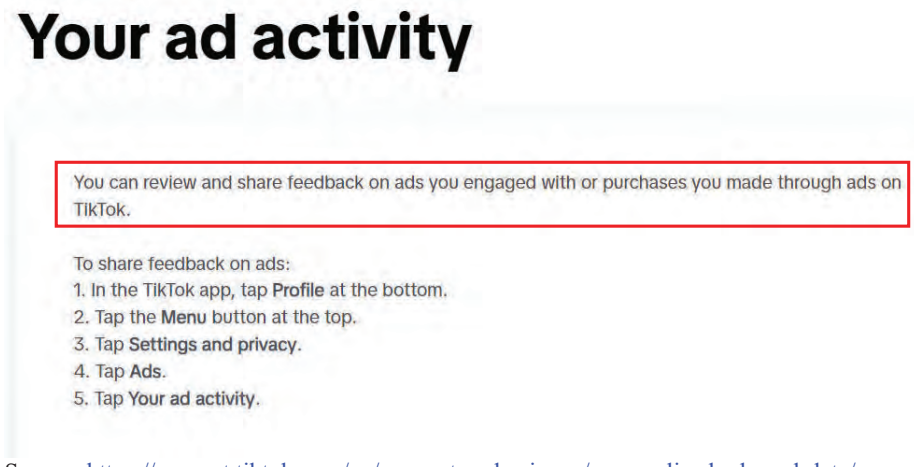
Businesses show ads on TikTok to reach the people they care about in a creative and meaningful way. This helps keep TikTok free for our community to use.

You will see different kinds of ads when you use TikTok. All of the ads that TikTok is paid to place in user feeds or the search page are clearly marked with a "Sponsored" or "Ad" icon. You can interact with the ad very much in the same way as content posted by users. For example, you can share, like, comment on, or replay an ad if the advertiser enables these features for a particular ad; you can also report the ad if you find it inappropriate.

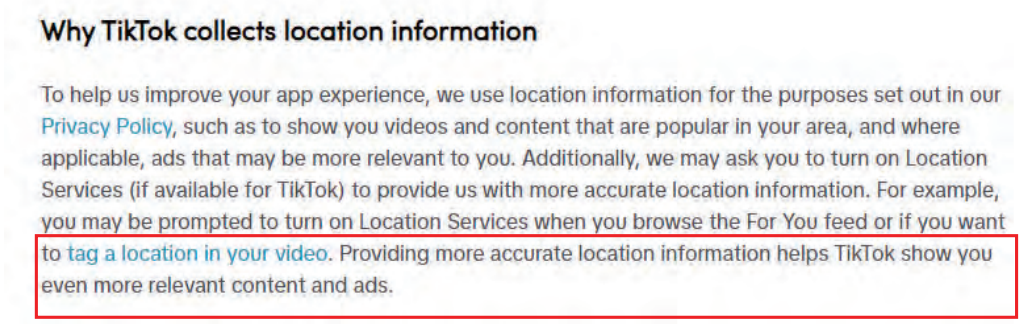
**TikTok Ad Policies** determine the type of products and services that can be advertised on TikTok, in addition to the type of advertising content that is prohibited or restricted on our platform.

Source: https://www.tiktok.com/privacy/ads-and-your-data/en

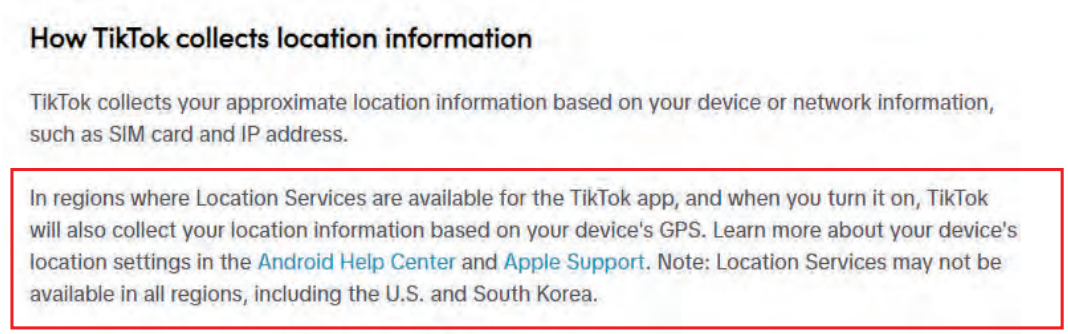
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| | **Information we use for all ads**<br>The following general information may be used to show you either personalized or non-personalized ads.<br>• **Location information:** For example, you may see an ad from an advertiser wanting to reach TikTok users in Berlin, Germany if we think you are in Berlin based on your location information. Learn more about how location information is collected.<br>• **Language information:** For example, you may see an ad from an advertiser wanting to reach Spanish speakers if your app language is set to Spanish.<br>• **Demographic information you provide:** For example, the age you provide when you sign up for a TikTok account can affect whether TikTok shows you an ad for a car rental service available to people aged 25 and over.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en<br>**Information we use for personalized ads**<br>The following additional information may be used to show you personalized ads, depending on your ad personalization choices.<br>• **Demographic information we infer:** For example, we may infer your gender based on your on-TikTok activity, which can be used to tailor the ads that you see. You can update inferred gender for ads at any time in your ads settings. Any updates apply only to your ads settings and do not affect other TikTok services.<br>• **Interest and Behavioral Information**<br>◦ **On-TikTok activity:** TikTok may display ads about things you may be interested in, based on how you view, search, share and like content or interact with creator(s), as well as your previous interactions with similar ads. For example, a pet store might want to advertise a sale on dog toys to people interested in dogs; we might show this ad to users who liked a lot of videos tagged with the hashtag "dogs". Or an outdoor activity store wants to advertise tents to followers of creators who post content about outdoor activities and nature. We will show this ad to followers of those types of creators.<br>◦ **Off-TikTok activity:** TikTok may personalise ads based on the information shared by our Advertisers, measurement and other partners. For example, a fashion brand may want to promote their summer clothing collection to customers who've purchased from their website or app in the past. The brand can share information with us so that we can show its ads to the TikTok users we think it's trying to reach.<br>The shared information may include device information like your phone's advertising ID and/or email addresses and phone numbers that have been encrypted. Partners may also share the actions you take on the advertiser's app or website, like whether you placed an item in a shopping cart.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en |



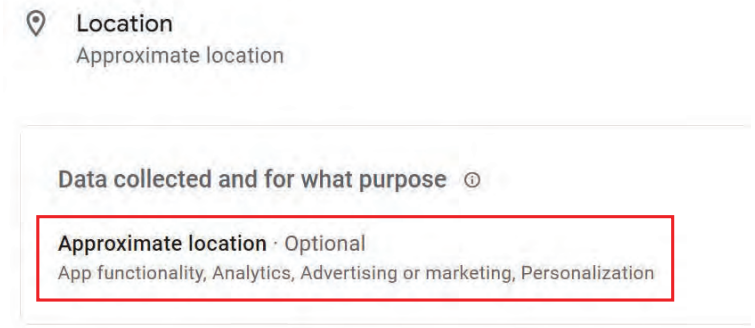

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/your-ad-activity




Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok

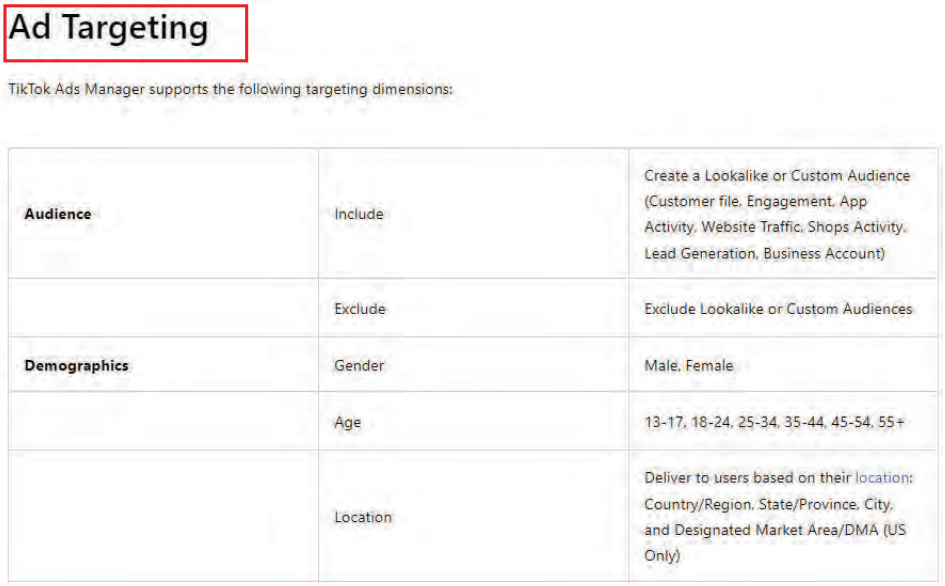



Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok




Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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Ad Targeting

TikTok Ads Manager supports the following targeting dimensions:

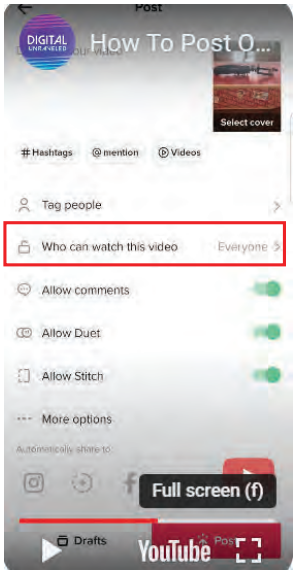
| | | |
|---|---|---|
| **Audience** | Include | Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account) |
| | Exclude | Exclude Lookalike or Custom Audiences |
| **Demographics** | Gender | Male, Female |
| | Age | 13-17, 18-24, 25-34, 35-44, 45-54, 55+ |
| | Location | Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only) |

Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en

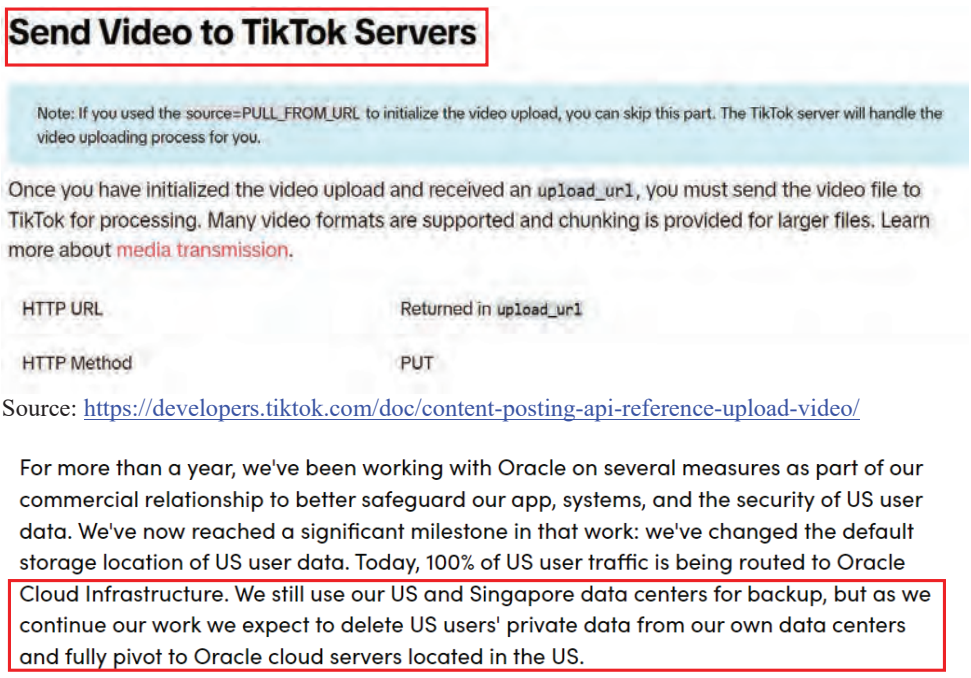
Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant.</td></tr>
<tr><td>[1.7] an online data publishing web service, the online data publishing web service comprising: said remote server configured with a network internet</td><td>Defendant provides an online data publishing web service, the online data publishing web service comprising: said remote server configured with a network internet connection to communicate with the mobile software application.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.</td></tr>
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| connection to communicate with the mobile software application; | For example, Defendant provides a feature to the user to broadcast their video online ("online data publishing web service") using the TikTok app. The video uploaded by the TikTok app's user is transferred to a backend remote server, hosted in the TikTok app's cloud with internet connectivity. The server processes and stores the users' data for future use.<br><br>**Public account**<br><br>Depending on your selected privacy settings, your posts may be visible to, and shared by, anyone on or off TikTok whether or not they have a TikTok account. Anyone can:<br>• Follow you<br>• Watch your videos, LIVE videos, bios, and likes<br>• See your followers and following lists<br>Depending on your privacy settings, other people may also be able to download, Duet and Stitch with your videos. Your content may appear in search engines, blogs, social media posts and news sites.<br><br>A few things to know about private and public accounts:<br>• Your name, username and profile photo will always be visible to anyone on or off TikTok.<br>• Other people will be able to search for your account.<br>• You can always restrict the visibility of your posts individually by changing your video settings, and your posts will be limited to the audience you select.<br>• You can choose who can comment on your videos, who can send you direct messages, and decide whether your account is suggested to others.<br><br>To set your TikTok account as private or public:<br>1. In the TikTok app, tap **Profile** at the bottom.<br>2. Tap the **Menu** ☰ button at the top.<br>3. Tap **Settings and privacy**, then tap **Privacy**.<br>4. Turn **Private account** on or off.<br><br>Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/making-your-account-public-or-private |

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| | **Choose who can view your videos**<br><br>To change the privacy setting on a new post:<br>1. Create your video.<br>2. On the Post screen, choose who can view your video.<br>• If you have a public account, you can choose **Everyone** (people on or off TikTok), **Friends** (followers you follow back), or **Only you**.<br>• If you have a private account, you can choose **Followers**, **Friends** (followers you follow back), or **Only you**.<br><br>To change the privacy setting on a video you already posted:<br>1. In the TikTok app, go to the video you'd like to update. You can find your videos on your **Profile**.<br>2. Tap the **More options** ... button on the side of the video.<br>3. Tap **Privacy settings** at the bottom. You may need to swipe left.<br>4. Below **Who can watch this video**, choose who can view your video.<br>• If you have a public account, you can choose **Everyone** (people on or off TikTok), **Friends** (followers you follow back), or **Only me**.<br>• If you have a private account, you can choose **Followers**, **Friends** (followers you follow back), or **Only me**.<br>Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/video-visibility |

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| |  <br>Source: https://www.youtube.com/watch?v=BV7KJZDv4mY, at 0:39 |

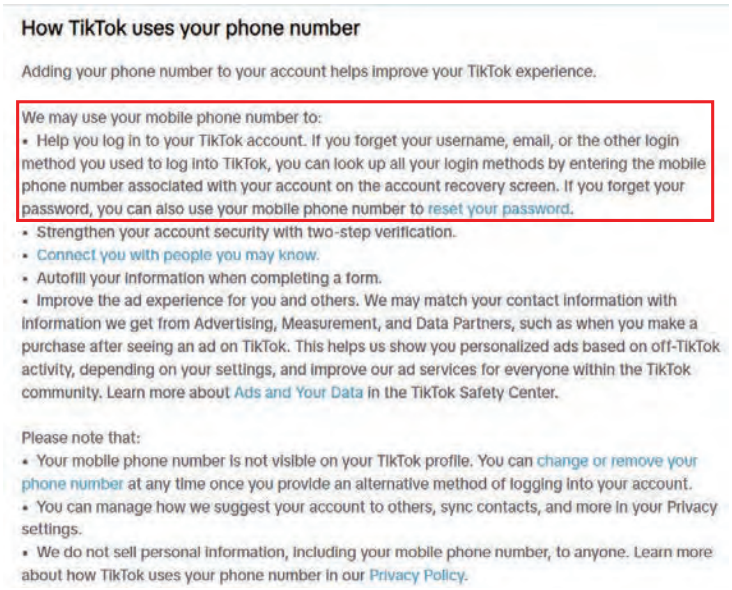
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| | **Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>**File upload**<br><br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br><br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide |

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| |  <br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.8] a user authentication software module, wherein the user authentication | Defendant provides an online data publishing web services comprising a user authentication software module, wherein the user authentication software module processes the user authentication credential received from the mobile software application; a database, wherein the database stores a user profile. |

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| software module processes the user authentication credential received from the mobile software application;<br>a database, wherein the database stores a user profile; and | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app in the mobile device stores the user's login credentials ("user authentication credential") such as the username and password on the TikTok app's servers. When a user attempts a log in into their TikTok account, the TikTok app's servers use the stored user's credentials to authenticate the user. It would be apparent to a person having ordinary skill in the art that the TikTok app comprises a user authentication software module which stores the users' authentication credentials to facilitate automatic user authentication upon subsequent logins.<br><br>The TikTok app stores users' information, including their usernames, liked videos, watch history, and user profiles, among other details, in a database. This database is hosted in a remote cloud environment. |



LifeScan, Inc. Ex. 1036
Page 1950 of 2225
IPR2025-00102



**How TikTok uses your phone number**

Adding your phone number to your account helps improve your TikTok experience.

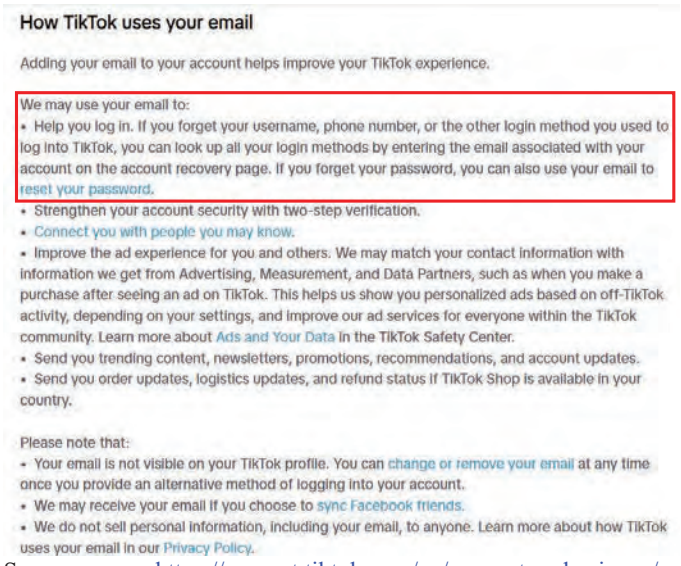
We may use your mobile phone number to:

- Help you log in to your TikTok account. If you forget your username, email, or the other login method you used to log into TikTok, you can look up all your login methods by entering the mobile phone number associated with your account on the account recovery screen. If you forget your password, you can also use your mobile phone number to reset your password.
- Strengthen your account security with two-step verification.
- Connect you with people you may know.
- Autofill your information when completing a form.
- Improve the ad experience for you and others. We may match your contact information with information we get from Advertising, Measurement, and Data Partners, such as when you make a purchase after seeing an ad on TikTok. This helps us show you personalized ads based on off-TikTok activity, depending on your settings, and improve our ad services for everyone within the TikTok community. Learn more about Ads and Your Data in the TikTok Safety Center.

Please note that:

- Your mobile phone number is not visible on your TikTok profile. You can change or remove your phone number at any time once you provide an alternative method of logging into your account.
- You can manage how we suggest your account to others, sync contacts, and more in your Privacy settings.
- We do not sell personal information, including your mobile phone number, to anyone. Learn more about how TikTok uses your phone number in our Privacy Policy.

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/how-your-phone-number-is-used-on-tiktok



**How TikTok uses your email**

Adding your email to your account helps improve your TikTok experience.

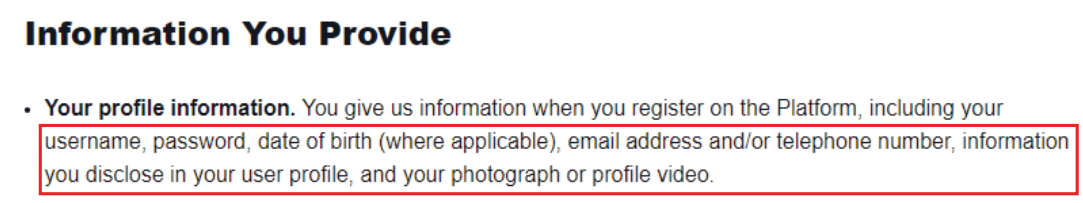
We may use your email to:

- Help you log in. If you forget your username, phone number, or the other login method you used to log into TikTok, you can look up all your login methods by entering the email associated with your account on the account recovery page. If you forget your password, you can also use your email to reset your password.
- Strengthen your account security with two-step verification.
- Connect you with people you may know.
- Improve the ad experience for you and others. We may match your contact information with information we get from Advertising, Measurement, and Data Partners, such as when you make a purchase after seeing an ad on TikTok. This helps us show you personalized ads based on off-TikTok activity, depending on your settings, and improve our ad services for everyone within the TikTok community. Learn more about Ads and Your Data in the TikTok Safety Center.
- Send you trending content, newsletters, promotions, recommendations, and account updates.
- Send you order updates, logistics updates, and refund status if TikTok Shop is available in your country.

Please note that:

- Your email is not visible on your TikTok profile. You can change or remove your email at any time once you provide an alternative method of logging into your account.
- We may receive your email if you choose to sync Facebook friends.
- We do not sell personal information, including your email, to anyone. Learn more about how TikTok uses your email in our Privacy Policy.

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/how-your-phone-number-is-used-on-tiktok



**Information You Provide**

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

Source: https://www.tiktok.com/legal/page/row/privacy-policy/en

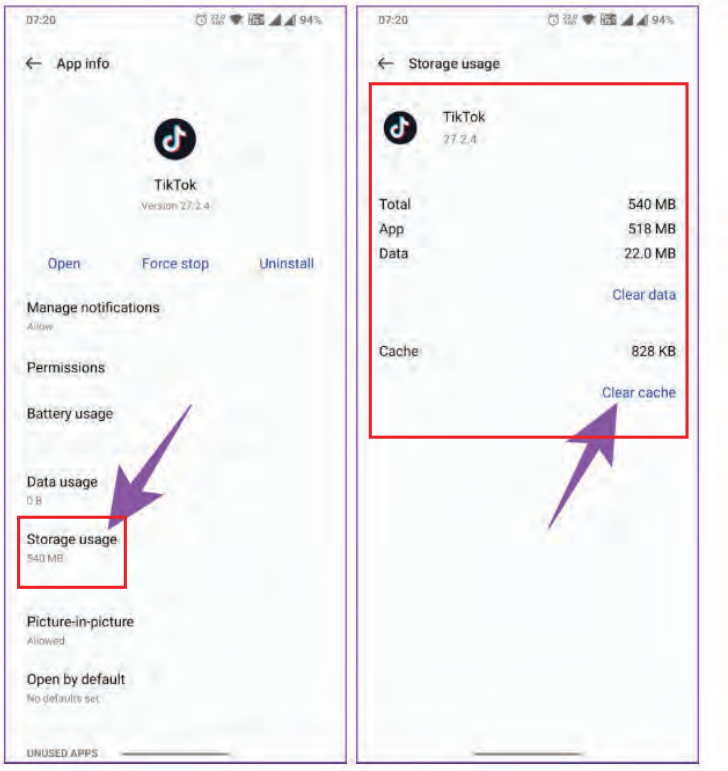




LifeScan, Inc. Ex. 1036
Page 1952 of 2225
IPR2025-00102

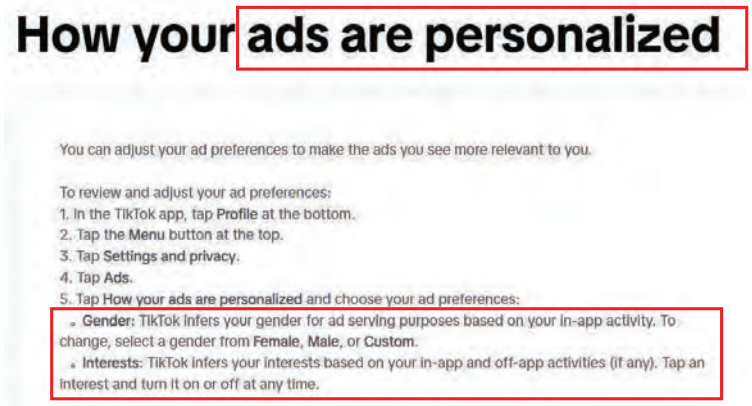
| | |
|---|---|
| | You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

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| |  <br>Source: https://www.tiktok.com/@akirasashmi/video/7129576154465422619<br><br>**Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps |

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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

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| |  <br>Source: https://usds.tiktok.com/?gad_source=1&gclid=EAIaIQobChMIx-ywl9vQhAMV3l1HAR22VQlKEAMYASAAEgKPF_D_BwE, at 1:05 |

| | |
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| |  <br>Source: https://usds.tiktok.com/?gad_source=1&gclid=EAIaIQobChMIx-ywl9vQhAMV3l1HAR22VQlKEAMYASAAEgKPF_D_BwE, at 0:53 (annotated)<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.9] a mobile software application advertising software module, wherein the mobile software application advertising software module selects advertisements based on the user profile and sends the selected advertisements to the mobile software application; | Defendant provides an online data publishing web service that comprises a mobile software application advertising software module, wherein the mobile software application advertising software module selects advertisements based on the user profile and sends the selected advertisements to the mobile software application.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app displays customized advertisements in the app's interface based on the user's preferences. It would be apparent to a person having ordinary skill in the art that an advertising software module is embedded within the TikTok app that dynamically selects advertisements for each user based on their location, gender, interests, activities, and other information. Subsequently, the selected advertisement is displayed on the TikTok app's interface. |

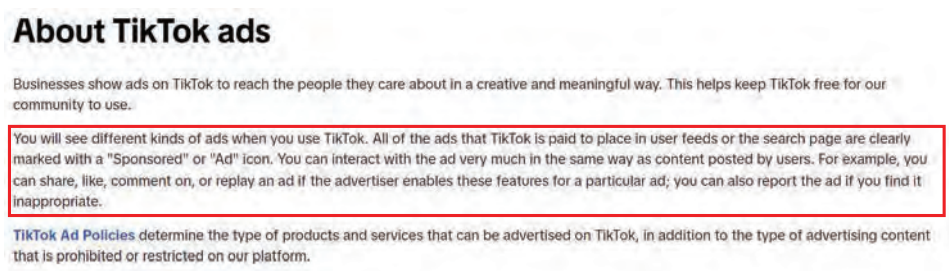


## How your ads are personalized

You can adjust your ad preferences to make the ads you see more relevant to you.

To review and adjust your ad preferences:
1. In the TikTok app, tap **Profile** at the bottom.
2. Tap the **Menu** button at the top.
3. Tap **Settings and privacy**.
4. Tap **Ads**.
5. Tap **How your ads are personalized** and choose your ad preferences:
   - **Gender:** TikTok infers your gender for ad serving purposes based on your in-app activity. To change, select a gender from **Female**, **Male**, or **Custom**.
   - **Interests:** TikTok infers your interests based on your in-app and off-app activities (if any). Tap an interest and turn it on or off at any time.

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/how-your-ads-are-personalized



## About TikTok ads

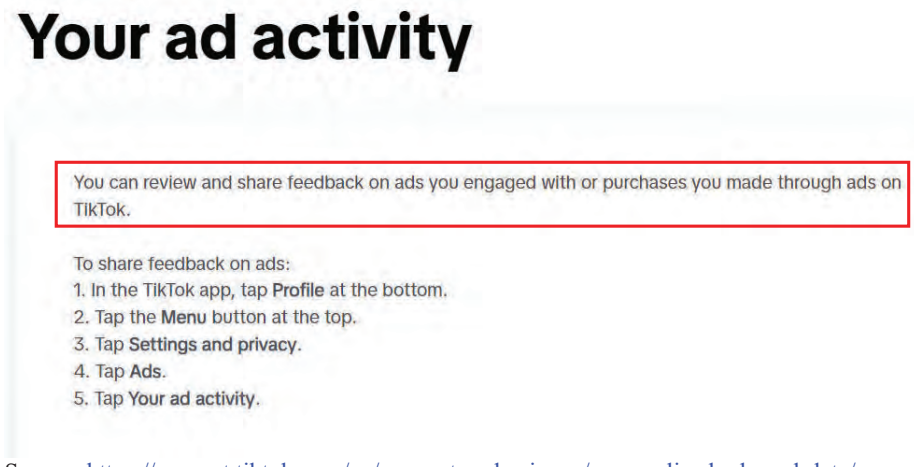
Businesses show ads on TikTok to reach the people they care about in a creative and meaningful way. This helps keep TikTok free for our community to use.

You will see different kinds of ads when you use TikTok. All of the ads that TikTok is paid to place in user feeds or the search page are clearly marked with a "Sponsored" or "Ad" icon. You can interact with the ad very much in the same way as content posted by users. For example, you can share, like, comment on, or replay an ad if the advertiser enables these features for a particular ad; you can also report the ad if you find it inappropriate.

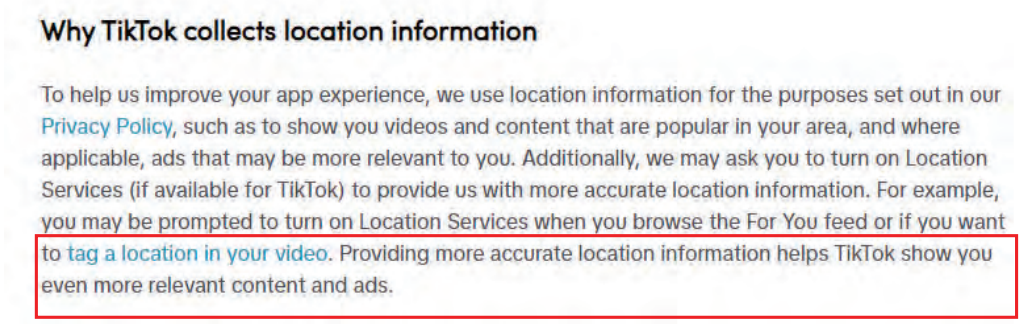
**TikTok Ad Policies** determine the type of products and services that can be advertised on TikTok, in addition to the type of advertising content that is prohibited or restricted on our platform.

Source: https://www.tiktok.com/privacy/ads-and-your-data/en

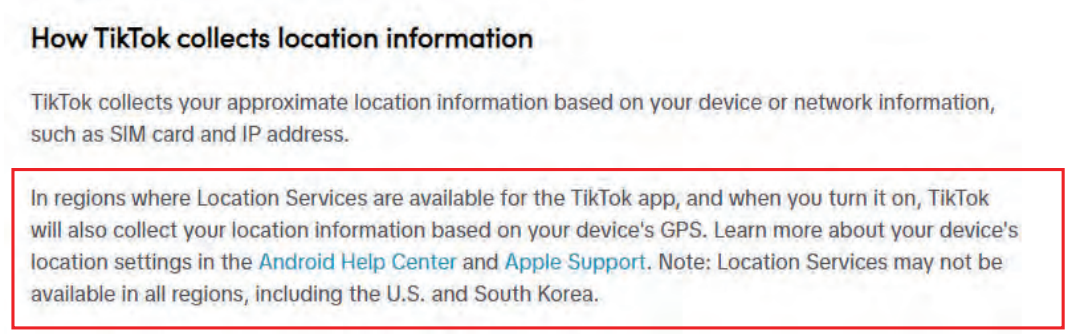
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|---|---|
| | **Information we use for all ads**<br>The following general information may be used to show you either personalized or non-personalized ads.<br>• **Location information:** For example, you may see an ad from an advertiser wanting to reach TikTok users in Berlin, Germany if we think you are in Berlin based on your location information. Learn more about how location information is collected.<br>• **Language information:** For example, you may see an ad from an advertiser wanting to reach Spanish speakers if your app language is set to Spanish.<br>• **Demographic information you provide:** For example, the age you provide when you sign up for a TikTok account can affect whether TikTok shows you an ad for a car rental service available to people aged 25 and over.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en<br>**Information we use for personalized ads**<br>The following additional information may be used to show you personalized ads, depending on your ad personalization choices.<br>• **Demographic information we infer:** For example, we may infer your gender based on your on-TikTok activity, which can be used to tailor the ads that you see. You can update inferred gender for ads at any time in your ads settings. Any updates apply only to your ads settings and do not affect other TikTok services.<br>• **Interest and Behavioral Information**<br>◦ **On-TikTok activity:** TikTok may display ads about things you may be interested in, based on how you view, search, share and like content or interact with creator(s), as well as your previous interactions with similar ads. For example, a pet store might want to advertise a sale on dog toys to people interested in dogs; we might show this ad to users who liked a lot of videos tagged with the hashtag "dogs". Or an outdoor activity store wants to advertise tents to followers of creators who post content about outdoor activities and nature. We will show this ad to followers of those types of creators.<br>◦ **Off-TikTok activity:** TikTok may personalise ads based on the information shared by our Advertisers, measurement and other partners. For example, a fashion brand may want to promote their summer clothing collection to customers who've purchased from their website or app in the past. The brand can share information with us so that we can show its ads to the TikTok users we think it's trying to reach.<br>The shared information may include device information like your phone's advertising ID and/or email addresses and phone numbers that have been encrypted. Partners may also share the actions you take on the advertiser's app or website, like whether you placed an item in a shopping cart.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en |



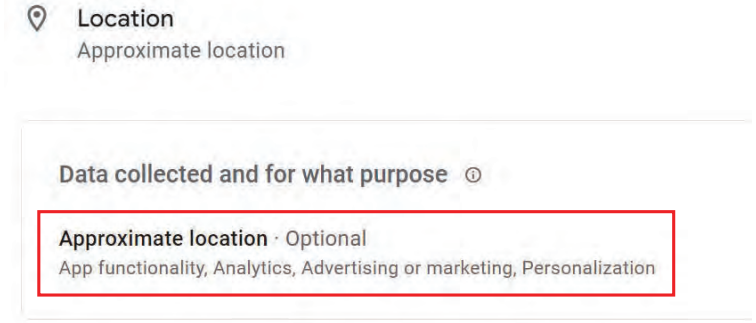

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/your-ad-activity




Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok




Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok



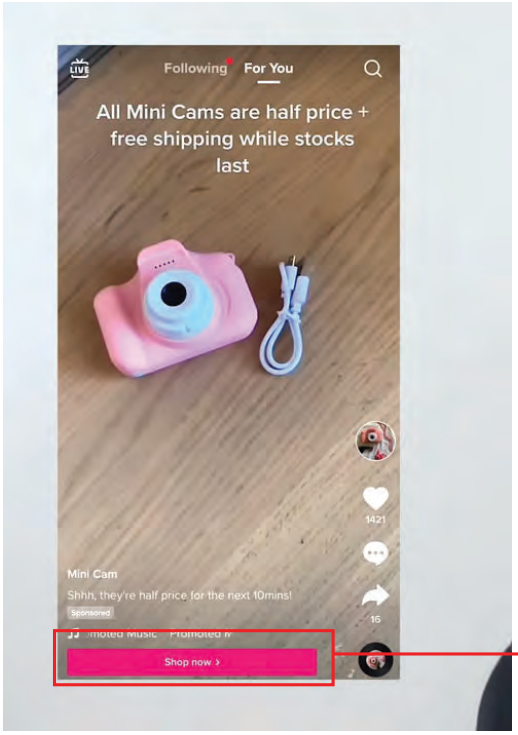

Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US

## Ad Targeting

TikTok Ads Manager supports the following targeting dimensions:

| | | |
|---|---|---|
| **Audience** | Include | Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account) |
| | Exclude | Exclude Lookalike or Custom Audiences |
| **Demographics** | Gender | Male, Female |
| | Age | 13-17, 18-24, 25-34, 35-44, 45-54, 55+ |
| | Location | Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only) |

Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en

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|---|---|
| |  <br>Source: https://www.youtube.com/watch?v=VRw0q8vpBY0, at 2:30 (annotated)<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.10] said online data publishing web service | Defendant provides an online data publishing web service configured to receive the new-data and the user authentication credential from the Bluetooth enabled cellular phone via the Hypertext Transfer Protocol. |

| | |
|---|---|
| configured to receive the new-data and the user authentication credential from the Bluetooth enabled cellular phone via the Hypertext Transfer Protocol; and | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app installed in the mobile device ("Bluetooth enabled cellular phone") utilizes Hypertext Transfer Protocol (HTTP) to upload data, including but not limited to the commands ("new-data") provided by the user on the TikTok app's servers. TikTok app uses the user credentials such as username and password ("user authentication credential") associated with the user's account of TikTok app, stored in the mobile device's memory, for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos are available online and can be accessed anytime by the user of the TikTok app by logging into the app.<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |

| | |
|---|---|
| | **File upload**<br><br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br><br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide<br><br>**Information You Provide**<br><br>• **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.<br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en<br><br>**Automatically Collected Information**<br><br>• **Usage Information.** We collect information regarding your use of the Platform, *e.g.*, how you engage with the Platform, including how you interact with content we show to you, the advertisements you view, videos you watch and problems encountered, browsing and search history, the content you like, the content you save to 'My Favourites', the users you follow and how you engage with mutual followers.<br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |

You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.

You can save your login information:
- Across all devices using the same iCloud account on iOS.
- On a single device on Android.

To save or delete your login information:
1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.
2. Enter the 6-digit code that was sent to the phone number associated with your account.
3. Once you're logged in, tap the **Menu** button at the top.
4. Tap **Settings and privacy**.
5. Tap **Security**.
6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.

If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.

Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information

## Send Video to TikTok Servers

Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.

Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.

| | |
|---|---|
| HTTP URL | Returned in `upload_url` |
| HTTP Method | PUT |

| | |
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| | Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br><br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [1.11] said online data publishing web service configured to process the received user authentication credential and the new-data. | Defendant provides an online data publishing web service configured to process the received user authentication credential and the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app installed in the mobile device utilizes Hypertext Transfer Protocol (HTTP) to upload data, including but not limited to the commands ("new-data") provided by the user on the TikTok app's servers. TikTok app uses the user credentials such as username and password ("user authentication credential") associated with the user's account of TikTok app, stored in the mobile device's memory, for uploading the commands.<br><br>For example, when the user provides commands such as 'like' or 'scroll down' through the Bluetooth device, the TikTok app installed on the mobile device processes the user's instruction and accordingly performs the command. Further, the uploaded data such as liked/watched videos are available online in the liked folder/watch history, and can be accessed anytime by the user of the TikTok app by logging into the app. |

## Initialize video upload

To upload a video to a TikTok user's account, the first step is to initialize the upload.

| | |
|---|---|
| HTTP URL | /v2/post/publish/inbox/video/init/ |
| HTTP Method | POST |
| Scope | video.upload |

Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

## File upload

Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.

To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.

Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide

## Information You Provide

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

Source: https://www.tiktok.com/legal/page/row/privacy-policy/en

## Automatically Collected Information

- **Usage Information.** We collect information regarding your use of the Platform, *e.g.*, how you engage with the Platform, including how you interact with content we show to you, the advertisements you view, videos you watch and problems encountered, browsing and search history, the content you like, the content you save to 'My Favourites', the users you follow and how you engage with mutual followers.

Source: https://www.tiktok.com/legal/page/row/privacy-policy/en

You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.

You can save your login information:
- Across all devices using the same iCloud account on iOS.
- On a single device on Android.

To save or delete your login information:
1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.
2. Enter the 6-digit code that was sent to the phone number associated with your account.
3. Once you're logged in, tap the **Menu** button at the top.
4. Tap **Settings and privacy**.
5. Tap **Security**.
6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.

If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.

Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information

## Send Video to TikTok Servers

Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.

Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.

| | |
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| HTTP URL | Returned in `upload_url` |
| HTTP Method | PUT |

Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.

Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance

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| | If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/<br><br>**Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking |

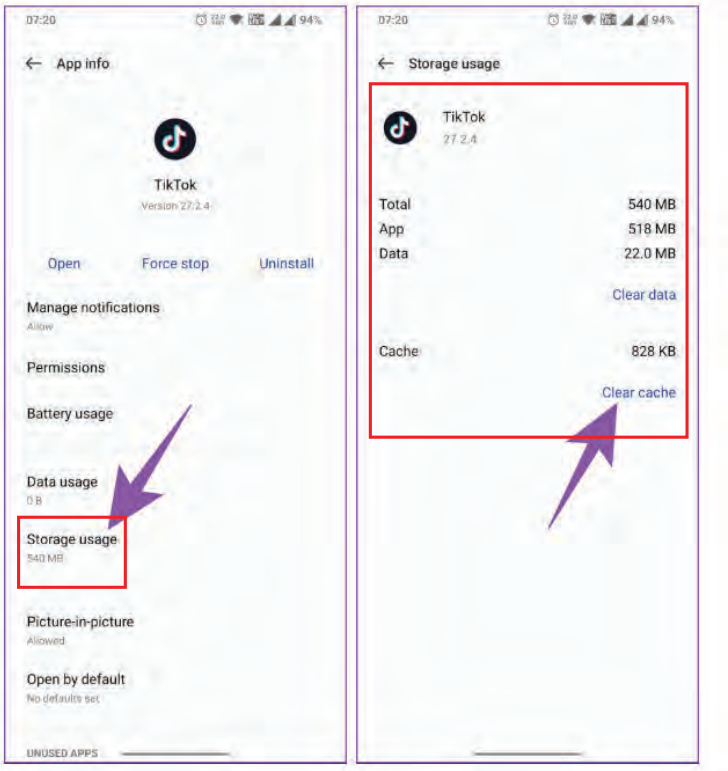
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| | **There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [2] The system of claim 1, wherein the user authentication credential is stored in the memory of the Bluetooth enabled cellular phone, and | Defendant provides the system of claim 1, wherein the user authentication credential is stored in the memory of the Bluetooth enabled cellular phone, and wherein the user authentication credential is used by the remote server to authenticate a user.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| wherein the user authentication credential is used by the remote server to authenticate a user. | For example, the TikTok app in the mobile device (“Bluetooth enabled cellular phone”) stores the user's login credentials (“user authentication credential”) such as the username and password within the mobile device's memory, facilitating automatic authentication upon subsequent logins to their TikTok app’s account. When a user attempts a log in into their TikTok account, the TikTok app’s servers use the stored user’s credentials to authenticate the user.<br><br>**Information You Provide**<br><br>• **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.<br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en<br><br>You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in. |

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| | Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information<br>  <br>Source: https://www.tiktok.com/@akirasashmi/video/7129576154465422619 |

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| | **How to save or delete your login information**<br><br>You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

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| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps |

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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [3] The system of claim 1, wherein the remote server is further configured to store the new-data. | Defendant provides the system of claim 1, wherein the remote server is further configured to store the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, when the user provides commands such as 'like' or 'scroll down' ("new-data") through the Bluetooth device, the TikTok app installed on the mobile device processes the user's instruction and accordingly performs the command. Further, the liked/watched videos are uploaded on the TikTok app's cloud ("remote server"), and are available online in the liked folder/watch history, which can be accessed anytime by the user of the TikTok app by logging into the app. |

## Initialize video upload

To upload a video to a TikTok user's account, the first step is to initialize the upload.

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| HTTP URL | /v2/post/publish/inbox/video/init/ |
| HTTP Method | POST |
| Scope | video.upload |

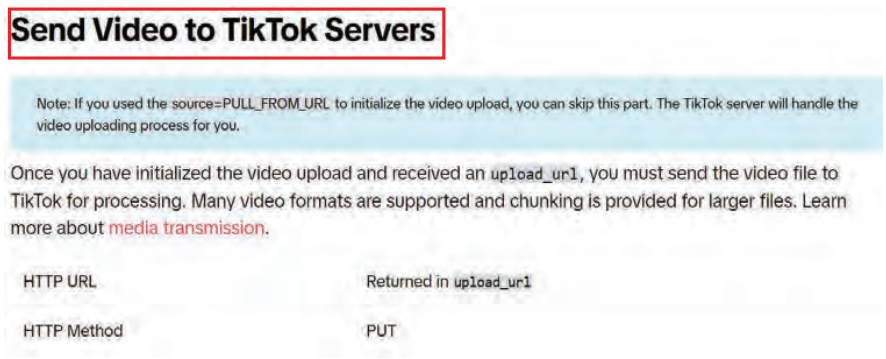
Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

## File upload

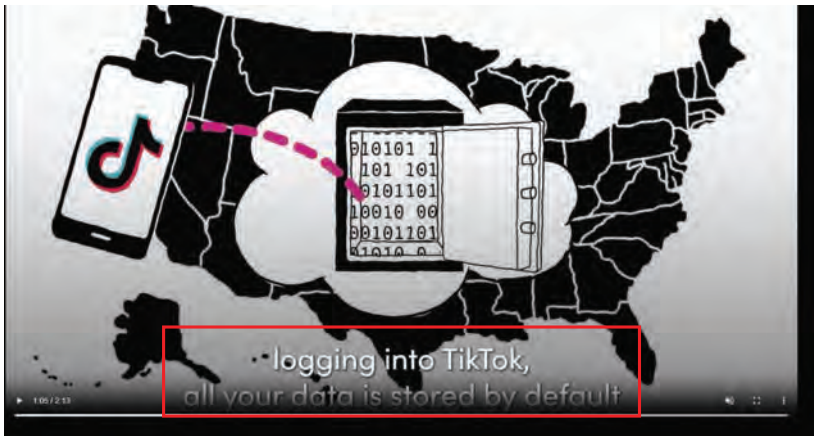
Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.

To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.

Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide

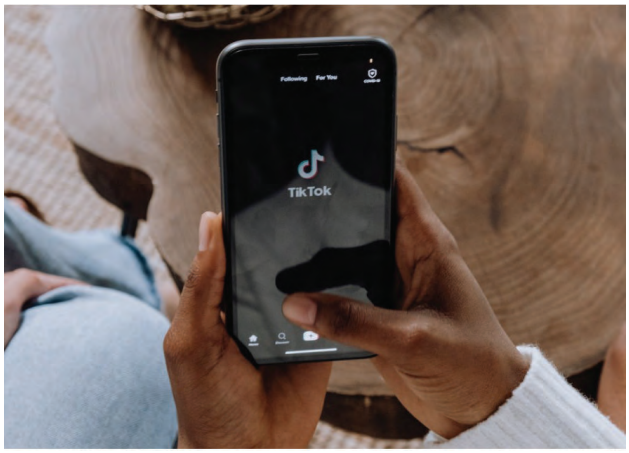



Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/




Source: https://usds.tiktok.com/?gad_source=1&gclid=EAIaIQobChMIx-ywl9vQhAMV3l1HAR22VQlKEAMYASAAEgKPF_D_BwE, at 1:05

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| | For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [4] The system of claim 1, wherein the mobile software application provides a touch based GUI for the received new-data. | Defendant provides the system of claim 1, wherein the mobile software application provides a touch based GUI for the received new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app ("mobile software application") installed on the mobile device comprises graphical user interface ("GUI") which allows the user to access the liked and watched videos ("new-data"). |

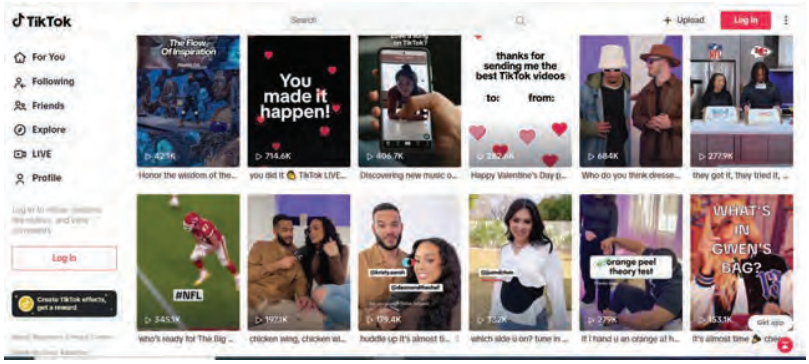
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| |  <br>Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber |

## Onboarding - It starts with a Swipe

The process of getting hooked to TikTok starts right away in the users onboarding experience. TikTok asks users to choose their interests. This information is used for personalizing each user's feed. This is a common practice for products with curated content and used by many different apps.

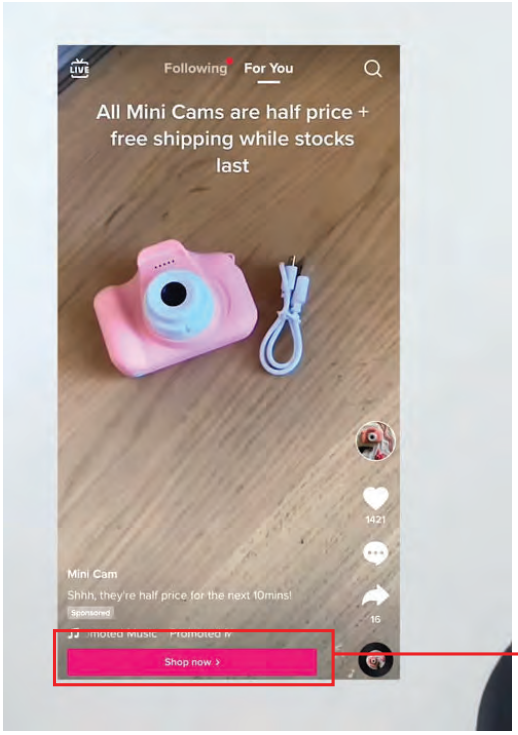
But TikTok's user onboarding is really smart. It encourages users to scroll through the feed and tells them that the content will become more relevant and personalized the more they use it. While this is true for many algorithms, many apps don't tell users this explicitly. By doing so, TikTok encourages users to continue using the app for a better experience

Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber




Source: https://www.tiktok.com/@tiktok

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [5] The system of claim 1, wherein the mobile software application provides a touch based advertisement targeted to a user. | Defendant provides the system of claim 1, wherein the mobile software application provides a touch based advertisement targeted to a user.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app installed on the mobile device comprises a touch based graphical user interface ("GUI") which allows the user to access TikTok app's content and interact with it. Further, the TikTok app dynamically selects advertisements for each user based on their activities and information. Subsequently, the selected advertisement is presented on the TikTok app's interface. Additionally, the TikTok app provides a functionality to the user to engage with the advertisements displayed by the TikTok app on their screens. |



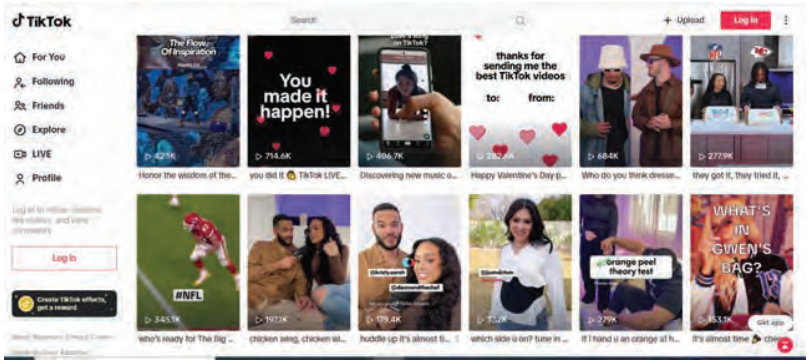

Source: https://www.youtube.com/watch?v=VRw0q8vpBY0, at 2:30 (annotated)

## Onboarding - It starts with a Swipe

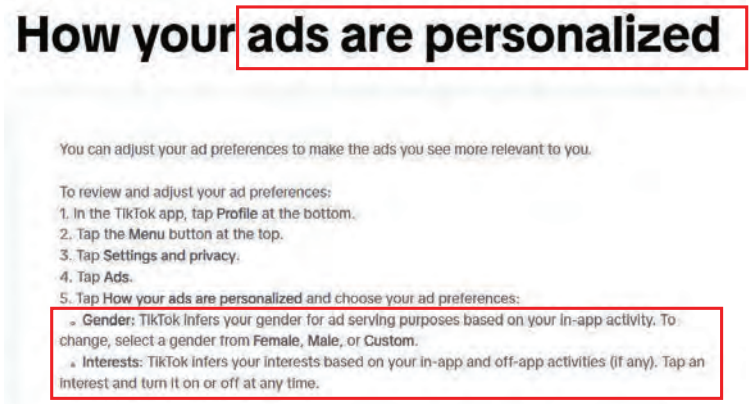
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Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber




Source: https://www.tiktok.com/@tiktok

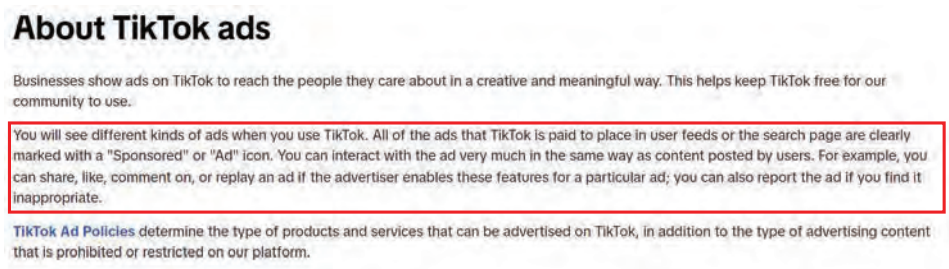


How your ads are personalized

You can adjust your ad preferences to make the ads you see more relevant to you.

To review and adjust your ad preferences:
1. In the TikTok app, tap **Profile** at the bottom.
2. Tap the **Menu** button at the top.
3. Tap **Settings and privacy**.
4. Tap **Ads**.
5. Tap **How your ads are personalized** and choose your ad preferences:
   - **Gender:** TikTok infers your gender for ad serving purposes based on your in-app activity. To change, select a gender from **Female**, **Male**, or **Custom**.
   - **Interests:** TikTok infers your interests based on your in-app and off-app activities (if any). Tap an interest and turn it on or off at any time.

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/how-your-ads-are-personalized



About TikTok ads

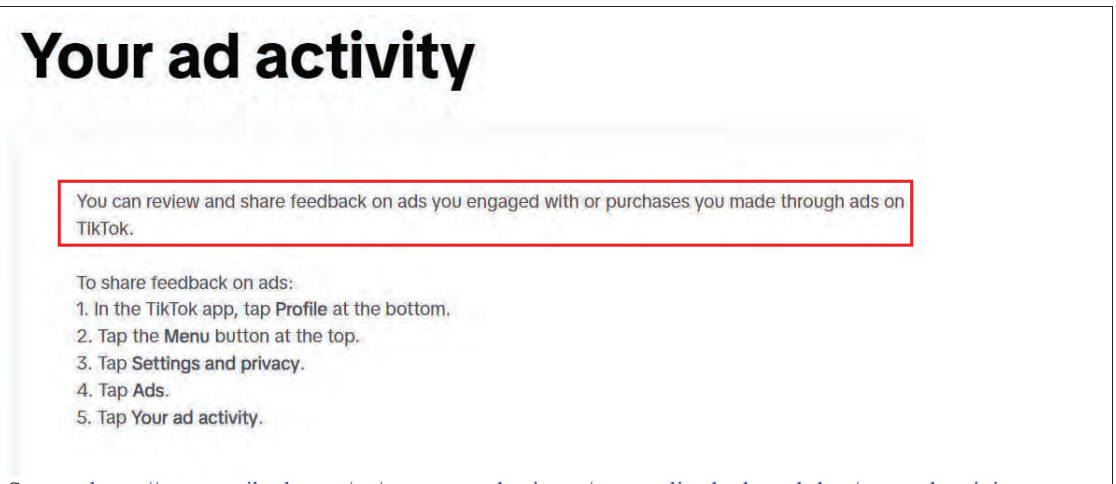
Businesses show ads on TikTok to reach the people they care about in a creative and meaningful way. This helps keep TikTok free for our community to use.

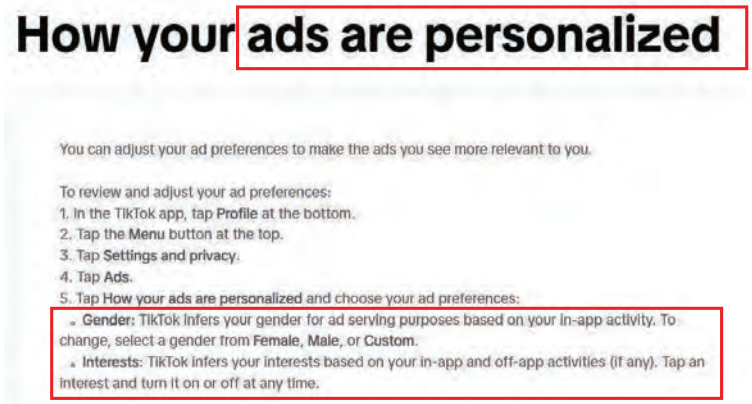
You will see different kinds of ads when you use TikTok. All of the ads that TikTok is paid to place in user feeds or the search page are clearly marked with a "Sponsored" or "Ad" icon. You can interact with the ad very much in the same way as content posted by users. For example, you can share, like, comment on, or replay an ad if the advertiser enables these features for a particular ad; you can also report the ad if you find it inappropriate.

**TikTok Ad Policies** determine the type of products and services that can be advertised on TikTok, in addition to the type of advertising content that is prohibited or restricted on our platform.

Source: https://www.tiktok.com/privacy/ads-and-your-data/en

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| | **Information we use for all ads**<br>The following general information may be used to show you either personalized or non-personalized ads.<br>• **Location information:** For example, you may see an ad from an advertiser wanting to reach TikTok users in Berlin, Germany if we think you are in Berlin based on your location information. Learn more about how location information is collected.<br>• **Language information:** For example, you may see an ad from an advertiser wanting to reach Spanish speakers if your app language is set to Spanish.<br>• **Demographic information you provide:** For example, the age you provide when you sign up for a TikTok account can affect whether TikTok shows you an ad for a car rental service available to people aged 25 and over.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en<br>**Information we use for personalized ads**<br>The following additional information may be used to show you personalized ads, depending on your ad personalization choices.<br>• **Demographic information we infer:** For example, we may infer your gender based on your on-TikTok activity, which can be used to tailor the ads that you see. You can update inferred gender for ads at any time in your ads settings. Any updates apply only to your ads settings and do not affect other TikTok services.<br>• **Interest and Behavioral Information**<br>◦ **On-TikTok activity:** TikTok may display ads about things you may be interested in, based on how you view, search, share and like content or interact with creator(s), as well as your previous interactions with similar ads. For example, a pet store might want to advertise a sale on dog toys to people interested in dogs; we might show this ad to users who liked a lot of videos tagged with the hashtag "dogs". Or an outdoor activity store wants to advertise tents to followers of creators who post content about outdoor activities and nature. We will show this ad to followers of those types of creators.<br>◦ **Off-TikTok activity:** TikTok may personalise ads based on the information shared by our Advertisers, measurement and other partners. For example, a fashion brand may want to promote their summer clothing collection to customers who've purchased from their website or app in the past. The brand can share information with us so that we can show its ads to the TikTok users we think it's trying to reach.<br>The shared information may include device information like your phone's advertising ID and/or email addresses and phone numbers that have been encrypted. Partners may also share the actions you take on the advertiser's app or website, like whether you placed an item in a shopping cart.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en |

| | |
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| |  <br>Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/your-ad-activity<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [6] The system of claim 1, wherein the mobile advertisement is based on the user profile. | Defendant provides the system of claim 1, wherein the mobile advertisement is based on the user profile.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app displays customized advertisements in the app's interface based on the user's preferences. The TikTok app dynamically selects advertisements for each user based on their location, gender, interests, activities, and other information. Subsequently, the selected advertisement is displayed on the TikTok app's interface. |

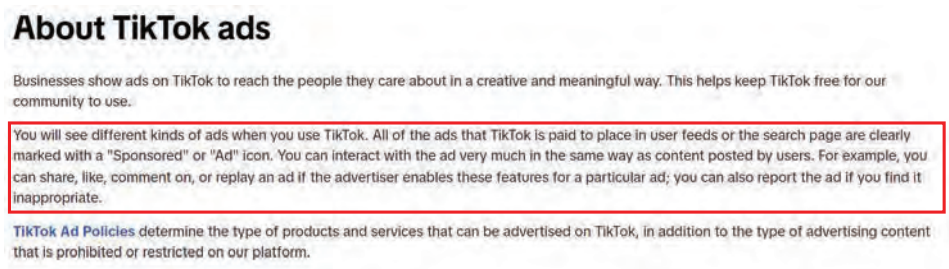


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## About TikTok ads

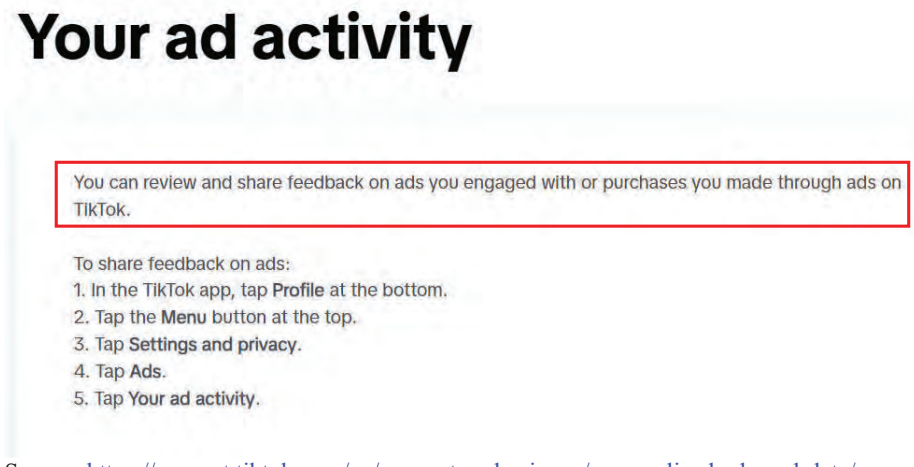
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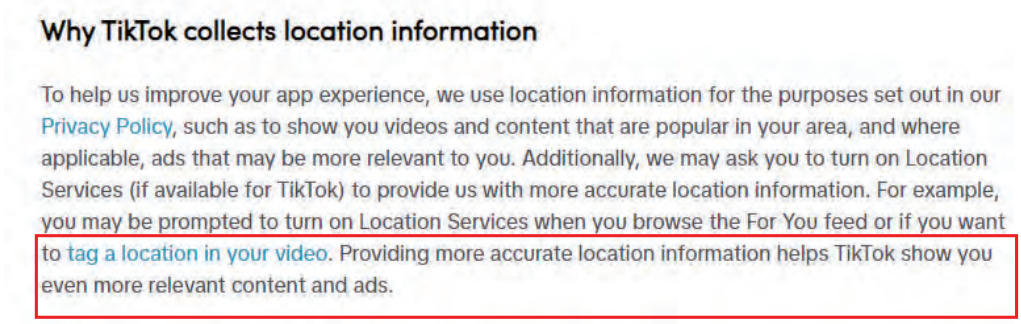
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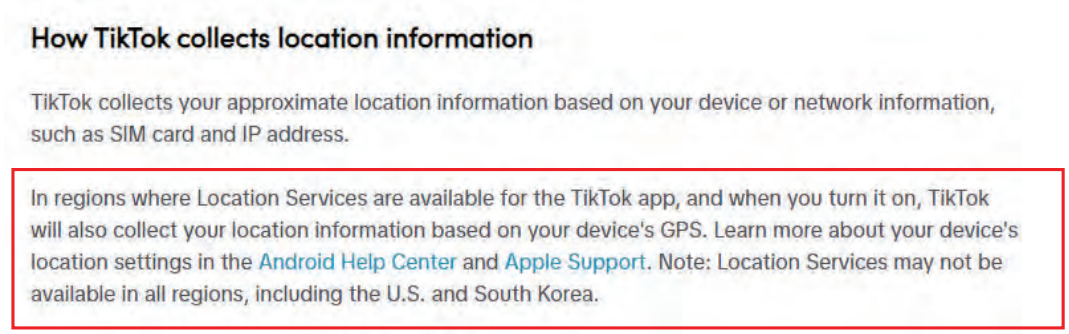
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| | **Information we use for all ads**<br>The following general information may be used to show you either personalized or non-personalized ads.<br>• **Location information:** For example, you may see an ad from an advertiser wanting to reach TikTok users in Berlin, Germany if we think you are in Berlin based on your location information. Learn more about how location information is collected.<br>• **Language information:** For example, you may see an ad from an advertiser wanting to reach Spanish speakers if your app language is set to Spanish.<br>• **Demographic information you provide:** For example, the age you provide when you sign up for a TikTok account can affect whether TikTok shows you an ad for a car rental service available to people aged 25 and over.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en<br>**Information we use for personalized ads**<br>The following additional information may be used to show you personalized ads, depending on your ad personalization choices.<br>• **Demographic information we infer:** For example, we may infer your gender based on your on-TikTok activity, which can be used to tailor the ads that you see. You can update inferred gender for ads at any time in your ads settings. Any updates apply only to your ads settings and do not affect other TikTok services.<br>• **Interest and Behavioral Information**<br>◦ **On-TikTok activity:** TikTok may display ads about things you may be interested in, based on how you view, search, share and like content or interact with creator(s), as well as your previous interactions with similar ads. For example, a pet store might want to advertise a sale on dog toys to people interested in dogs; we might show this ad to users who liked a lot of videos tagged with the hashtag "dogs". Or an outdoor activity store wants to advertise tents to followers of creators who post content about outdoor activities and nature. We will show this ad to followers of those types of creators.<br>◦ **Off-TikTok activity:** TikTok may personalise ads based on the information shared by our Advertisers, measurement and other partners. For example, a fashion brand may want to promote their summer clothing collection to customers who've purchased from their website or app in the past. The brand can share information with us so that we can show its ads to the TikTok users we think it's trying to reach.<br>The shared information may include device information like your phone's advertising ID and/or email addresses and phone numbers that have been encrypted. Partners may also share the actions you take on the advertiser's app or website, like whether you placed an item in a shopping cart.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en |



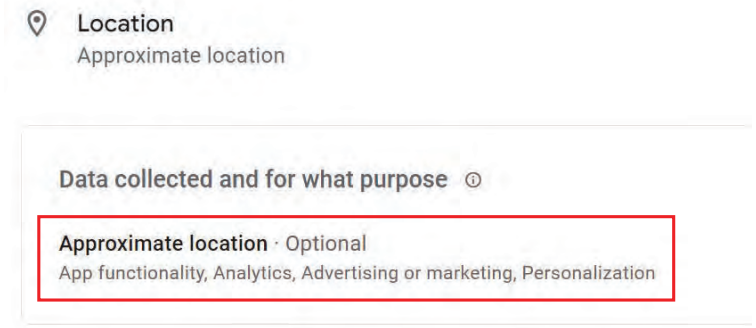

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/your-ad-activity




Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok




Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok




Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US

<table>
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TikTok Ads Manager supports the following targeting dimensions:

| | | |
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| **Audience** | Include | Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account) |
| | Exclude | Exclude Lookalike or Custom Audiences |
| **Demographics** | Gender | Male, Female |
| | Age | 13-17, 18-24, 25-34, 35-44, 45-54, 55+ |
| | Location | Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only) |

Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en

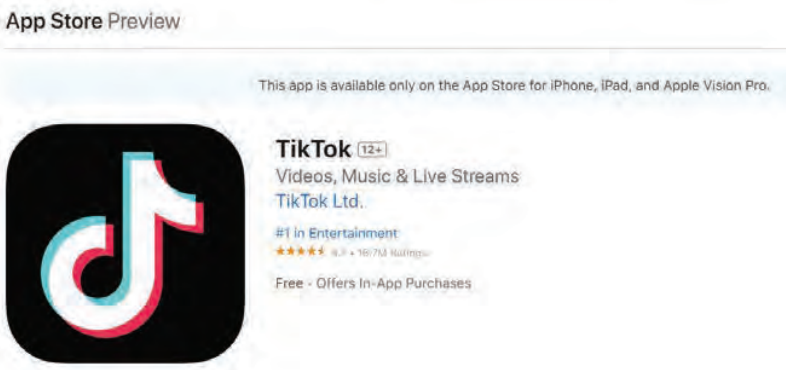
Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant.

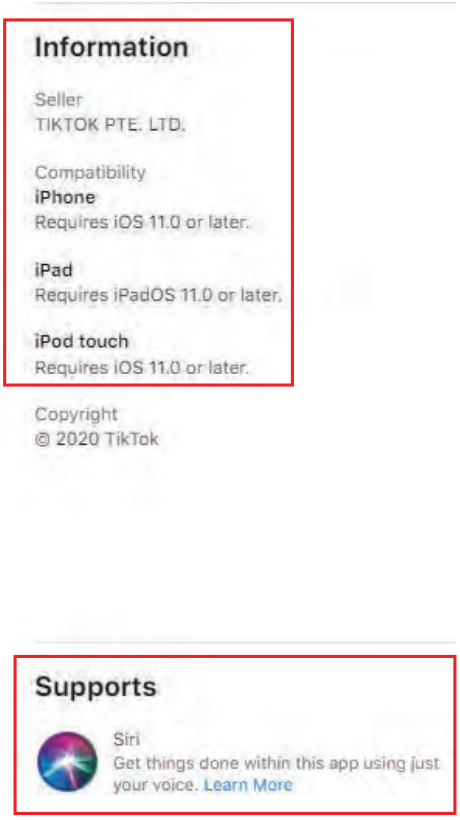
</td></tr>
<tr><td>[7.P] A mobile software application for a Bluetooth enabled cellular phone, wherein the mobile software application is</td><td>ByteDance (“Defendant”) makes, uses, sells, and/or offers to sell a mobile software application for a Bluetooth-enabled cellular phone, wherein the mobile software application is embodied as executable program instructions.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.</td></tr>
</table>

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| embodied as executable program instructions that, when executed by a processor of the Bluetooth enabled cellular phone, | For example, Defendant provides TikTok[3] app ("mobile software application") which is installed in a mobile device ("Bluetooth enabled cellular phone") and can be remotely controlled through Bluetooth devices such as AirPods and Bluetooth remotes[4]. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the TikTok app for iOS allows a user to configure gestures for phrases such that when the user provides an audio command corresponding to the phrase, a gesture is automatically performed on the user interface of the TikTok app causing a functionality such as 'liking' or 'scrolling' of a video in the app. The custom phrases and corresponding gestures for the TikTok app are set in the Voice Control settings of iOS. For example, when the phrase "double tap" and a custom gesture causing a double tap on the screen is configured for the TikTok app, then the audio command "double tap" provided by the user on the Bluetooth device (such as AirPods) causes the double tapping gesture to be performed in the TikTok app leading to 'liking' of the video.<br><br>Further, the TikTok app includes the functionality of TikTok Shop that enables merchants to sell and users to buy iPhones from the TikTok app. |

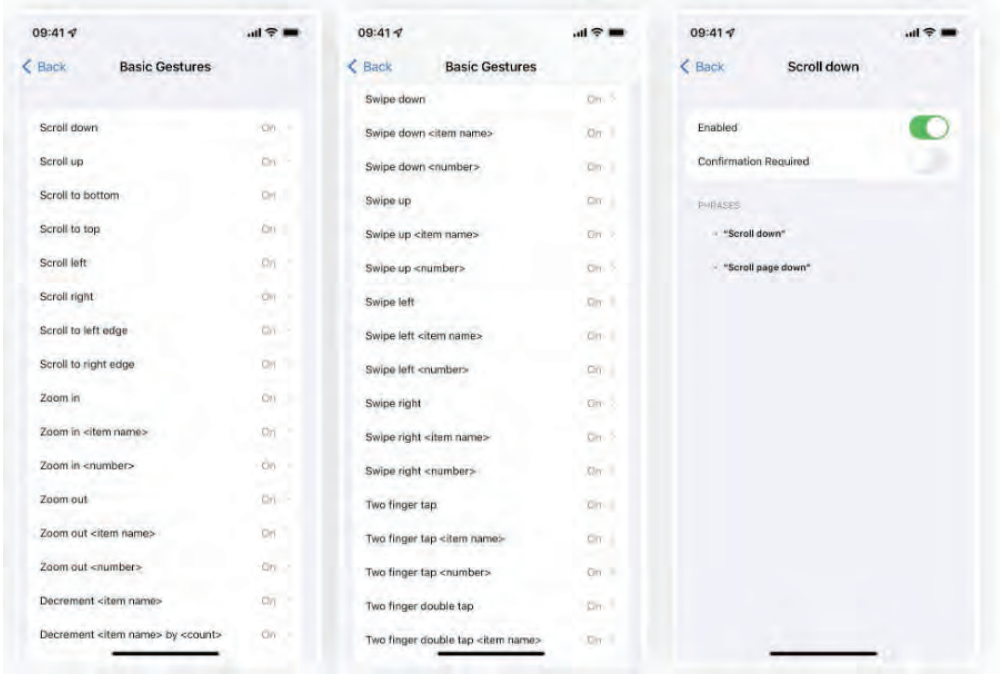
[3] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

[4] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

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| |  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |




Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320

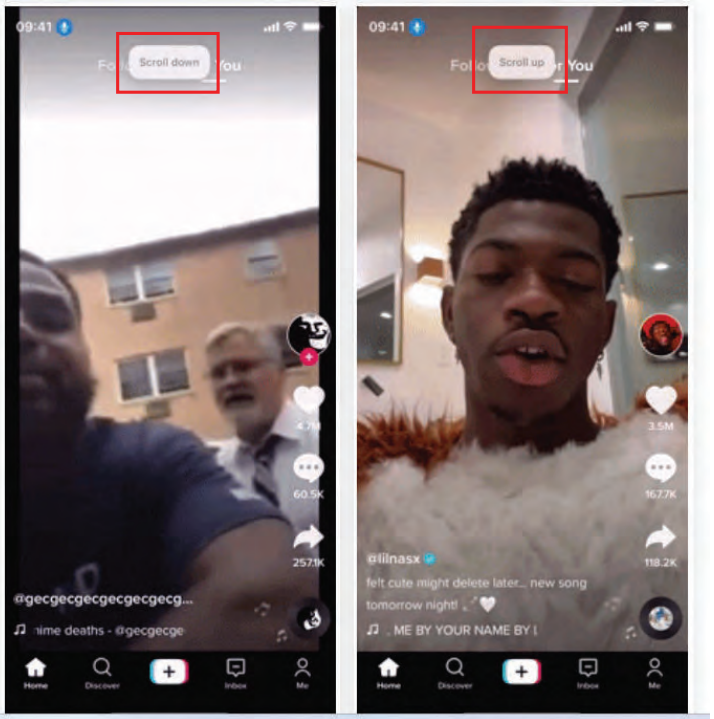



Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/#

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

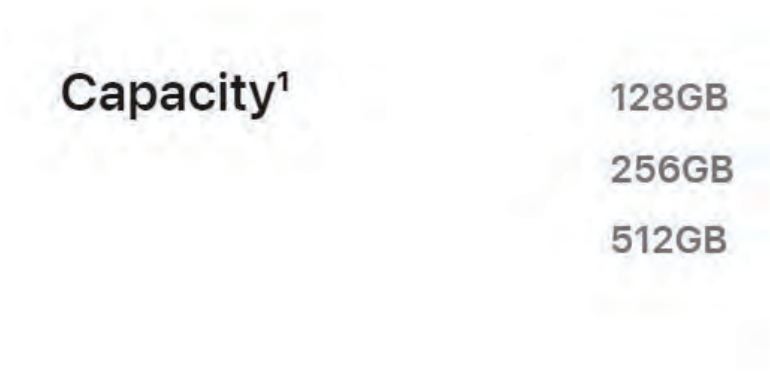


LifeScan, Inc. Ex. 1036
Page 1999 of 2225
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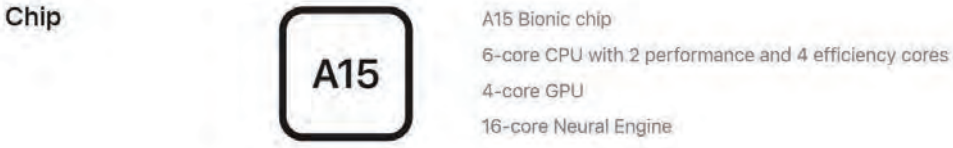
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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| | **If an app would like to use Bluetooth on your device**<br>Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.<br><br>**About Bluetooth privacy settings**<br>Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.<br>Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.<br>Source: https://support.apple.com/en-us/HT210578 |

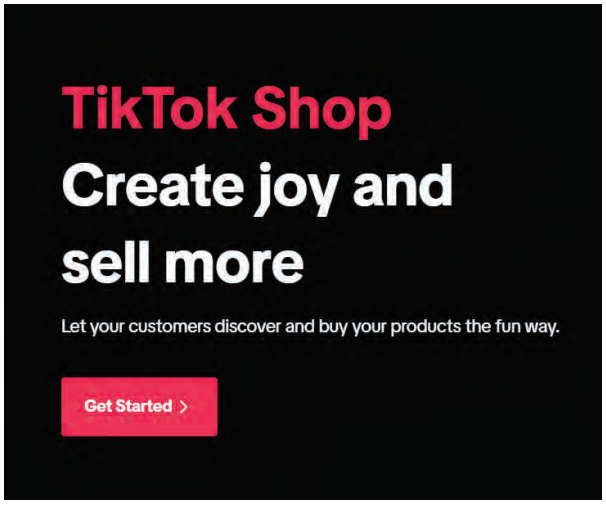
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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

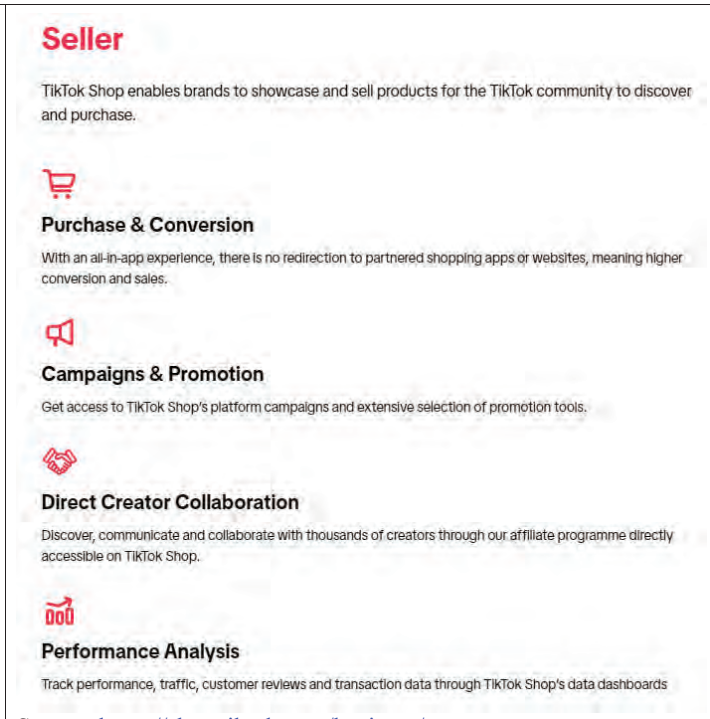



Source: https://www.apple.com/iphone-13/specs/

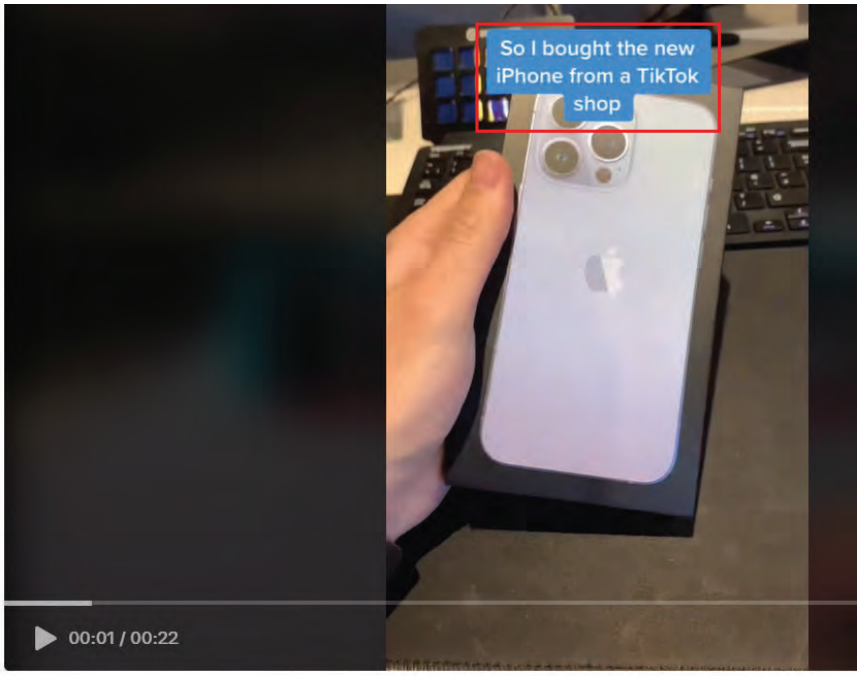



Source: https://www.apple.com/iphone-13/specs/

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| |  <br>Source: https://shop.tiktok.com/business/en |




Source: https://shop.tiktok.com/business/en

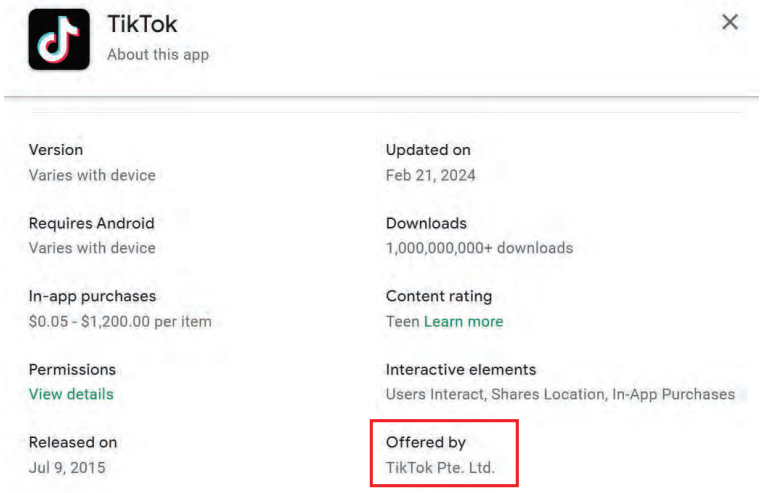



So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime

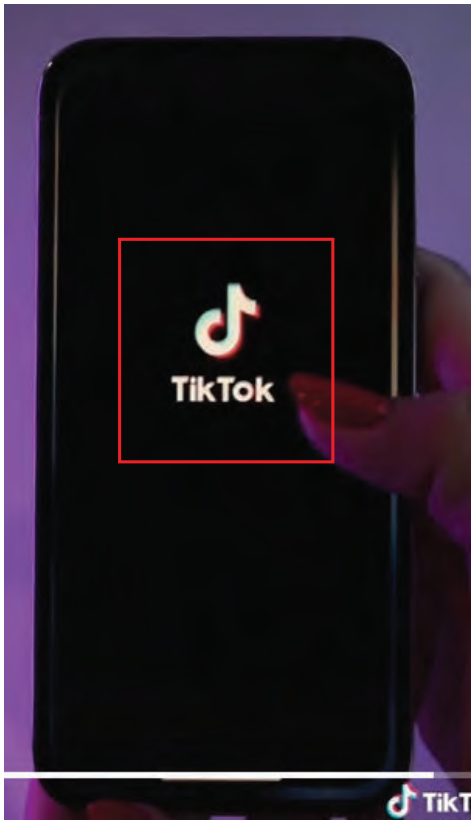
Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502, at 0:01

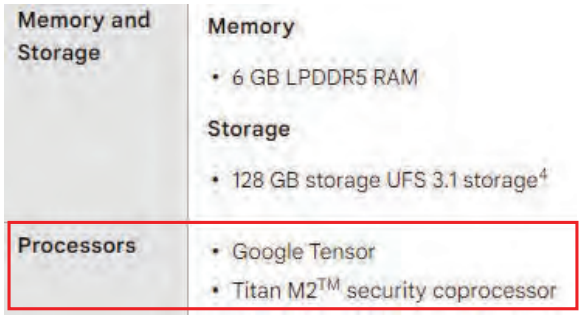
For example, the TikTok app when installed on an Android phone such as Pixel 6a (used herein as an exemplary Android-based device), allows the user to turn on Voice Access feature in the Android phone's Accessibility settings to perform multiple functionalities such as 'liking' the content and 'scrolling' the videos while accessing the TikTok app. When an audio command corresponding to the desired functionality is provided

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| | through the Bluetooth device, Pixel 6a receives the command and the TikTok app processes the executed command and performs the corresponding functionality such as scrolling/liking the video. For example, when Voice Access is enabled while surfing the TikTok app and the user provides an audio input "Scroll down" on the Bluetooth device such as an earphone, the TikTok app scrolls down to load the next video.<br><br>Further, the TikTok app includes the functionality of TikTok Shop that enables merchants to sell and the users to buy the Android phones from the TikTok app.<br><br>  <br><br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

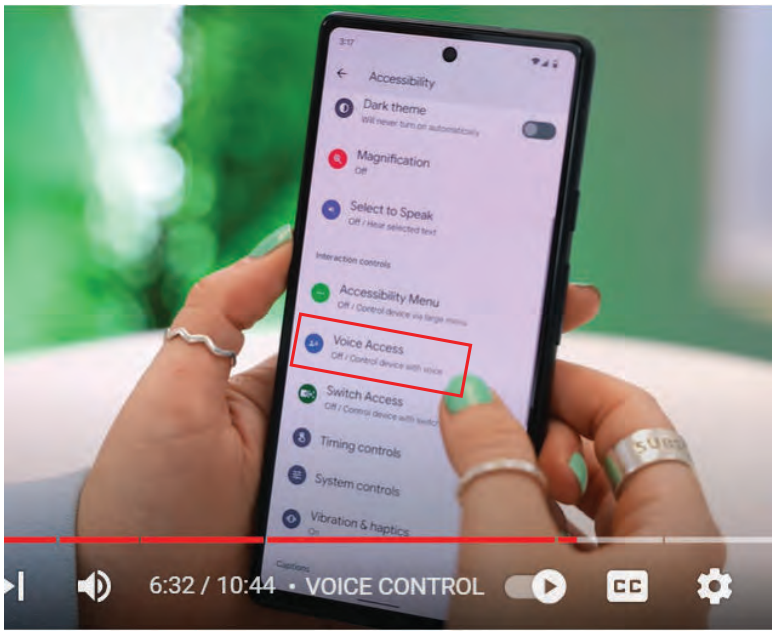



Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

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| |  <br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en |

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| | **Step 3: Start using Voice Access**<br>To turn on Voice Access, follow these steps:<br>1. Open your device's Settings app.<br>2. Tap **Accessibility**, then tap **Voice Access.**<br>3. Tap **Use Voice Access**.<br>4. Start Voice Access in one of these ways:<br>• If "Hey Google" detection is on, you can say "Hey Google, Voice Access."<br>• Open your notification shade and tap **Touch to start**.<br>• On your Home screen, tap the Voice Access app.<br>• Tap the Voice Access activation button. (You can set up the activation button in Settings > **Accessibility** > **Voice Access** > **Settings** > **Activation button**.)<br>5. Say a command, such as "Open Gmail." Learn more Voice Access commands.<br>The first time you turn on Voice Access, two extra steps help you get started:<br>• A guide to "Hey Google" settings helps set you up for a good hands-free experience.<br>• An interactive tutorial teaches you how Voice Access works.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

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| |  <br>Source: https://www.youtube.com/watch?v=Ec52kzzqVRM, at 6:32 |

Here is how to scroll through TikTok hands-free on Android:

- Install Google's **Voice Access** app from Play Store.
- Go to **Settings** › **Accessibility**; find and select the Voice Access app.
- Tap on **Use service** to enable Voice Access.
- When prompted, grant permissions to the Voice Access app.
- Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.
- Once done, you will see a blue floating icon on your screen.
- Tap on the floating icon to activate Voice Access. You are all set!
- Now, open TikTok and say "**scroll down**" to see the magic.

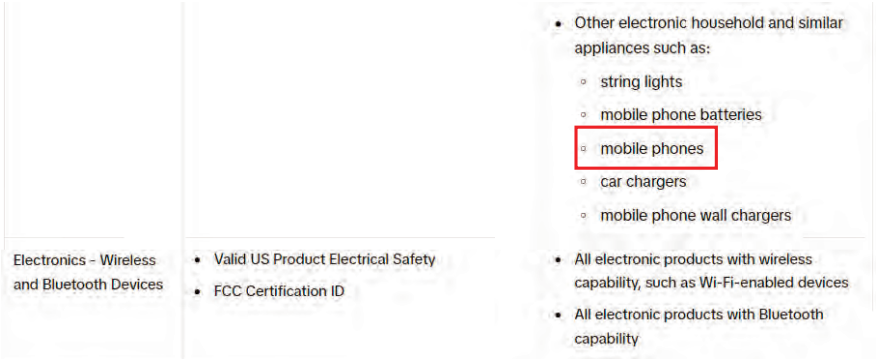
Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/

- **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:
  1. Connect your keyboard or switch to your device:
     - Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices.

Source: https://support.google.com/accessibility/android/answer/6151848?hl=en

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

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| | Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** — App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>**Electrical Products and Electronics**<br>Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.<br>Electrical and electronic products include but are not limited to:<br><br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |




Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy

For example, TikTok app is also configured to receive data from third-party Bluetooth remotes. These Bluetooth remotes connect to the mobile device via Bluetooth and allow the user to scroll through videos or 'like' a video using designated buttons on the remote (for example, a user can "like" a particular video on the TikTok app by double clicking a designated button).

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



LifeScan, Inc. Ex. 1036
Page 2018 of 2225
IPR2025-00102

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.youtube.com/shorts/rz7SWRCzdMg<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63 |

BLUETOOTH
pair with Bluetooth devices
BLUETOOTH_CONNECT
connect to paired Bluetooth devices

Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O

**Finding your liked videos**

To find your liked videos:

1. Tap **Profile** in the bottom right.
2. Tap **Heart**, located on the right side of the panel.

Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking

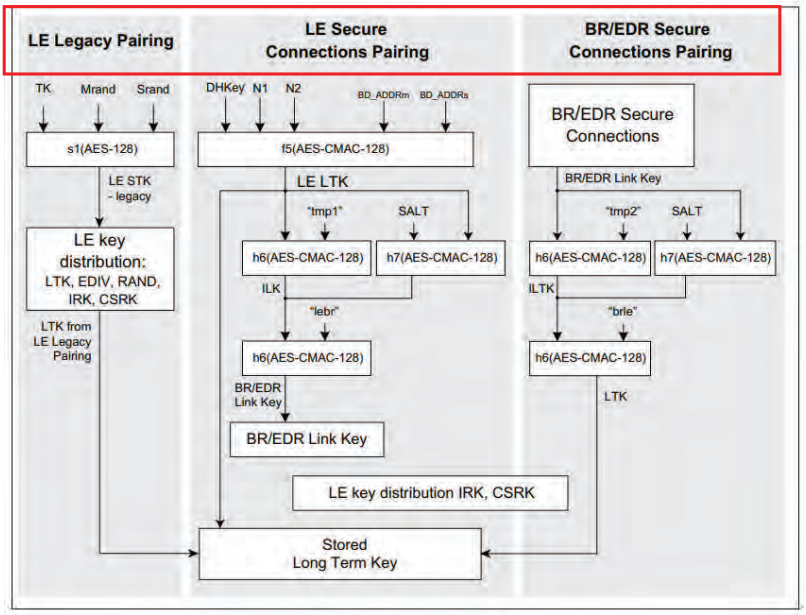
For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.

Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance



2022

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.1] configured to: detect and receive new-data acquired in a Bluetooth enabled data capture device, wherein the new-data is data acquired by the Bluetooth enabled data capture device after establishing a paired Bluetooth connection between the Bluetooth enabled data capture device and the Bluetooth enabled cellular phone, | Defendant provides a mobile software application that is configured to detect and receive new-data acquired in a Bluetooth enabled data capture device, wherein the new-data is data acquired by the Bluetooth enabled data capture device after establishing a paired Bluetooth connection between the Bluetooth enabled data capture device and the Bluetooth enabled cellular phone,<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the Bluetooth devices such as, AirPods, Bluetooth-enabled earphones, and Bluetooth remote ("Bluetooth enabled data capture device") pair with the mobile device to establish a Bluetooth connection. After the Bluetooth connection is established, the TikTok app for iOS and Android can be controlled by giving commands from the Bluetooth devices.<br><br>For example, the TikTok app detects audio command ("new data") captured by a Bluetooth device such as AirPods or earphones. The audio command is first received at the mobile device in which the TikTok app is installed and then processed by the app to perform the functionality (such as liking/scrolling the video) corresponding to the audio command.<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries |

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| | Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240<br>  <br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242 |

| | | |
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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

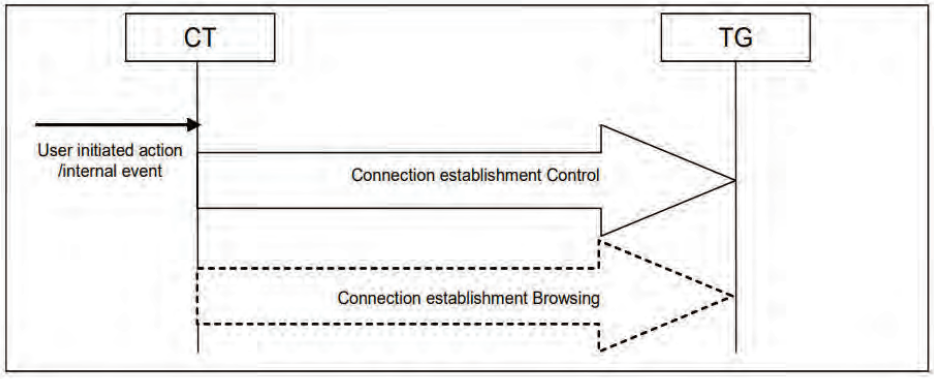



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

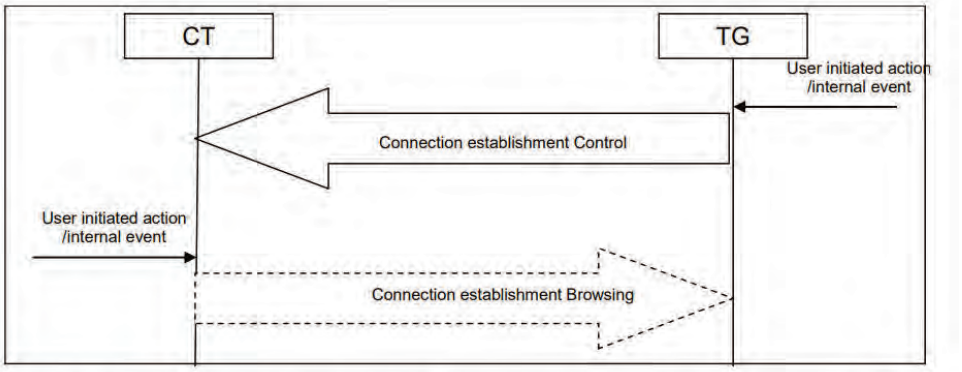



*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

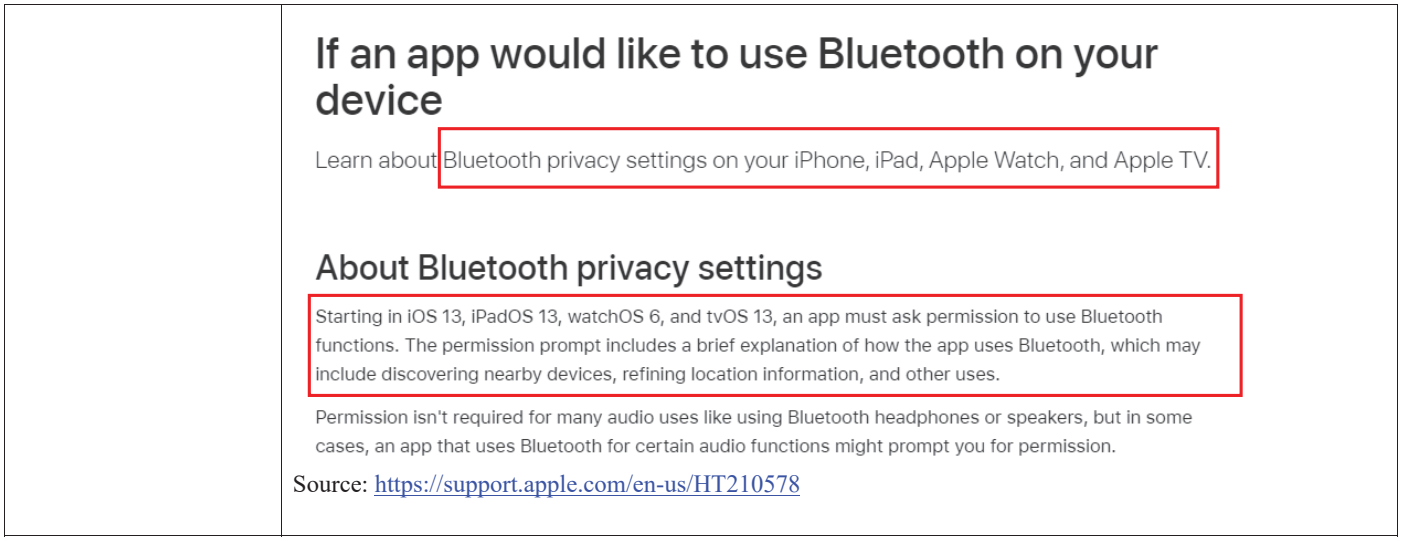
Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

| | |
|---|---|
| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |



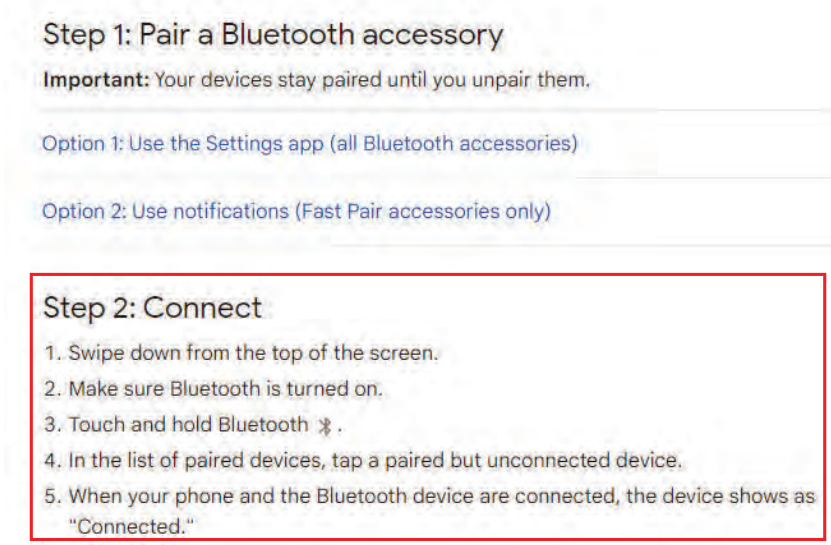


LifeScan, Inc. Ex. 1036
Page 2027 of 2225
IPR2025-00102




Source: https://support.apple.com/en-us/HT210578

| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |




Source: https://support.google.com/android/answer/9075925?hl=en

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br><br>`Name: BLUETOOTH`<br><br>`Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.`<br>Source: https://blog.malcore.io/p/tiktok63 |





LifeScan, Inc. Ex. 1036
Page 2032 of 2225
IPR2025-00102

| | |
|---|---|
| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>For example, the TikTok app detects a command ("new data") captured at the Bluetooth remote when the user clicks a specific button on the Bluetooth remote. The command is first received at the mobile device (in which the TikTok app is installed) and then processed by the TikTok app to perform the functionality (such as liking/scrolling the video) corresponding to the command. |

| | |
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

191



LifeScan, Inc. Ex. 1036
Page 2034 of 2225
IPR2025-00102

| | |
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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.2] wherein establishing the Bluetooth paired connection comprises the | Defendant provides a mobile software application wherein establishing the Bluetooth paired connection comprises the Bluetooth enabled data capture device cryptographically authenticating an identity of the Bluetooth enabled cellular phone. |

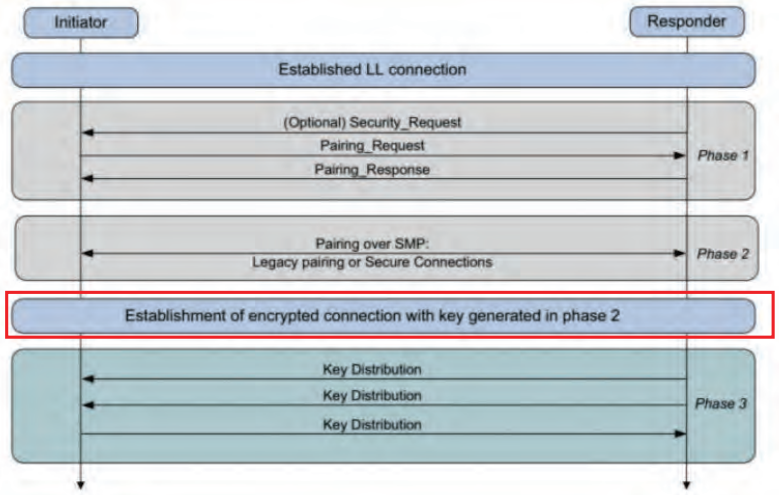
| | |
|---|---|
| Bluetooth enabled data capture device cryptographically authenticating an identity of the Bluetooth enabled cellular phone, | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the mobile device ("Bluetooth enabled cellular phone") and the Bluetooth device (such as AirPods, Bluetooth-enabled earphones, and Bluetooth remote) ("Bluetooth enabled data capture device") are connected through an encrypted connection created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth paired connection is established between the two devices. The mobile device can be authenticated using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/ |

## 2.4 Profile fundamentals

The profile fundamentals, with which all applications shall comply, are the following.

1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.
2. A link shall be established before commands can be initiated or received.
3. There are no fixed master/slave roles.
4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.
5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

195

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| | **4.2.9 Authentication**<br><br>A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437 |

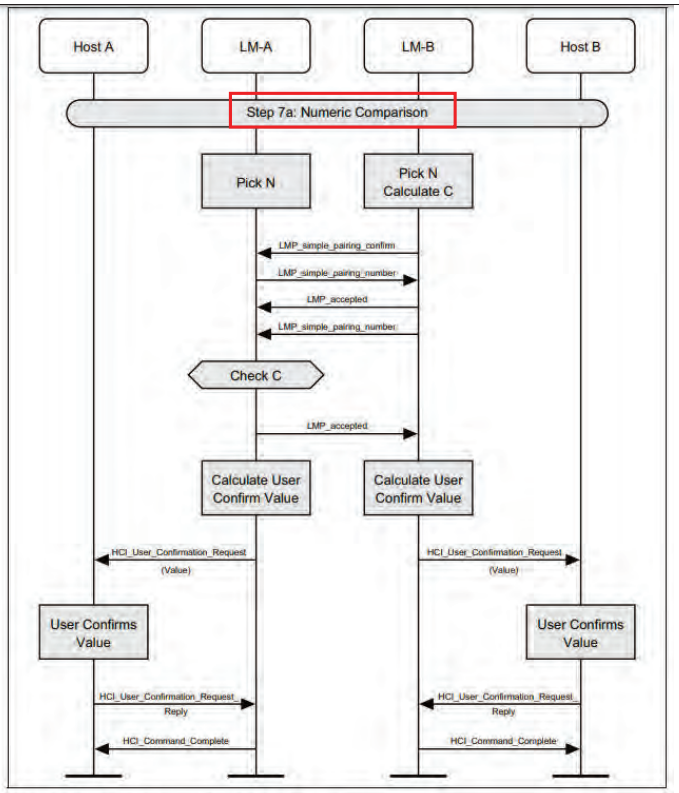



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

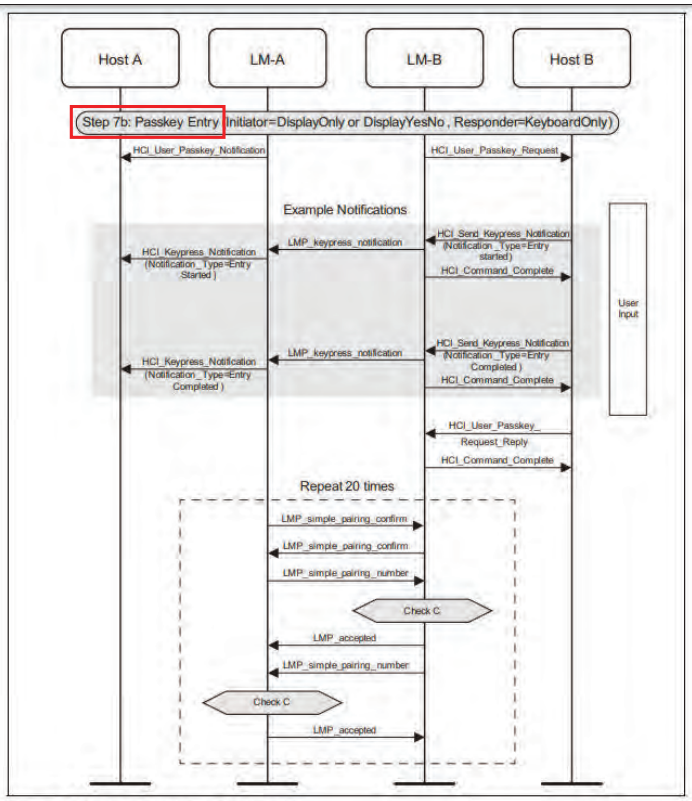



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

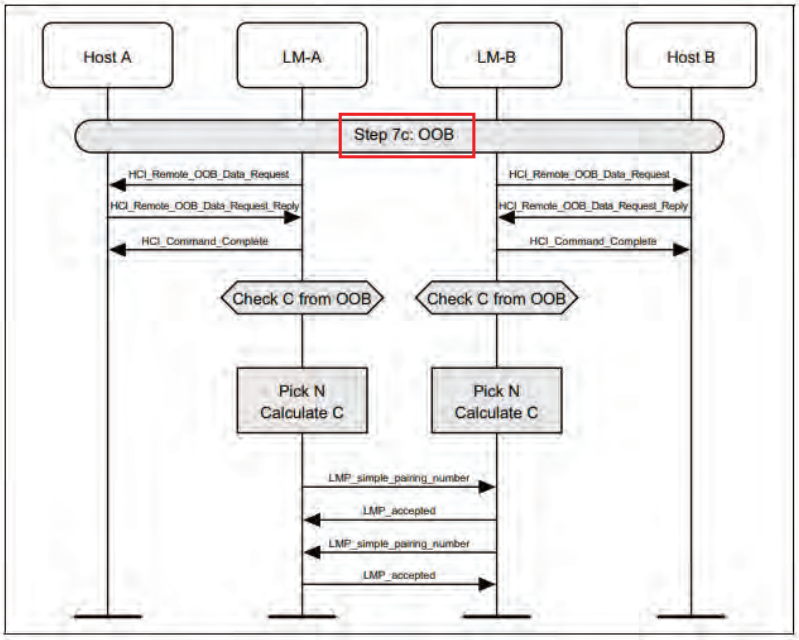



*Figure 4.20: OOB authentication (P-192)*

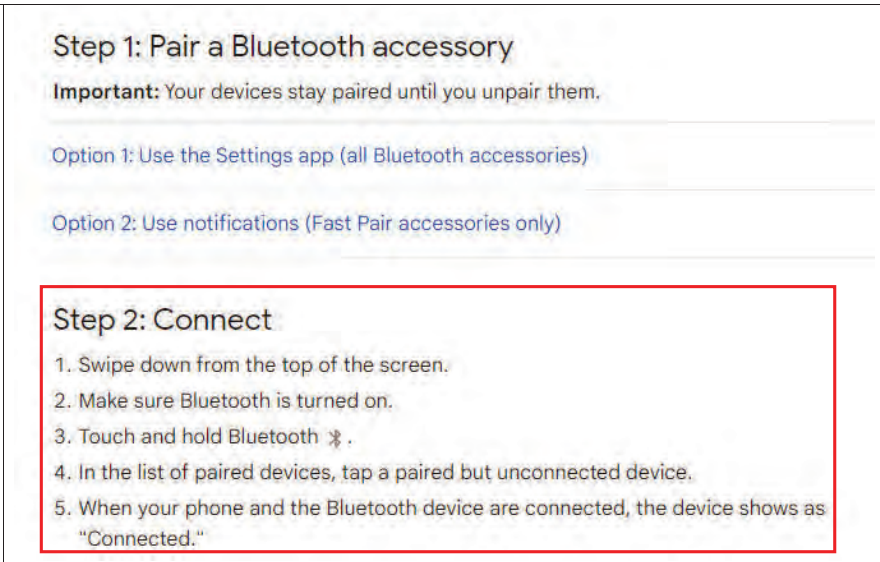
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

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|---|---|
| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web |





LifeScan, Inc. Ex. 1036
Page 2043 of 2225
IPR2025-00102




Source: https://support.google.com/android/answer/9075925?hl=en

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

202

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

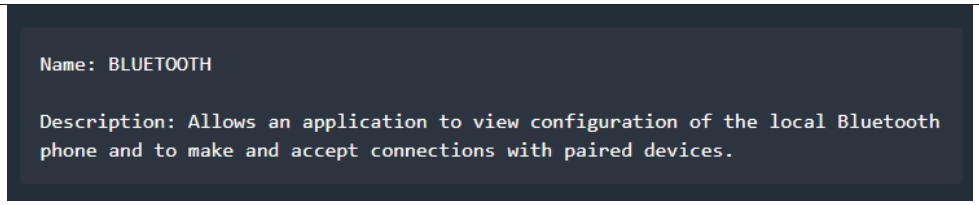
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

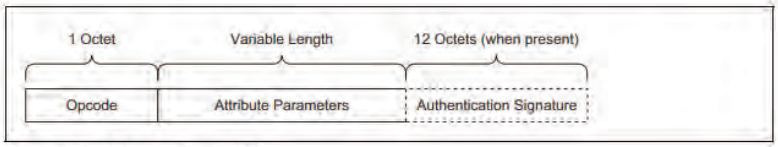
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

| | |
|---|---|
| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.3] wherein detecting and receiving new-data acquired in the Bluetooth enabled data capture device comprises: said mobile software application for the Bluetooth enabled cellular phone configured to listen for an event notification, sent from the | Defendant provides mobile software application wherein detecting and receiving new-data acquired in the Bluetooth enabled data capture device comprises: said mobile software application for the Bluetooth enabled cellular phone configured to listen for an event notification, sent from the Bluetooth enabled data capture device, over the established paired Bluetooth connection, wherein the event notification corresponds to the acquired new-data and comprises sending a signal from the Bluetooth enabled data capture device to the Bluetooth enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the devices, the Bluetooth devices ("Bluetooth enabled data capture device") capture the user's command and send the command to the mobile device through |

| | |
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| Bluetooth enabled data capture device, over the established paired Bluetooth connection, wherein the event notification corresponds to the acquired new-data and comprises sending a signal from the Bluetooth enabled data capture device to the Bluetooth enabled cellular phone; and | the Bluetooth connection. The mobile device that has the TikTok application installed, listen for the event notification signal from the Bluetooth device, that comprises the information related to the command. Based on the received event notification, the TikTok app performs the functionality corresponding to the received command.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command ("new data") provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further the mobile device on which the TikTok app is installed listens for the event notification captured by the Bluetooth device (audio command and information corresponding to the button pressed) and performs the functionality corresponding to the command.<br><br>Further, after establishing Bluetooth connection, when an audio command is sent from the Bluetooth devices, such as AirPods or earphones, or when a button is pressed on the Bluetooth remote control, as is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, listens for the event notification signal from the Bluetooth device which comprises the command to be performed by the TikTok app. Bluetooth devices utilize GATT (Generic Attribute Profile) as part of BLE functionality. GATT is a framework that allows Bluetooth devices to organize and exchange data. GATT handles the signaling mechanism for listening to event notifications in BLE devices. When a GATT client (e.g., a mobile device) establishes a connection with a GATT server (e.g., a Bluetooth device), it listens to event notifications for a particular attribute. The event notification is enabled by writing to the Client Characteristic Configuration Descriptor (CCCD) associated with the attribute.<br><br>Further, when an audio command is sent from the Bluetooth devices (referred to as TG in the Bluetooth A/V Remote Control profile) or when a button is pressed on the Bluetooth remote control, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, command to scroll down to the next video, and command to like the current video) to Bluetooth enabled mobile device (referred to as CT in the Bluetooth A/V Remote Control specification) on which the TikTok app is installed. |

| | |
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| | **Alert Notification Profile 1.0** Adopted<br>This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.<br>Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/<br><br>**Exposure Notification Service**<br>Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.<br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4<br><br>The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.<br>  <br>*Figure 2.3: Attribute Protocol PDU*<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2225 |

206

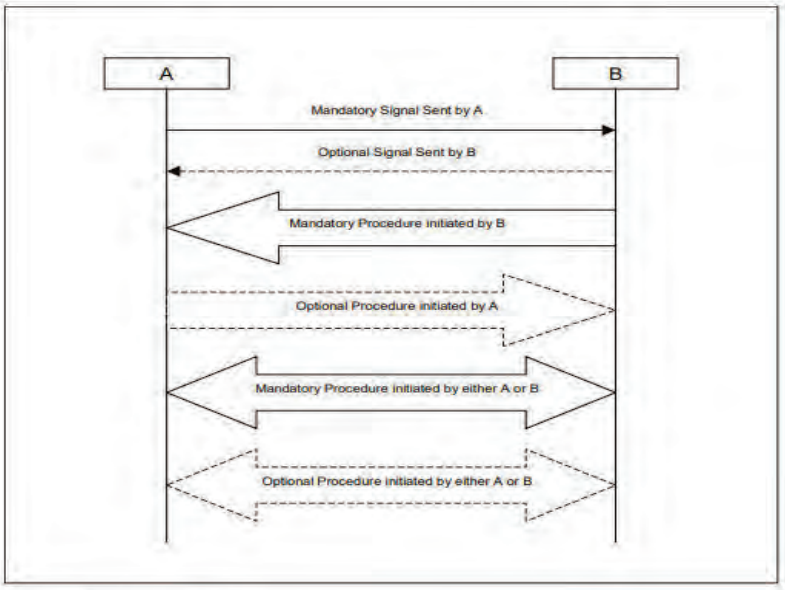



*Figure 1.2: Signaling conventions*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 11

207

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

### 29.3 RegisterNotification

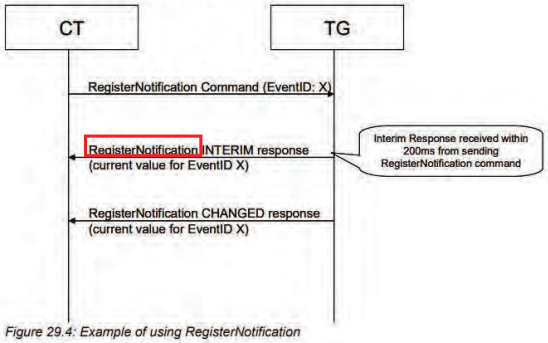



*Figure 29.4: Example of using RegisterNotification*

Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139

208

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118

209

### 25.21 Get Item Attributes

Browsing command for GetItemAttributes.

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |
| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |
| 3 | Scope: 0x03 (Now Playing) | | | | | | | |
| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |
| 12 - 13 | UID Counter: 0x2468 | | | | | | | |
| 14 | Number of Attributes: 0x03 | | | | | | | |
| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129

### 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41

210

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

## Use More Voice Commands on TikTok

You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.

You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

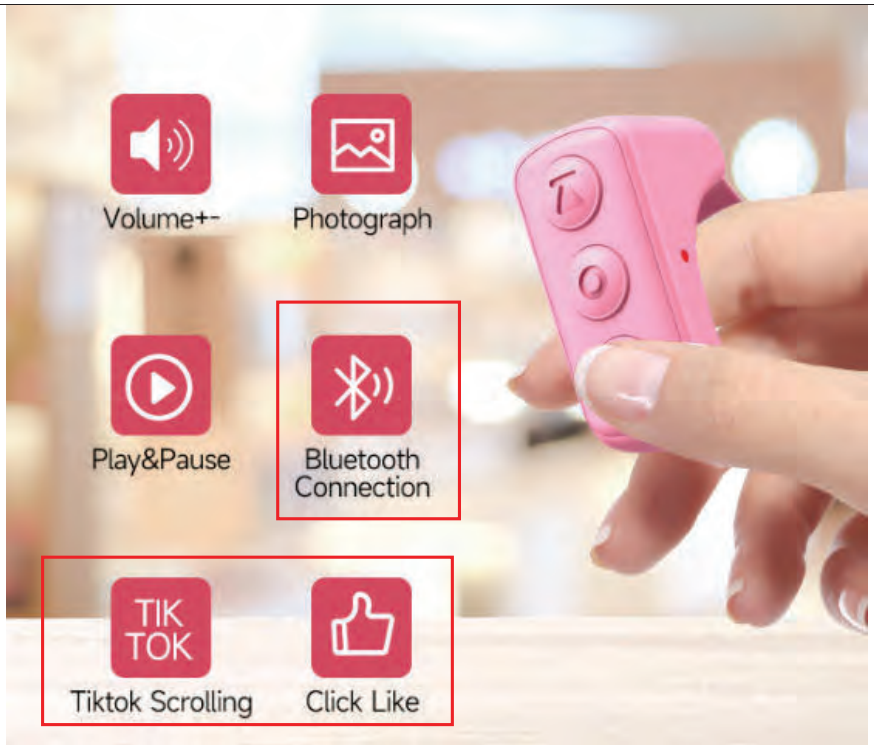
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

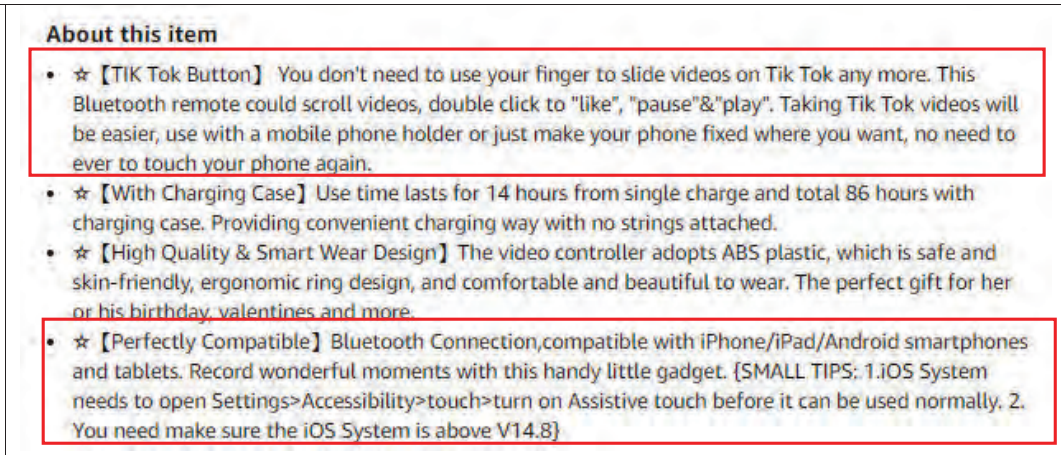
android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>`Name: BLUETOOTH`<br>`Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.`<br>Source: https://blog.malcore.io/p/tiktok63 |

| | |
|---|---|
| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |



**About this item**

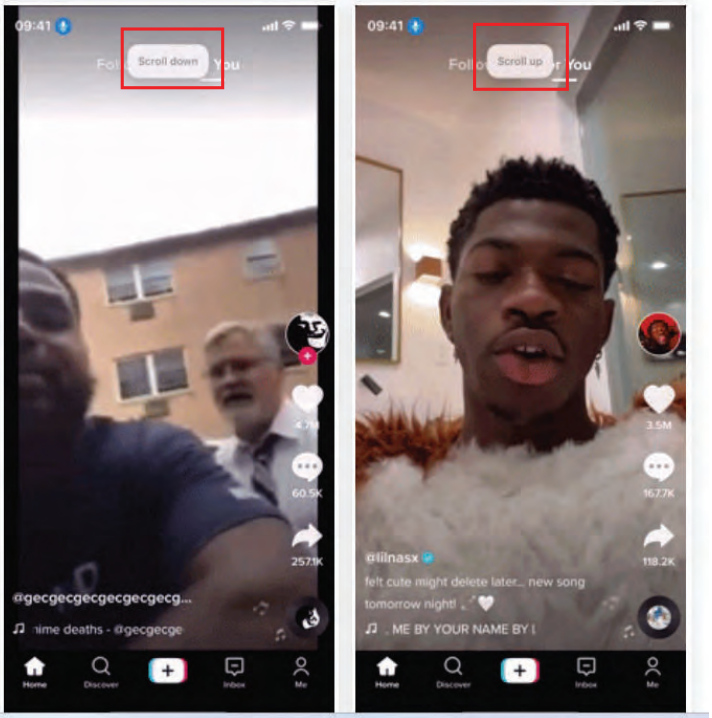
- ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.
- ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.
- ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.
- ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

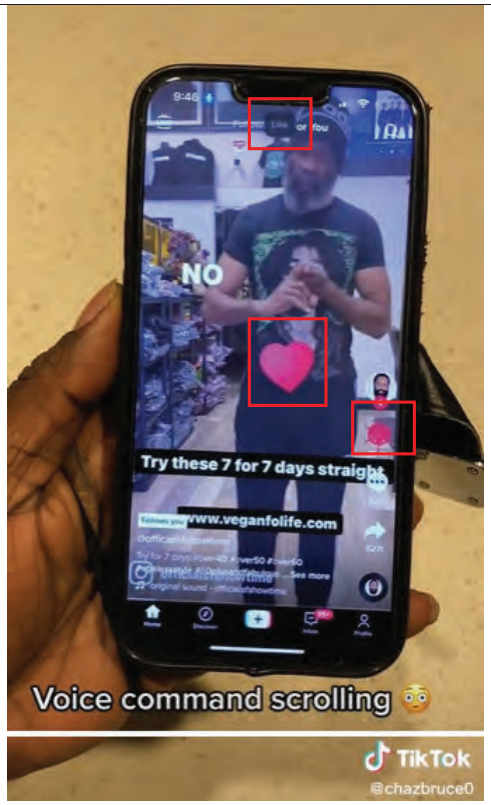
| | |
|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.4] said mobile software application for the Bluetooth enabled cellular phone configured | Defendant provides mobile software application for the Bluetooth enabled cellular phone configured to receive, from the Bluetooth enabled data capture device, the event notification and the acquired new-data over the established paired Bluetooth connection; store the received new-data in a memory of the Bluetooth enabled cellular phone. |

| | |
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| to receive, from the Bluetooth enabled data capture device, the event notification and the acquired new-data over the established paired Bluetooth connection; store the received new-data in a memory of the Bluetooth enabled cellular phone; | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app ("mobile software application") installed on the mobile device ("Bluetooth enabled cellular device") receives the command provided through AirPods, earphones or Bluetooth remote ("Bluetooth enabled data capture device").<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" on AirPods or earphones, the TikTok app receives the user's command as an event notification in order to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote ("Bluetooth enabled data capture device"), the TikTok app receives the user's command as an event notification in order to like or scroll the subsequent video. The TikTok app stores the user's activity including the commands ("received new-data") and the liked videos at least temporarily in the cache memory of the mobile device (in which the app is installed).<br><br>Further, after establishing Bluetooth connection, the user provides the audio command from the Bluetooth devices such as "Double Tap" or "Scroll Down" on AirPods or earphones, or double clicks the designated button on the Bluetooth remote. As is inherent to how the Bluetooth Low Energy (BLE) works, the Bluetooth enabled mobile device on which the TikTok app is installed, receives the event notification and acquires the new data (like/scroll) associated with it. Bluetooth devices utilize GATT as part of their BLE functionality that defines a framework for organizing and exchanging data between the BLE devices. When a GATT server, has new data or an event to notify the GATT client, it sends a notification or indication to the client using the Client Characteristic Configuration Descriptor (CCCD) or characteristics.<br><br>Further, upon information and belief, AVRCP (Audio/Video Remote Control Profile) is utilized for transferring of the new-data (including, but not limited to, "Double Tap" and "Scroll Down" command) to Bluetooth enabled mobile device on which the TikTok app is installed. |

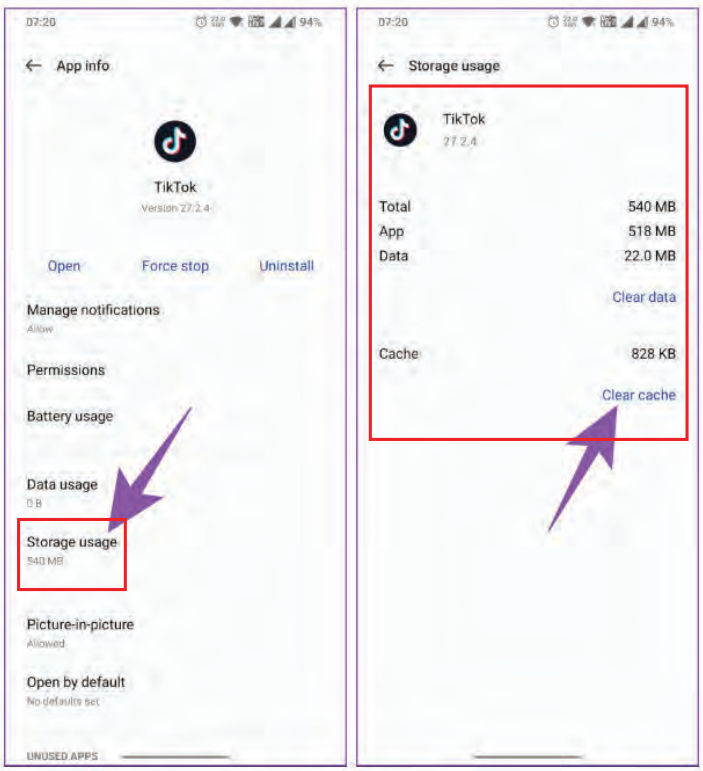
| | |
|---|---|
| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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|---|---|
| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

220

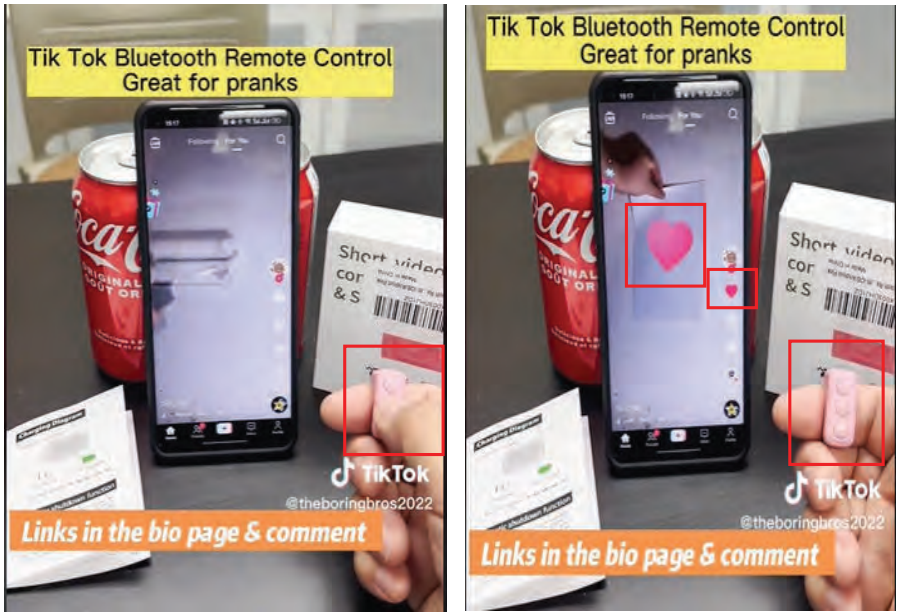
| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

| | |
|---|---|
| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br><br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

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|---|---|
| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

223

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|---|---|
| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |




Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09

When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.

On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.

On Google Play, the TikTok app is only 94mb.

However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?

Source: https://jamesmcallisteronline.com/tiktok-reduce-size/

**Alert Notification Profile 1.0** Adopted

This profile enables a client device to receive different types of alerts and event information, as well as information on the count of new alerts and unread items, which exist in the server device.

Source: https://www.bluetooth.com/specifications/specs/alert-notification-profile-1-0/

**Exposure Notification Service**

Exposure Notification is a Bluetooth Low Energy service registered with the Bluetooth Special Interest Group with 16-bit UUID 0xFD6F. It is designed to enable proximity sensing of the Rolling Proximity Identifier between devices for the purpose of computing an exposure event.

Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4

The GATT Profile uses the Attribute Protocol to transport data in the form of commands, requests, responses, indications, notifications and confirmations between devices. This data is contained in Attribute Protocol PDUs.

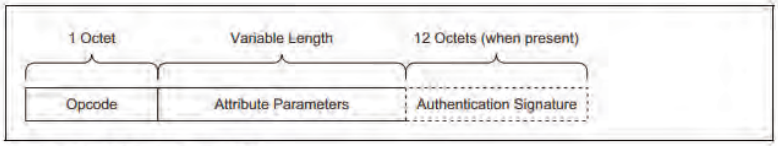



*Figure 2.3: Attribute Protocol PDU*

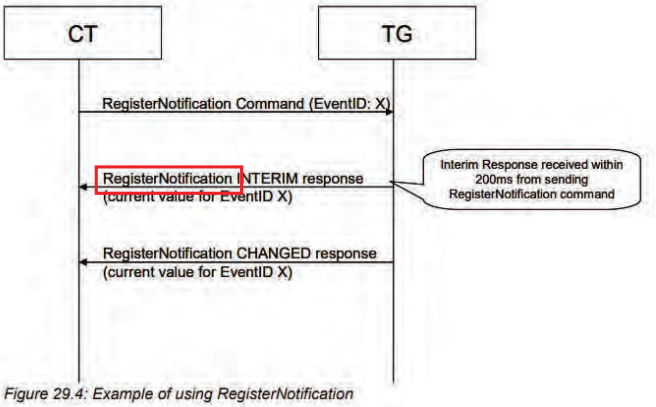
Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2225

## 6.5 GATT-BASED PROFILE HIERARCHY

The GATT Profile specifies the structure in which profile data is exchanged. This structure defines basic elements such as services and characteristics, used in a profile.

The top level of the hierarchy is a profile. A profile is composed of one or more services necessary to fulfill a use case. A service is composed of characteristics or references to other services. Each characteristic contains a value and may contain optional information about the value. The service and characteristic and the components of the characteristic (i.e., value and descriptors) contain the profile data and are all stored in Attributes on the server.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 255

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|---|---|
| | 29.3 RegisterNotification<br>  <br><br>*Figure 29.4: Example of using RegisterNotification*<br>Source: https://www.bluetooth.com/specifications/specs/a-v-remote-control-profile-1-6-2/, Page 139 |

228

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|---|---|
| | **4.11 CHARACTERISTIC VALUE INDICATIONS**<br><br>This procedure is used to indicate the *Characteristic Value* from a server to a client. There is one sub-procedure that can be used to indicate a value: Indications. Indications can be configured using the Client Characteristic Configuration descriptor (See Section 3.3.3.3).<br><br>A profile defines when to use Indications.<br><br>**4.11.1 Indications**<br><br>This sub-procedure is used when a server is configured to indicate a *Characteristic Value* to a client and expects an Attribute Protocol layer acknowledgment that the indication was successfully received.<br><br>The Attribute Protocol *Handle Value Indication* is used to perform this sub-procedure. The *Attribute Handle* parameter shall be set to the *Characteristic Value Handle* being indicated, and the *Attribute Value* parameter shall be set to the *Characteristic Value*. Once the *Handle Value Indication* is received by the client, the client shall respond with a *Handle Value Confirmation*.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, page 2267 |

Characteristics can have zero or more descriptors associated with them. A descriptor provides metadata relating to its owning characteristic or a means of configuring or controlling a behavior associated with that characteristic. For example, the Client Characteristic Configuration Descriptor (CCCD) allows a remote device to enable or disable the sending of notification PDUs which contain the value of the characteristic.

The Attribute Protocol (ATT) is used by an ATT client to discover details of the attribute table in a remote, connected device which is known as the ATT server. Client and server can each use the attribute protocol to interact with the other in a variety of ways. For example, a client can use ATT to ask the server to send it the current value of a particular characteristic using one of several types of *read request*. A server can inform the client whenever the value of a characteristic changes by sending it a *notification*, for which a response is not required, or an *indication*, which does require the client to respond.

ATT is one of the primary mechanisms by which applications in connected Bluetooth devices interact with each other, using the PDUs the protocol defines, and procedures defined in higher level specifications, such as the Generic Attribute Profile (GATT).

ATT defines the concept of a *transaction*. Request PDUs from a client require a response PDU to be returned by the server. *Indications* sent by a server must be replied to by the client with a *confirmation* PDU. Each request/response pair or indication/confirmation pair forms a transaction. Most ATT PDU types are transaction- oriented, but ATT also includes a few PDU types which are not associated with transactions, namely *commands* and *notifications*.

Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 9

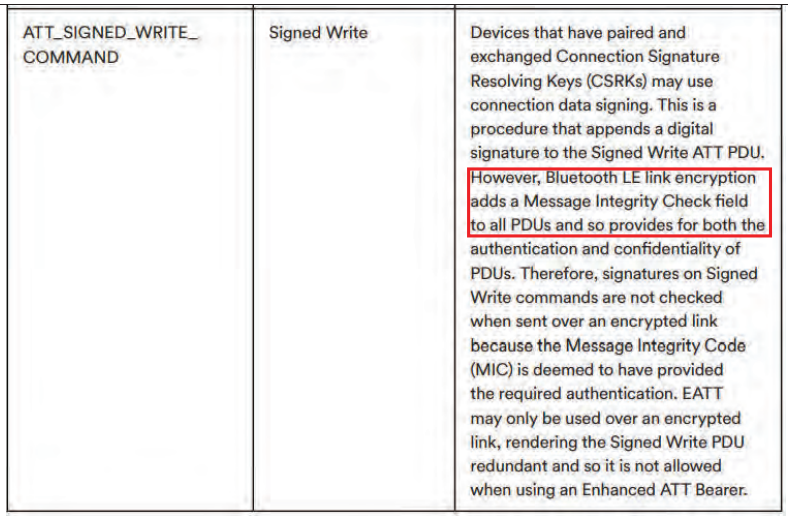
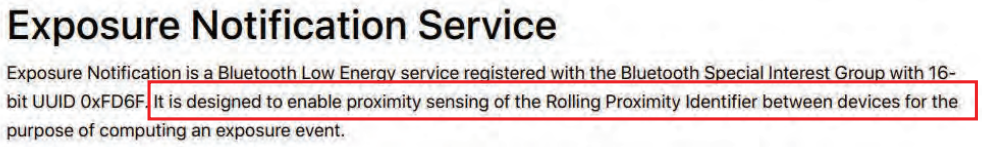
Register Notification command

| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0x0 | | | | Ctype: 0x3 (NOTIFY) | | | |
| 1 | Subunit_type:0x9 (PANEL) | | | | | Subunit_ID: 0x0 | | |
| 2 | Opcode: 0x0 (VENDOR DEPENDENT) | | | | | | | |
| 3 - 5 | Company ID: Bluetooth SIG registered CompanyID | | | | | | | |
| 6 | PDU ID (0x31 – Register Notification) | | | | | | | |
| 7 | Reserved (0x00) | | | | | | Packet Type (0x0) | |
| 8 - 9 | Parameter Length (0x5) | | | | | | | |
| 10 | EventID2: 0x2 (EVENT_TRACK_CHANGED) | | | | | | | |
| 11<br><br>14 | Playback interval: 0x0 (*Ignored for this event*) | | | | | | | |

230

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| | Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 118<br><br>**25.21 Get Item Attributes**<br>Browsing command for GetItemAttributes.<br><br>| Oct | MSB (7) | 6 | 5 | 4 | 3 | 2 | 1 | LSB (0) |<br>|---|---|---|---|---|---|---|---|---|<br>| 0 | PDU ID: 0x73 (GetItemAttributes) | | | | | | | |<br>| 1 - 2 | Parameter Length : 0x0018 (24) | | | | | | | |<br>| 3 | Scope: 0x03 (Now Playing) | | | | | | | |<br>| 4 - 11 | UID: 0x0000000000000007 | | | | | | | |<br>| 12 - 13 | UID Counter: 0x2468 | | | | | | | |<br>| 14 | Number of Attributes: 0x03 | | | | | | | |<br>| 15 - 18 | Attribute ID: 0x00000001 (Title of the media) | | | | | | | |<br><br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 129 |

231

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|---|---|
| |  <br>Source: https://www.bluetooth.com/wp-content/uploads/2020/01/Bluetooth_5.2_Feature_Overview.pdf, Page 17<br>  <br>Source: https://blog.google/documents/70/Exposure_Notification_-_Bluetooth_Specification_v1.2.2.pdf/, Page 4 |

| | |
|---|---|
| | Generic Attribute Profile (GATT) is built on top of the Attribute Protocol (ATT) and establishes common operations and a framework for the data transported and stored by the Attribute Protocol. GATT defines two roles: Server and Client. The GATT roles are not necessarily tied to specific GAP roles and but may be specified by higher layer profiles. GATT and ATT are not transport specific and can be used in both BR/EDR and LE. However, GATT and ATT are mandatory to implement in LE since it is used for discovering services<br><br>The GATT server stores the data transported over the Attribute Protocol and accepts Attribute Protocol requests, commands and confirmations from the GATT client. The GATT server sends responses to requests and when configured, sends indication and notifications asynchronously to the GATT client when specified events occur on the GATT server.<br><br>GATT also specifies the format of data contained on the GATT server. Attributes, as transported by the Attribute Protocol, are formatted as **Services** and **Characteristics**. Services may contain a collection of characteristics. Characteristics contain a single value and any number of descriptors describing the characteristic value.<br><br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 254 |

| | |
|---|---|
| Synchronization Train | This feature indicates whether the device supports Synchronization Train as master. |
| Synchronization Scan | This feature indicates whether the device supports Synchronization Scan as slave. |
| Inquiry Response Notification Event | This feature bit indicates whether the device supports sending the HCI Inquiry Response Notification Event to the Host. |
| Secure Connections (Controller Support) | This feature indicates whether the Controller is able to support AES-CCM, the P-256 Elliptic Curve for Secure Simple Pairing, and enhanced authentication using the LMP sequences as defined in Section 4.2.7.<br>This feature bit shall only be set if the "Secure Simple Pairing (Controller Support)" feature bit is set. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 526

| Configuration | Value | Description |
|---|---|---|
| Notification | 0x0001 | The Characteristic Value shall be notified.This value can only be set if the characteristic's property has the notify bit set. |
| Indication | 0x0002 | The Characteristic Value shall be indicated. This value can only be set if the characteristic's property has the indicate bit set. |
| Reserved for Future Use | 0xFFFC | Reserved for future use. |

*Table 3.11: Client Characteristic Configuration bit field definition*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2239

## 5.13 Browsing

Browsing functionality allows a CT device to navigate and view media content on the TG. Four different scopes are defined which may each be browsed.

| | |
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| | Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 41<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/<br><br>**Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>However, some have been noticing that the app is taking up a huge amount of space on their devices, sometimes gigabytes worth of storage. If you're looking to make more space on your device, here's how to reduce the amount of room TikTok is using on your phone.<br>Source: https://www.dexerto.com/entertainment/tiktok-storage-free-up-space-1775839/ |

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|---|---|
| | The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>**There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage |

| | |
|---|---|
| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [7.5] use Hypertext Transfer Protocol to transfer the received new-data along with a user authentication credential to a remote server over a cellular data network, wherein the mobile software application is further configured to use the Hypertext Transfer Protocol to send a user preference to the remote server over the cellular data network, and wherein the user preference comprises global positioning system information; | Defendant provides mobile software application that uses Hypertext Transfer Protocol to transfer the received new-data along with a user authentication credential to a remote server over a cellular data network, wherein the mobile software application is further configured to use the Hypertext Transfer Protocol to send a user preference to the remote server over the cellular data network, and wherein the user preference comprises global positioning system information.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the TikTok app's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok app for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app. Further, the TikTok app fetches the Global Positioning System (GPS) information ("user preference") from the mobile device and updates the TikTok app's servers by sending user's location over HTTP.<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/ |

## File upload

Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.

To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.

Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide

## Information You Provide

- **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.

Source: https://www.tiktok.com/legal/page/row/privacy-policy/en

## Automatically Collected Information

- **Usage Information.** We collect information regarding your use of the Platform, *e.g.*, how you engage with the Platform, including how you interact with content we show to you, the advertisements you view, videos you watch and problems encountered, browsing and search history, the content you like, the content you save to 'My Favourites', the users you follow and how you engage with mutual followers.

Source: https://www.tiktok.com/legal/page/row/privacy-policy/en

## Send Video to TikTok Servers

Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.

Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.

| | |
|---|---|
| HTTP URL | Returned in `upload_url` |
| HTTP Method | PUT |

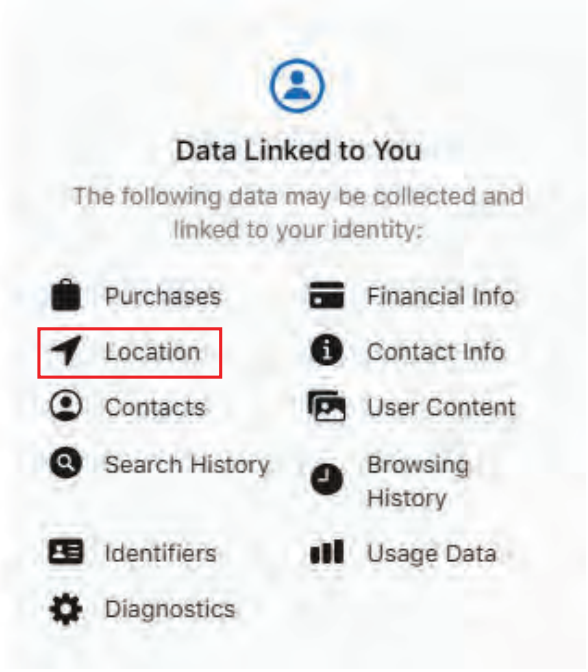
Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

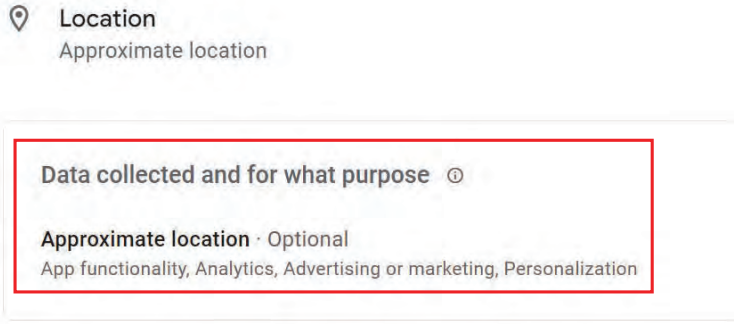
For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.

Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance

| | |
|---|---|
| | **How TikTok collects location information**<br><br>TikTok collects your approximate location information based on your device or network information, such as SIM card and IP address.<br><br>In regions where Location Services are available for the TikTok app, and when you turn it on, TikTok will also collect your location information based on your device's GPS. Learn more about your device's location settings in the Android Help Center and Apple Support. Note: Location Services may not be available in all regions, including the U.S. and South Korea.<br><br>Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok<br><br>• **Location Information.** We collect information about your approximate location, including location information based on your SIM card and/or IP address. With your permission, we may also collect precise location data (such as GPS). In addition, we collect location information (such as tourist attractions, shops, or other points of interest) if you choose to add location information to your User Content.<br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |

| | |
|---|---|
| | TikTok Ads allow you to tailor messages and offers to specific locations including countries, regions, states, provinces, metro areas, cities, zip codes and more. Some targeting options are not available in all countries or regions.<br><br>**Note:**<br>• If you are targeting multiple countries, locations may have regional descriptions (ex. Counties, Districts, etc.) in Ads Manager aligning with local definitions.<br>• Where available, TikTok enables advertisers to target up to 1500 location selections at a time, per ad group.<br>• Zip code targeting can be used in instances where an advertiser needs to target a more granular location than DMA or city. For example, if an advertiser provides services to only a portion of a city.<br>• A zip code or postal code prefix might not be targetable because it's either invalid, has not been made available due to ad policy requirements, or has not launched in those areas.<br>• TikTok does not support zip code + 4 targeting. If an advertiser tries to upload zip + 4, they will receive an error message.<br>• Targeting ad campaigns to small geographic areas or sets of zip codes can significantly reduce the number of impressions and clicks delivered, and may result in a higher CPA.<br>• Some advertisers may be subject to the Housing, Employment, and Credit ad policy.<br><br>Location targeting is based on a variety of signals to serve ads to users who align with your location targeting selections. Due to the fact that signals vary, our delivery is not guaranteed and accuracy is not guaranteed in every situation.<br><br>**Location Targeting Options**<br><br>Location Type \| Example<br>City \| Salt Lake City, Utah<br>Country / Region \| United States<br><br>Source: https://ads.tiktok.com/help/article/location-targeting?lang=en |

| | |
|---|---|
| |  <br>Source: https://apps.apple.com/us/app/tiktok/id835599320 |

| | |
|---|---|
| |  <br>Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

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<tr><td></td><td>

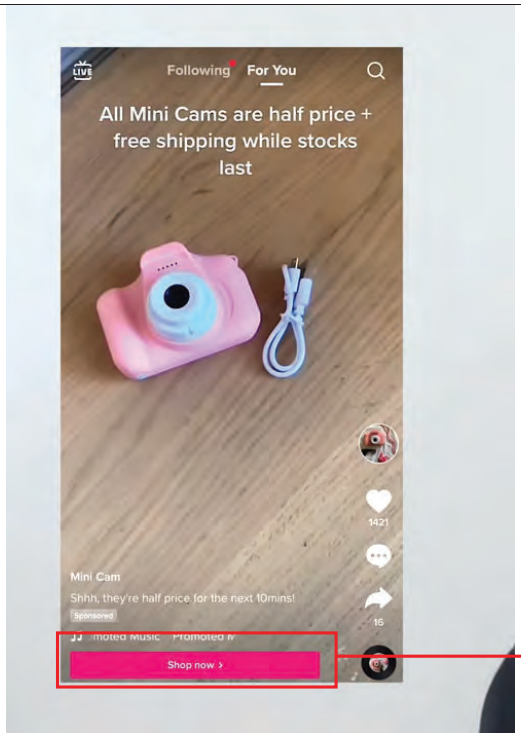
## Ad Targeting

TikTok Ads Manager supports the following targeting dimensions:

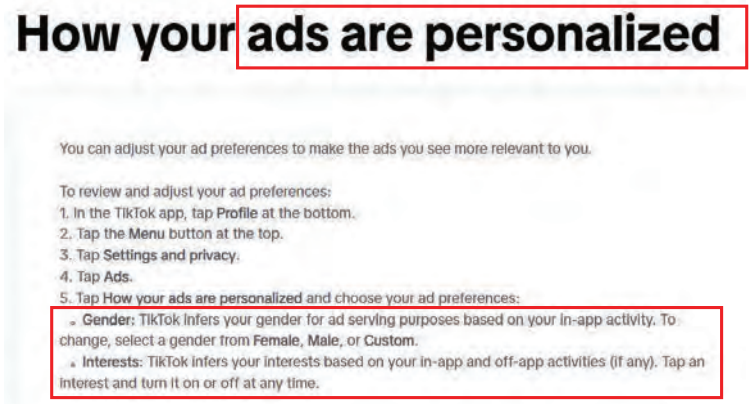
| | | |
|---|---|---|
| **Audience** | Include | Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account) |
| | Exclude | Exclude Lookalike or Custom Audiences |
| **Demographics** | Gender | Male, Female |
| | Age | 13-17, 18-24, 25-34, 35-44, 45-54, 55+ |
| | Location | Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only) |

Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en

Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant.
</td></tr>
<tr><td>[7.6] display a mobile advertisement inside the mobile software application</td><td>Defendant provides a mobile software application that displays a mobile advertisement inside the mobile software application.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes the user’s information such as their GPS location, gender, interests, activities, and other information to display customized advertisements in the TikTok app interface for the user.</td></tr>
</table>




Source: https://www.youtube.com/watch?v=VRw0q8vpBY0, at 2:30 (annotated)

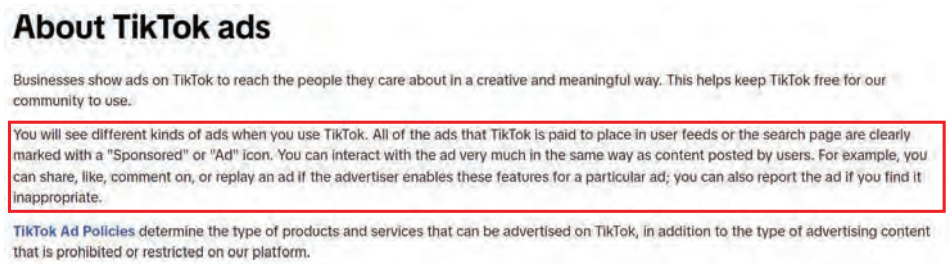


## How your ads are personalized

You can adjust your ad preferences to make the ads you see more relevant to you.

To review and adjust your ad preferences:
1. In the TikTok app, tap **Profile** at the bottom.
2. Tap the **Menu** button at the top.
3. Tap **Settings and privacy**.
4. Tap **Ads**.
5. Tap **How your ads are personalized** and choose your ad preferences:
   - **Gender:** TikTok infers your gender for ad serving purposes based on your in-app activity. To change, select a gender from **Female**, **Male**, or **Custom**.
   - **Interests:** TikTok infers your interests based on your in-app and off-app activities (if any). Tap an interest and turn it on or off at any time.

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/how-your-ads-are-personalized



## About TikTok ads

Businesses show ads on TikTok to reach the people they care about in a creative and meaningful way. This helps keep TikTok free for our community to use.

You will see different kinds of ads when you use TikTok. All of the ads that TikTok is paid to place in user feeds or the search page are clearly marked with a "Sponsored" or "Ad" icon. You can interact with the ad very much in the same way as content posted by users. For example, you can share, like, comment on, or replay an ad if the advertiser enables these features for a particular ad; you can also report the ad if you find it inappropriate.

**TikTok Ad Policies** determine the type of products and services that can be advertised on TikTok, in addition to the type of advertising content that is prohibited or restricted on our platform.

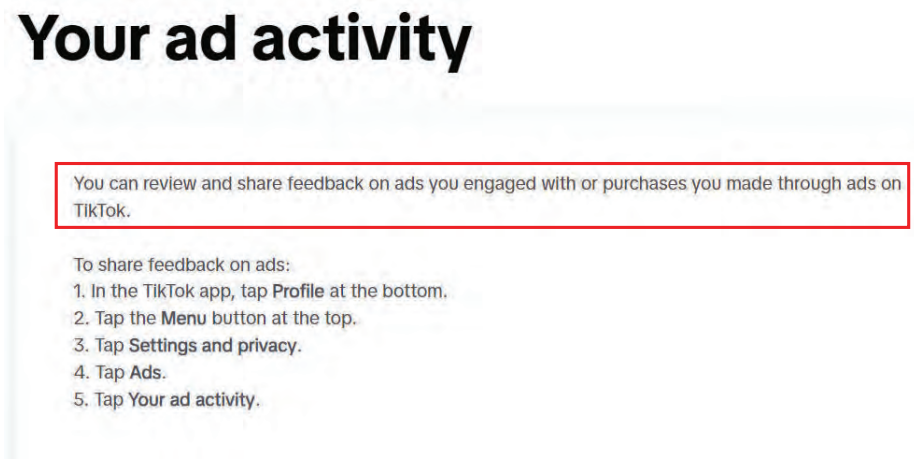
Source: https://www.tiktok.com/privacy/ads-and-your-data/en

246

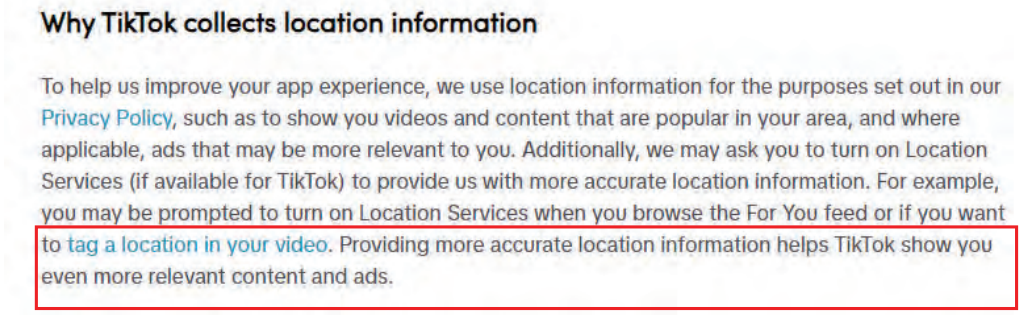


LifeScan, Inc. Ex. 1036
Page 2089 of 2225
IPR2025-00102

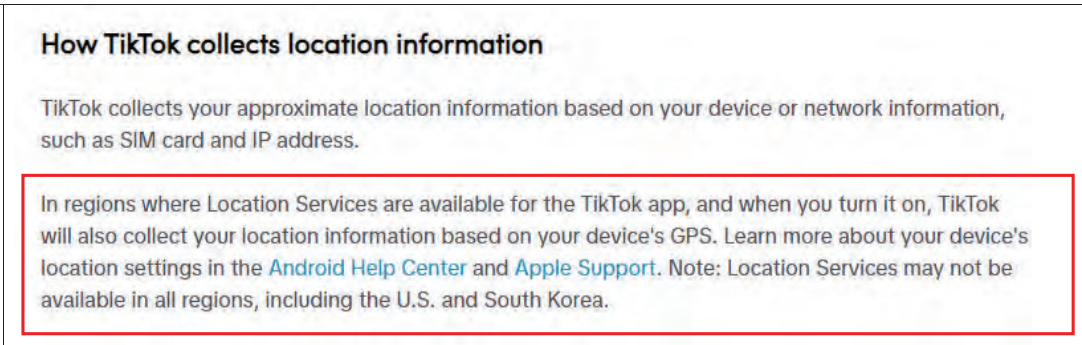
| | |
|---|---|
| | **Information we use for all ads**<br>The following general information may be used to show you either personalized or non-personalized ads.<br>• **Location information:** For example, you may see an ad from an advertiser wanting to reach TikTok users in Berlin, Germany if we think you are in Berlin based on your location information. Learn more about how location information is collected.<br>• **Language information:** For example, you may see an ad from an advertiser wanting to reach Spanish speakers if your app language is set to Spanish.<br>• **Demographic information you provide:** For example, the age you provide when you sign up for a TikTok account can affect whether TikTok shows you an ad for a car rental service available to people aged 25 and over.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en<br>**Information we use for personalized ads**<br>The following additional information may be used to show you personalized ads, depending on your ad personalization choices.<br>• **Demographic information we infer:** For example, we may infer your gender based on your on-TikTok activity, which can be used to tailor the ads that you see. You can update inferred gender for ads at any time in your ads settings. Any updates apply only to your ads settings and do not affect other TikTok services.<br>• **Interest and Behavioral Information**<br>◦ **On-TikTok activity:** TikTok may display ads about things you may be interested in, based on how you view, search, share and like content or interact with creator(s), as well as your previous interactions with similar ads. For example, a pet store might want to advertise a sale on dog toys to people interested in dogs; we might show this ad to users who liked a lot of videos tagged with the hashtag "dogs". Or an outdoor activity store wants to advertise tents to followers of creators who post content about outdoor activities and nature. We will show this ad to followers of those types of creators.<br>◦ **Off-TikTok activity:** TikTok may personalise ads based on the information shared by our Advertisers, measurement and other partners. For example, a fashion brand may want to promote their summer clothing collection to customers who've purchased from their website or app in the past. The brand can share information with us so that we can show its ads to the TikTok users we think it's trying to reach.<br>The shared information may include device information like your phone's advertising ID and/or email addresses and phone numbers that have been encrypted. Partners may also share the actions you take on the advertiser's app or website, like whether you placed an item in a shopping cart.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en |



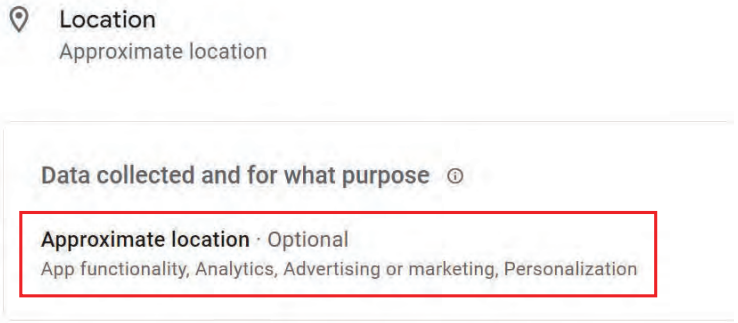

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/your-ad-activity




Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok




Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok




Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US

<table>
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## Ad Targeting

TikTok Ads Manager supports the following targeting dimensions:

| | | |
|---|---|---|
| **Audience** | Include | Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account) |
| | Exclude | Exclude Lookalike or Custom Audiences |
| **Demographics** | Gender | Male, Female |
| | Age | 13-17, 18-24, 25-34, 35-44, 45-54, 55+ |
| | Location | Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only) |

Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en

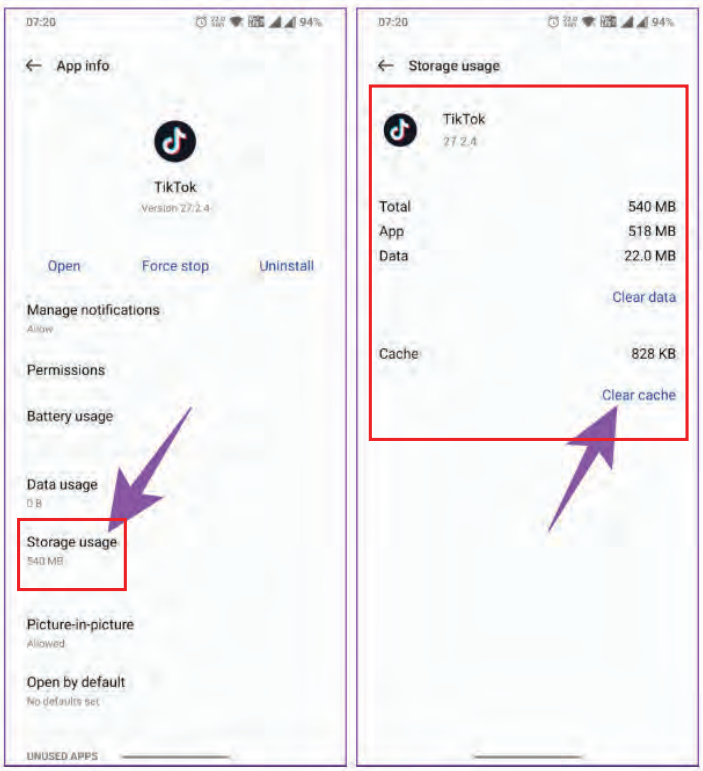
Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant.</td></tr>
<tr><td>[8] The mobile software application of claim 7, wherein the user authentication credential is stored in the memory of the Bluetooth enabled cellular phone, and wherein the user</td><td>Defendant provides the mobile software application of claim 7, wherein the user authentication credential is stored in the memory of the Bluetooth enabled cellular phone, and wherein the user authentication credential is used by the remote server to authenticate a user.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app in the mobile device (“Bluetooth enabled cellular phone”) stores the user's login credentials (“user authentication credential”) such as the username and password within the mobile device's</td></tr>
</table>

| | |
|---|---|
| authentication credential is used by the remote server to authenticate a user. | memory, and facilitating automatic authentication upon subsequent logins to their TikTok app's account. When a user attempts a log in into their TikTok account, the TikTok app's servers use the stored user's credentials to authenticate the user.<br><br>**Information You Provide**<br><br>• **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.<br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en<br><br>You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

| | |
|---|---|
| |  <br>Source: https://www.tiktok.com/@akirasashmi/video/7129576154465422619 |

| | |
|---|---|
| | **How to save or delete your login information**<br><br>You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

| | |
|---|---|
| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps |

| | |
|---|---|
| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

255

| | |
|---|---|
| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [9] The mobile software application of claim 7, wherein the remote server is configured to store the new-data. | Defendant provides the mobile software application of claim 7, wherein the remote server is configured to store the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, when the user provides commands such as 'like' or 'scroll down' ("new-data") through the Bluetooth device, the TikTok app installed on the mobile device processes the user's instruction and accordingly performs the command. Further, the liked/watched videos are uploaded on the TikTok app's cloud ("remote server"), present online in the liked folder/watch history, which can be accessed anytime by the user of the TikTok app by logging into the app. |

## Initialize video upload

To upload a video to a TikTok user's account, the first step is to initialize the upload.

| | |
|---|---|
| HTTP URL | /v2/post/publish/inbox/video/init/ |
| HTTP Method | POST |
| Scope | video.upload |

Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

## File upload

Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.

To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.

Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide

## Send Video to TikTok Servers

Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.

Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.

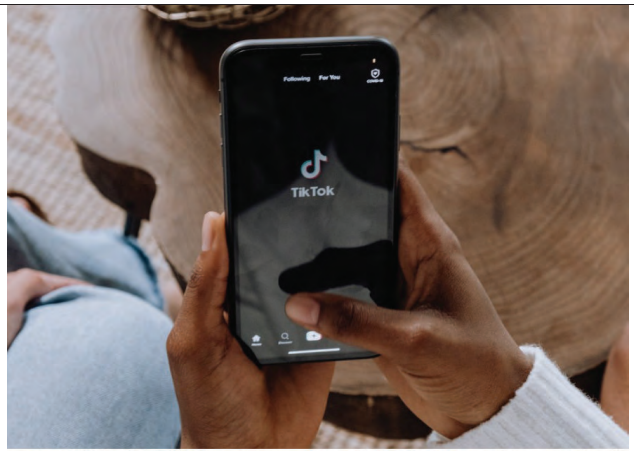
| | |
|---|---|
| HTTP URL | Returned in `upload_url` |
| HTTP Method | PUT |

Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/




Source: https://usds.tiktok.com/?gad_source=1&gclid=EAIaIQobChMIx-ywl9vQhAMV3l1HAR22VQlKEAMYASAAEgKPF_D_BwE, at 1:05

| | |
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| | For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [10] The mobile software application of claim 7, wherein the mobile software application provides a touch based GUI for the received new-data. | Defendant provides the mobile software application of claim 7, wherein the mobile software application provides a touch based GUI for the received new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app ("mobile software application") installed on the mobile device comprises a touch based graphical user interface ("GUI") which allows the user to access the liked and watched videos ("new-data"). |

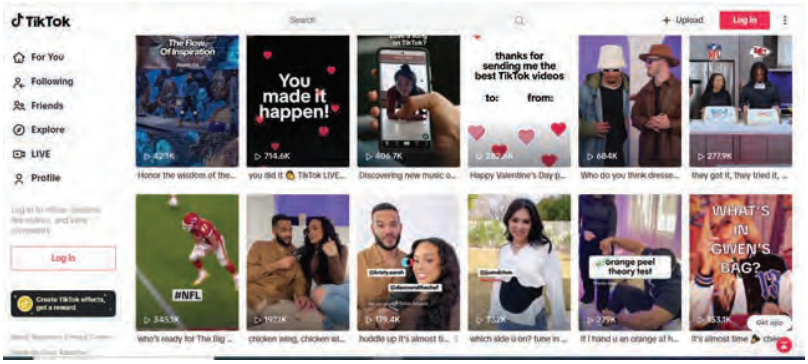
| | |
|---|---|
| |  <br>Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber |

## Onboarding - It starts with a Swipe

The process of getting hooked to TikTok starts right away in the users onboarding experience. TikTok asks users to choose their interests. This information is used for personalizing each user's feed. This is a common practice for products with curated content and used by many different apps.

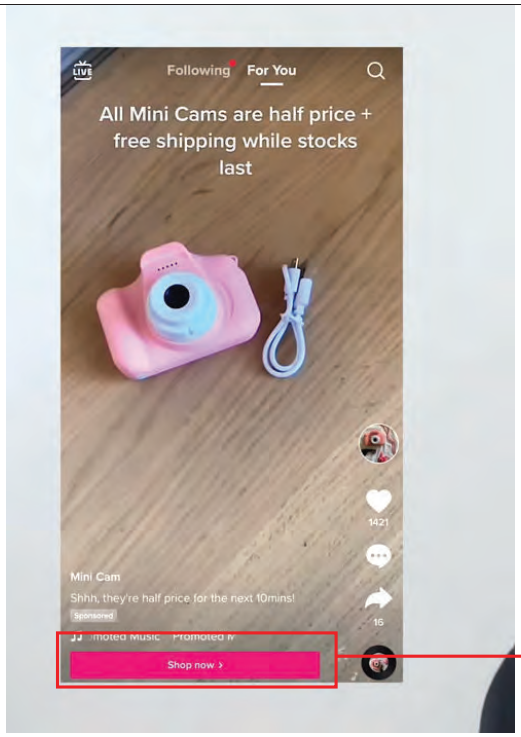
But TikTok's user onboarding is really smart. It encourages users to scroll through the feed and tells them that the content will become more relevant and personalized the more they use it. While this is true for many algorithms, many apps don't tell users this explicitly. By doing so, TikTok encourages users to continue using the app for a better experience

Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber




Source: https://www.tiktok.com/@tiktok

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [11] The mobile software application of claim 7, wherein the mobile software application provides a touch based advertisement targeted to a user. | Defendant provides the mobile software application of claim 7, wherein the mobile software application provides a touch based advertisement targeted to a user.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app installed on the mobile device comprises graphical user interface (“GUI”) which allows the user to access TikTok app’s content and interact with it. Further, the TikTok app dynamically selects advertisements for each user based on their activities and information. Subsequently, the selected advertisement is presented on the TikTok app's interface. Additionally, the TikTok app provides a functionality to the user to engage with the advertisements displayed by the TikTok app on their screens. |



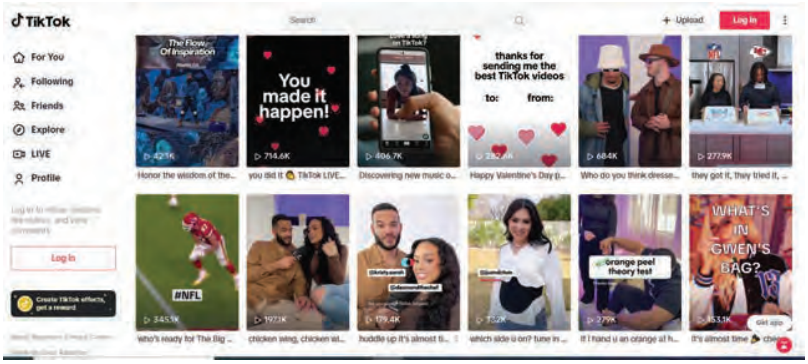

Source: https://www.youtube.com/watch?v=VRw0q8vpBY0, at 2:30 (annotated)

## Onboarding - It starts with a Swipe

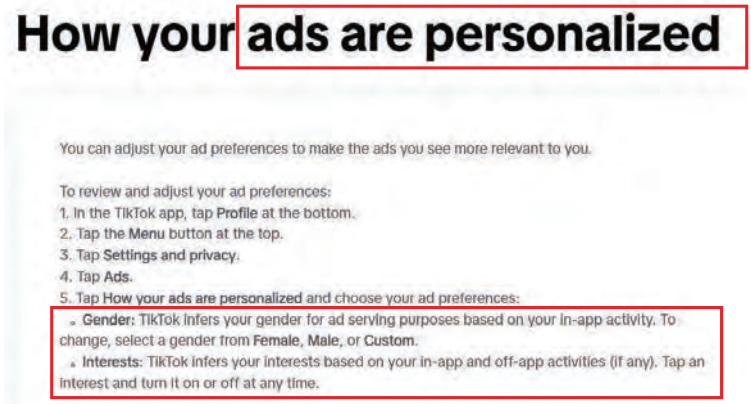
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Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber




Source: https://www.tiktok.com/@tiktok

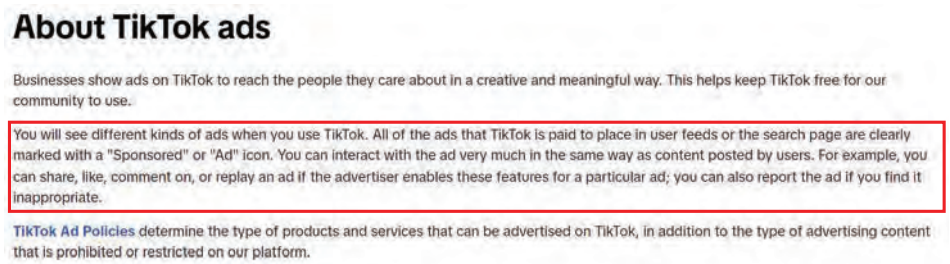


## How your ads are personalized

You can adjust your ad preferences to make the ads you see more relevant to you.

To review and adjust your ad preferences:
1. In the TikTok app, tap **Profile** at the bottom.
2. Tap the **Menu** button at the top.
3. Tap **Settings and privacy**.
4. Tap **Ads**.
5. Tap **How your ads are personalized** and choose your ad preferences:
   - **Gender:** TikTok infers your gender for ad serving purposes based on your in-app activity. To change, select a gender from **Female**, **Male**, or **Custom**.
   - **Interests:** TikTok infers your interests based on your in-app and off-app activities (if any). Tap an interest and turn it on or off at any time.

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/how-your-ads-are-personalized



## About TikTok ads

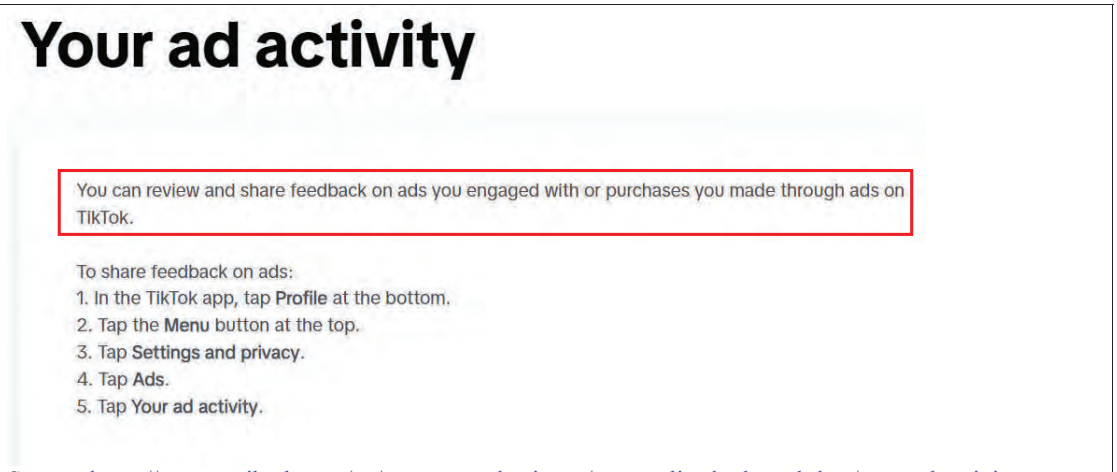
Businesses show ads on TikTok to reach the people they care about in a creative and meaningful way. This helps keep TikTok free for our community to use.

You will see different kinds of ads when you use TikTok. All of the ads that TikTok is paid to place in user feeds or the search page are clearly marked with a "Sponsored" or "Ad" icon. You can interact with the ad very much in the same way as content posted by users. For example, you can share, like, comment on, or replay an ad if the advertiser enables these features for a particular ad; you can also report the ad if you find it inappropriate.

**TikTok Ad Policies** determine the type of products and services that can be advertised on TikTok, in addition to the type of advertising content that is prohibited or restricted on our platform.

Source: https://www.tiktok.com/privacy/ads-and-your-data/en

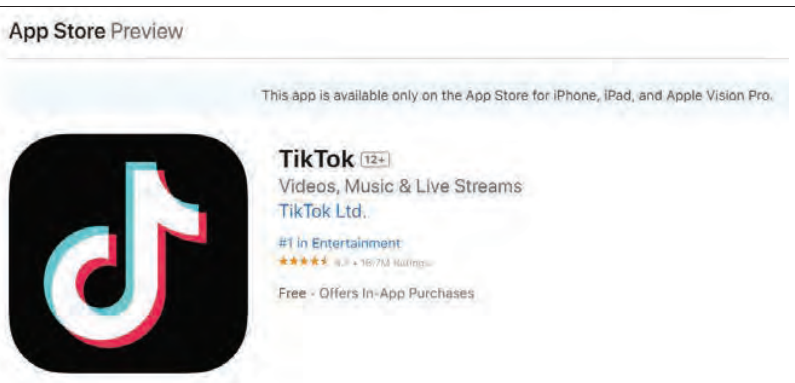
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| | **Information we use for all ads**<br>The following general information may be used to show you either personalized or non-personalized ads.<br>• **Location information:** For example, you may see an ad from an advertiser wanting to reach TikTok users in Berlin, Germany if we think you are in Berlin based on your location information. Learn more about how location information is collected.<br>• **Language information:** For example, you may see an ad from an advertiser wanting to reach Spanish speakers if your app language is set to Spanish.<br>• **Demographic information you provide:** For example, the age you provide when you sign up for a TikTok account can affect whether TikTok shows you an ad for a car rental service available to people aged 25 and over.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en<br>**Information we use for personalized ads**<br>The following additional information may be used to show you personalized ads, depending on your ad personalization choices.<br>• **Demographic information we infer:** For example, we may infer your gender based on your on-TikTok activity, which can be used to tailor the ads that you see. You can update inferred gender for ads at any time in your ads settings. Any updates apply only to your ads settings and do not affect other TikTok services.<br>• **Interest and Behavioral Information**<br>◦ **On-TikTok activity:** TikTok may display ads about things you may be interested in, based on how you view, search, share and like content or interact with creator(s), as well as your previous interactions with similar ads. For example, a pet store might want to advertise a sale on dog toys to people interested in dogs; we might show this ad to users who liked a lot of videos tagged with the hashtag "dogs". Or an outdoor activity store wants to advertise tents to followers of creators who post content about outdoor activities and nature. We will show this ad to followers of those types of creators.<br>◦ **Off-TikTok activity:** TikTok may personalise ads based on the information shared by our Advertisers, measurement and other partners. For example, a fashion brand may want to promote their summer clothing collection to customers who've purchased from their website or app in the past. The brand can share information with us so that we can show its ads to the TikTok users we think it's trying to reach.<br>The shared information may include device information like your phone's advertising ID and/or email addresses and phone numbers that have been encrypted. Partners may also share the actions you take on the advertiser's app or website, like whether you placed an item in a shopping cart.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en |

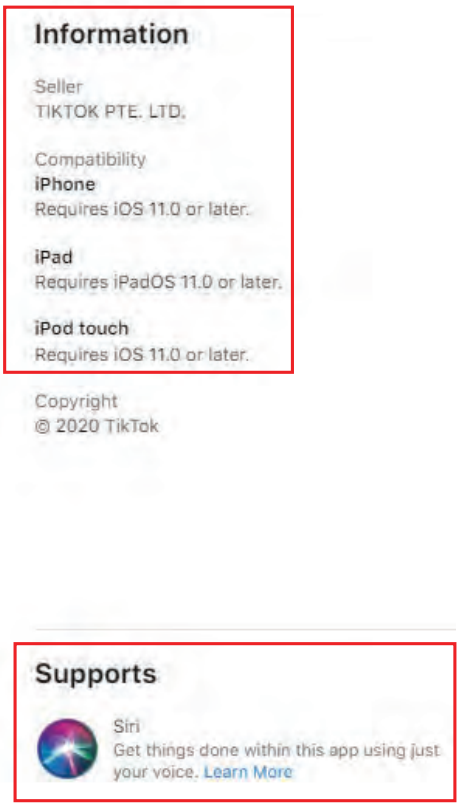
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| |  <br>Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/your-ad-activity<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.P] A mobile software application for a Bluetooth enabled cellular phone comprising executable program instructions that, when executed by the | ByteDance ("Defendant") makes, uses, sells, and/or offers to sell a mobile software application for a Bluetooth enabled cellular phone comprising executable program instructions executed by the processor.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, Defendant provides TikTok[5] app ("mobile software application") which is installed in a mobile device ("Bluetooth enabled cellular phone") and can be remotely controlled through Bluetooth devices such as |

[5] While TikTok app has been used as an exemplary infringing instrumentality, mobile apps including, but not limited, to Lemon8 and Capcut as well as versions of these apps have the same functionality. The presently charted exemplary infringing instrumentality is representative for purposes of illustrating infringement of the other apps.

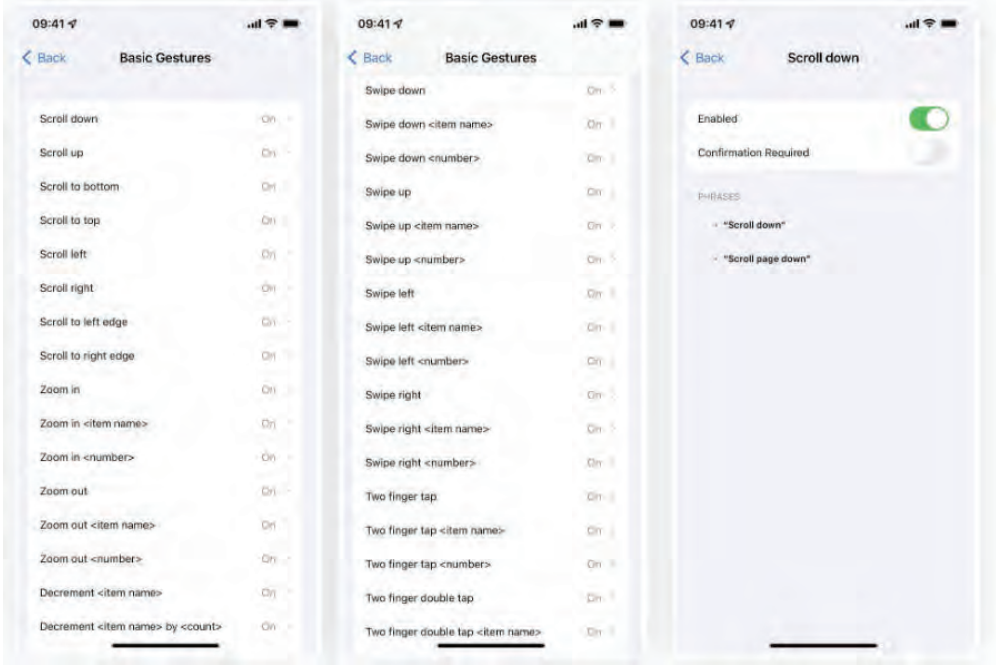
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| processor controls the processor to: | AirPods and Bluetooth remotes[6]. The TikTok app utilizes the processor and Bluetooth technology of the mobile device to perform functions such as 'scrolling'/'liking' the video based on inputs provided on the Bluetooth devices.<br><br>For example, the TikTok app for iOS allows a user to configure gestures for phrases such that when the user provides an audio command corresponding to the phrase, a gesture is automatically performed on the user interface of the TikTok app causing a functionality such as 'liking' or 'scrolling' of a video in the app. The custom phrases and corresponding gestures for the TikTok app are set in the Voice Control settings of iOS. For example, when the phrase "double tap" and a custom gesture causing a double tap on the screen is configured for the TikTok app, then the audio command "double tap" provided by the user on the Bluetooth device (such as AirPods) causes the double tapping gesture to be performed in the TikTok app leading to 'liking' of the video.<br><br>Further, the TikTok app includes the functionality of TikTok Shop that enables merchants to sell and users to buy iPhones from the TikTok app. |

[6] TikTok app is compatible with a wide variety of Bluetooth remotes, for e.g. Smart Ring Controller and other Bluetooth Remote Controllers which transmit data relating to user inputs (such as scroll, tap, double tap, etc.) to the TikTok app.

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| |  <br>Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320 |




Source: https://apps.apple.com/us/app/tiktok-videos-music-live/id835599320



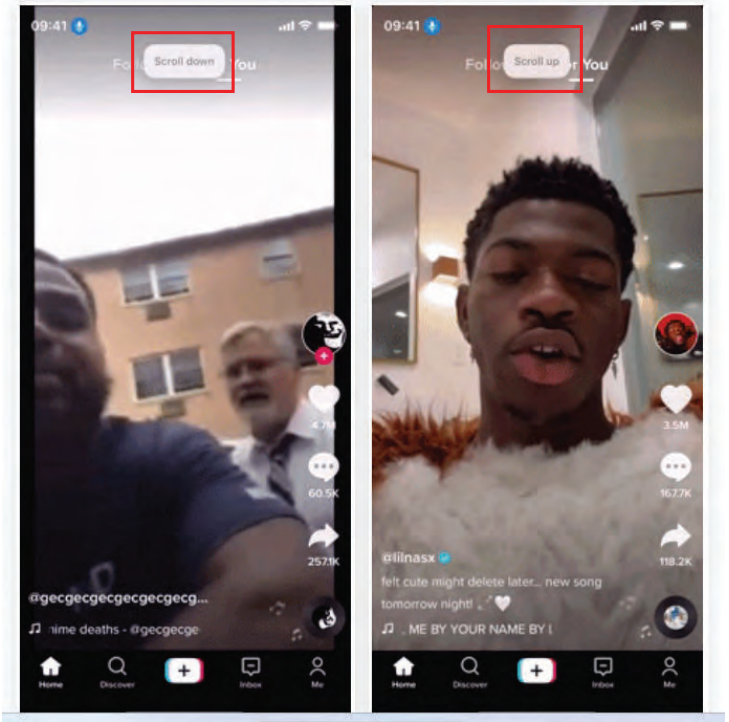

Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/#

271



LifeScan, Inc. Ex. 1036
Page 2114 of 2225
IPR2025-00102

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

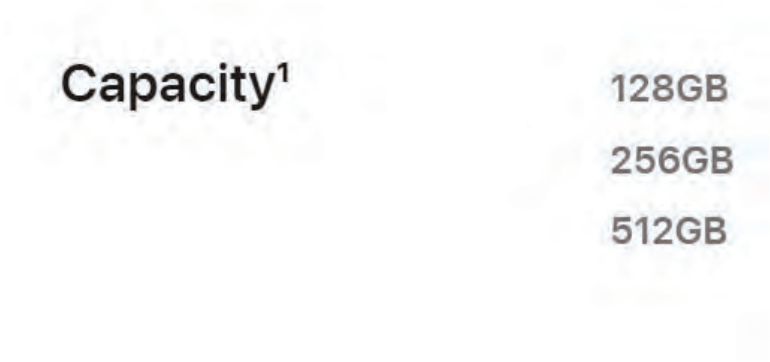
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

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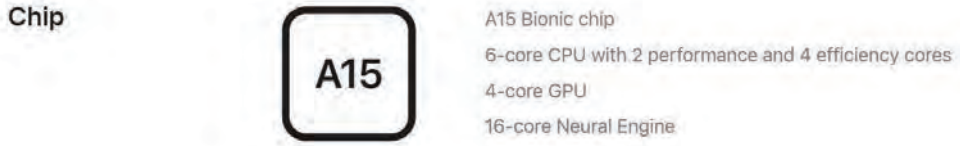
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| | **If an app would like to use Bluetooth on your device**<br>Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.<br><br>**About Bluetooth privacy settings**<br>Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.<br>Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.<br>Source: https://support.apple.com/en-us/HT210578 |

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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Source: https://www.apple.com/iphone-13/specs/

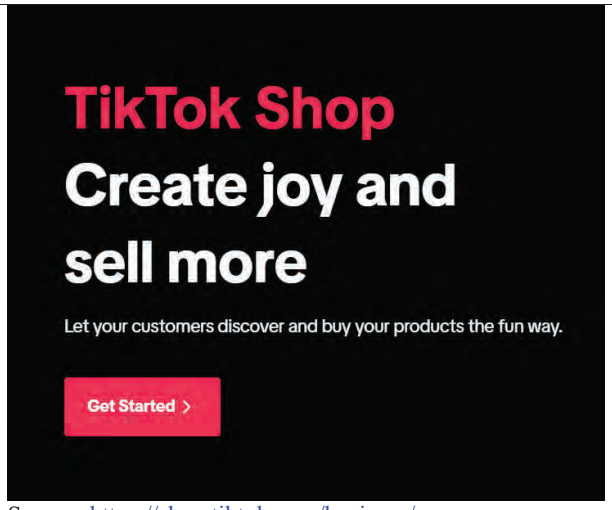



Source: https://www.apple.com/iphone-13/specs/

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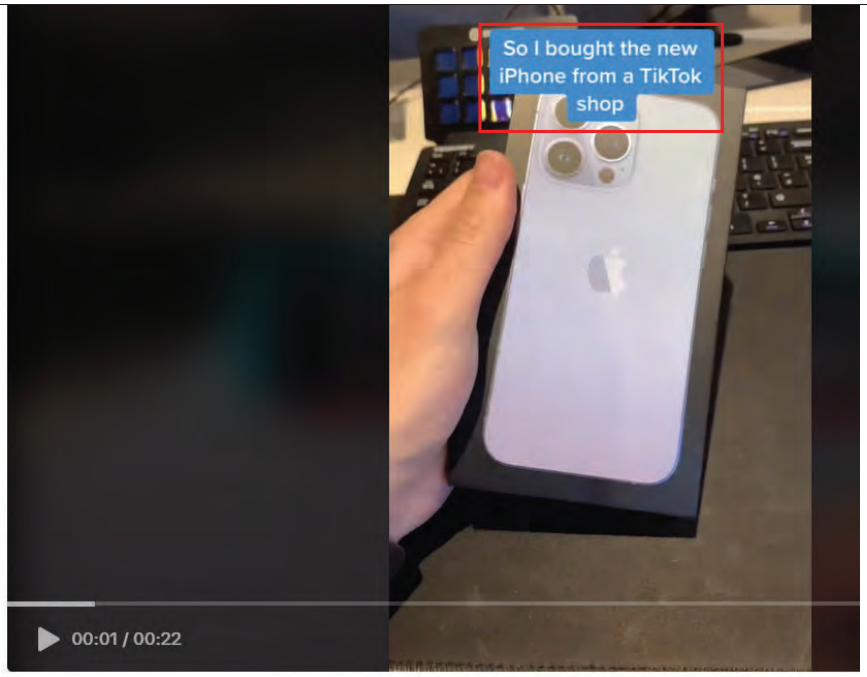


LifeScan, Inc. Ex. 1036
Page 2119 of 2225
IPR2025-00102

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| |  <br>Source: https://shop.tiktok.com/business/en | |

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| | **Seller**<br>TikTok Shop enables brands to showcase and sell products for the TikTok community to discover and purchase.<br>  <br>**Purchase & Conversion**<br>With an all-in-app experience, there is no redirection to partnered shopping apps or websites, meaning higher conversion and sales.<br>  <br>**Campaigns & Promotion**<br>Get access to TikTok Shop's platform campaigns and extensive selection of promotion tools.<br>  <br>**Direct Creator Collaboration**<br>Discover, communicate and collaborate with thousands of creators through our affiliate programme directly accessible on TikTok Shop.<br>  <br>**Performance Analysis**<br>Track performance, traffic, customer reviews and transaction data through TikTok Shop's data dashboards<br>Source: https://shop.tiktok.com/business/en |

278

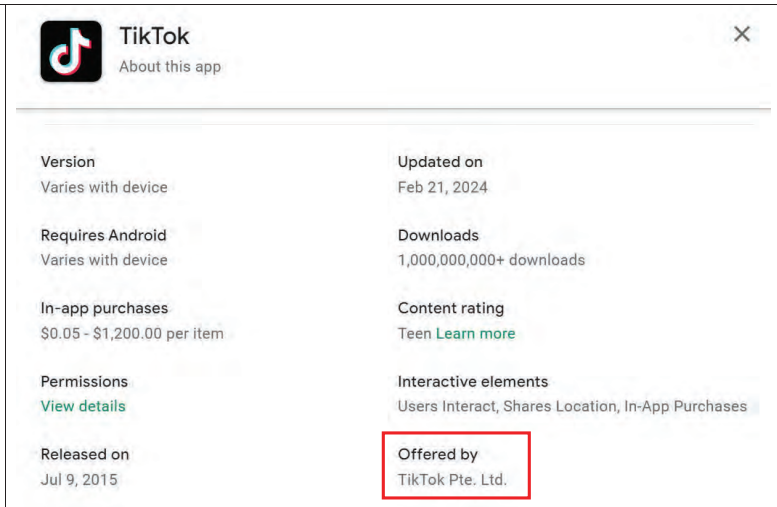



So TikTok shops are legit after all 🤣 #fyp #tiktokshop #iphone #foryoupage #tzortzitime

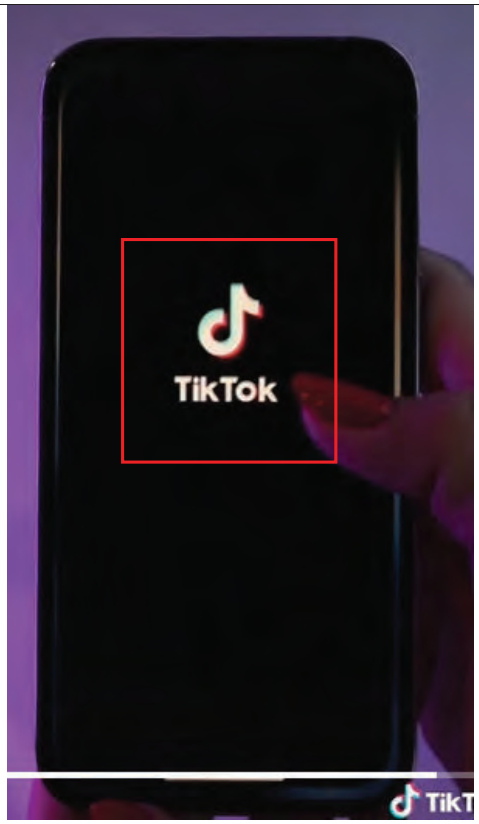
Source: https://www.tiktok.com/@tzortzitime/video/7037559770076810502, at 0:01

For example, the TikTok app when installed on an Android phone such as Pixel 6a (used herein as an exemplary Android-based device), allows the user to turn on Voice Access feature in the Android phone's Accessibility settings to perform multiple functionalities such as 'liking' the content and 'scrolling' the videos while accessing the TikTok app. When an audio command corresponding to the desired functionality is provided through the Bluetooth device, Pixel 6a receives the command and the TikTok app processes the executed

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| | command and performs the corresponding functionality such as scrolling/liking the video. For example, when Voice Access is enabled while surfing the TikTok app and the user provides an audio input “Scroll down” on the Bluetooth device such as an earphone, the TikTok app scrolls down to load the next video.<br><br>Further, the TikTok app includes the functionality of TikTok Shop that enables merchants to sell and the users to buy the Android phones from the TikTok app.<br><br>  <br><br>Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US |




Source: https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=en_US&gl=US

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| |  <br>Source: https://www.tiktok.com/@san.shapes/video/7121699111149128965?is_from_webapp=v1, at 0:21 |

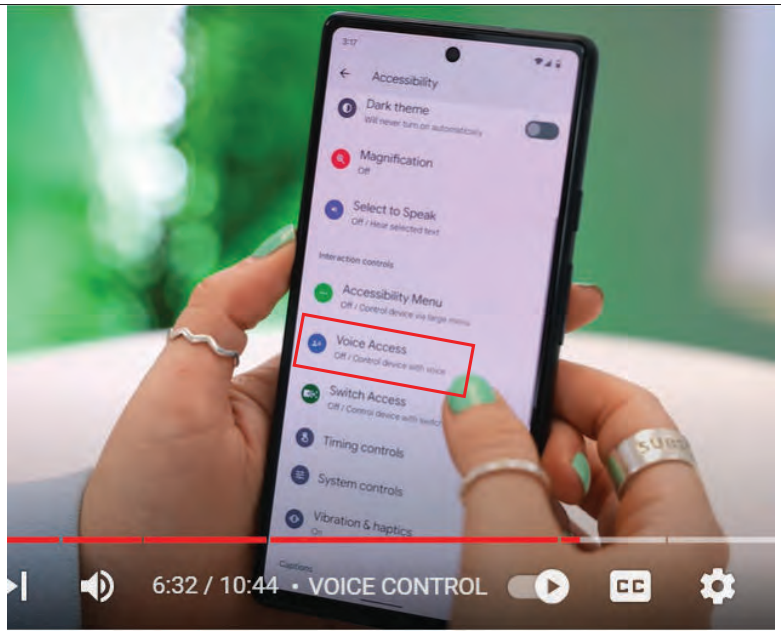
282



LifeScan, Inc. Ex. 1036
Page 2125 of 2225
IPR2025-00102

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| | **Memory and Storage**<br>**Memory**<br>• 6 GB LPDDR5 RAM<br>**Storage**<br>• 128 GB storage UFS 3.1 storage[4]<br>**Processors**<br>• Google Tensor<br>• Titan M2™ security coprocessor<br>Source: https://support.google.com/pixelphone/answer/7158570?hl=en |

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| | **Step 3: Start using Voice Access**<br>To turn on Voice Access, follow these steps:<br>1. Open your device's Settings app.<br>2. Tap **Accessibility**, then tap **Voice Access.**<br>3. Tap **Use Voice Access**.<br>4. Start Voice Access in one of these ways:<br>• If "Hey Google" detection is on, you can say "Hey Google, Voice Access."<br>• Open your notification shade and tap **Touch to start**.<br>• On your Home screen, tap the Voice Access app.<br>• Tap the Voice Access activation button. (You can set up the activation button in Settings > **Accessibility** > **Voice Access** > **Settings** > **Activation button**.)<br>5. Say a command, such as "Open Gmail." Learn more Voice Access commands.<br>The first time you turn on Voice Access, two extra steps help you get started:<br>• A guide to "Hey Google" settings helps set you up for a good hands-free experience.<br>• An interactive tutorial teaches you how Voice Access works.<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |

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| |  <br>Source: https://www.youtube.com/watch?v=Ec52kzzqVRM, at 6:32 |





LifeScan, Inc. Ex. 1036
Page 2128 of 2225
IPR2025-00102

Here is how to scroll through TikTok hands-free on Android:

- Install Google's **Voice Access** app from Play Store.
- Go to **Settings** › **Accessibility**; find and select the Voice Access app.
- Tap on **Use service** to enable Voice Access.
- When prompted, grant permissions to the Voice Access app.
- Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.
- Once done, you will see a blue floating icon on your screen.
- Tap on the floating icon to activate Voice Access. You are all set!
- Now, open TikTok and say "**scroll down**" to see the magic.

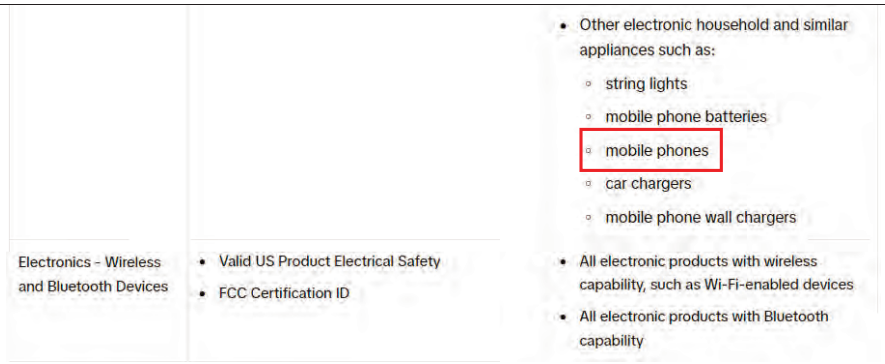
Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/

- **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:
  1. Connect your keyboard or switch to your device:
     - Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices.

Source: https://support.google.com/accessibility/android/answer/6151848?hl=en

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

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| | Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>**android.permission.BLUETOOTH_CONNECT** \| App customer permission.<br>Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill<br><br>android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>**Electrical Products and Electronics**<br>Sellers who wish to list electrical and electronic products must obtain the necessary product approvals.<br>Electrical and electronic products include but are not limited to:<br><br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy |

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| |  <br>Source: https://seller-us.tiktok.com/university/essay?identity=1&role=1&knowledge_id=3238037484275457&from=policy<br><br>For example, TikTok app is also configured to receive data from third-party Bluetooth remotes. These Bluetooth remotes connect to the mobile device via Bluetooth and allow the user to scroll through videos or 'like' a video using designated buttons on the remote (for example, a user can "like" a particular video on the TikTok app by double clicking a designated button). |

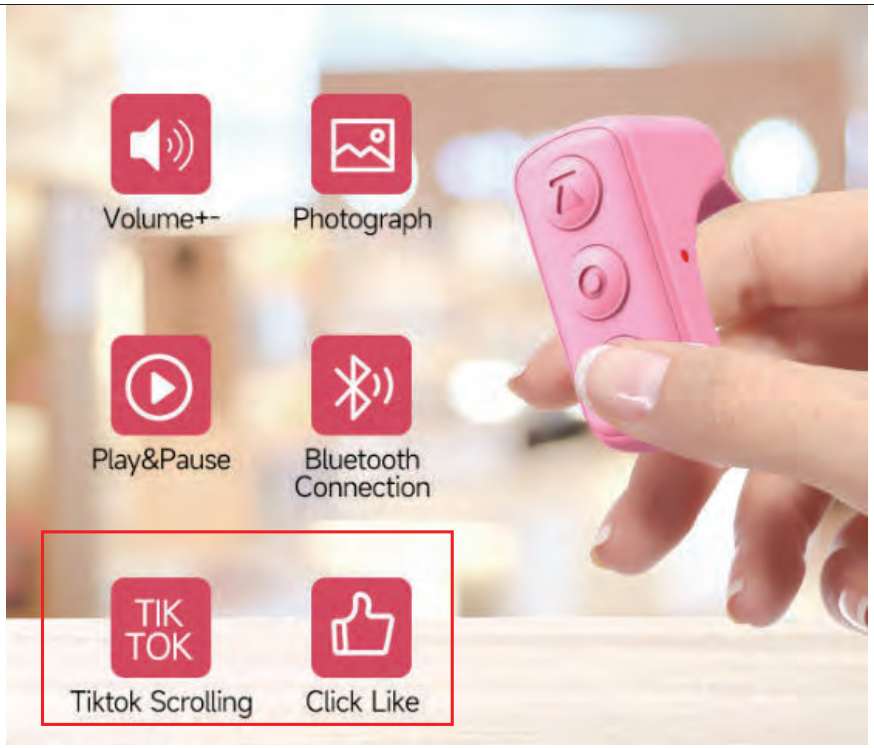
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

289




Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa

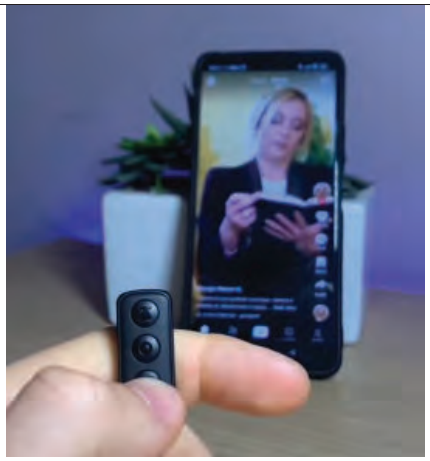
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

291

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.youtube.com/shorts/rz7SWRCzdMg<br><br>Name: BLUETOOTH<br><br>Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.<br>Source: https://blog.malcore.io/p/tiktok63 |

BLUETOOTH
pair with Bluetooth devices

BLUETOOTH_CONNECT
connect to paired Bluetooth devices

Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O

**Finding your liked videos**

To find your liked videos:

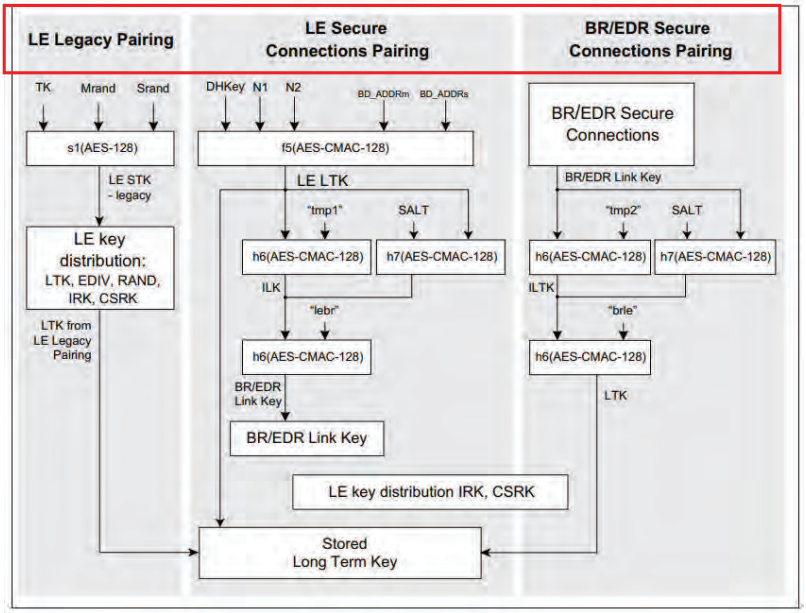
1. Tap **Profile** in the bottom right.
2. Tap **Heart**, located on the right side of the panel.

Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking

For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.

Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance

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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.1] detect and receive new-data acquired in a Bluetooth enabled data capture device, wherein the new-data is data acquired by the Bluetooth enabled data capture device after establishing a paired Bluetooth connection between the Bluetooth enabled data capture device and the Bluetooth enabled cellular phone, | Defendant provides a mobile software application that controls the processor to detect and receive new-data acquired in a Bluetooth enabled data capture device, wherein the new-data is data acquired by the Bluetooth enabled data capture device after establishing a paired Bluetooth connection between the Bluetooth enabled data capture device and the Bluetooth enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the Bluetooth devices such as, AirPods, Bluetooth-enabled earphones, and Bluetooth remote ("Bluetooth enabled data capture device") pair with the mobile device to establish a Bluetooth connection. After the Bluetooth connection is established, the TikTok app for iOS and Android can be controlled by giving commands from the Bluetooth devices.<br><br>For example, the TikTok app detects audio command ("new data") captured by a Bluetooth device such as AirPods or earphones. The audio command is first received at the mobile device in which the TikTok app is installed and then processed by the app to perform the functionality (such as liking/scrolling the video) corresponding to the audio command.<br><br>The Bluetooth security model includes five distinct security features: pairing, bonding, device authentication, encryption and message integrity.<br>• Pairing: the process for creating one or more shared secret keys<br>• Bonding: the act of storing the keys created during pairing for use in subsequent connections in order to form a trusted device pair<br>• Device authentication: verification that the two devices have the same keys<br>• Encryption: message confidentiality<br>• Message integrity: protects against message forgeries<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 240 |




Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 242

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| SSI | Signal Strength Indication | |
| SSP | Secure Simple Pairing | Simplifies the pairing process and improves Bluetooth security |
| SSR | Sniff Subrating | A mode that defines the anchor points at which the master transmits to the slave. |

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 276

297

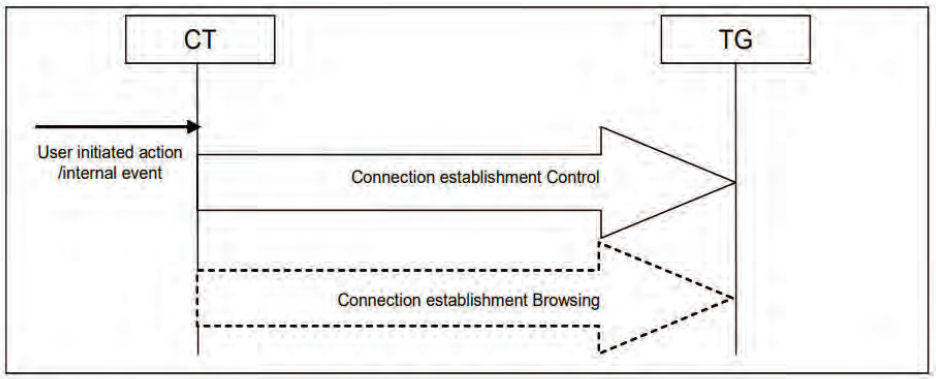



*Figure 4.1: Connection establishment initiated by CT*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 24

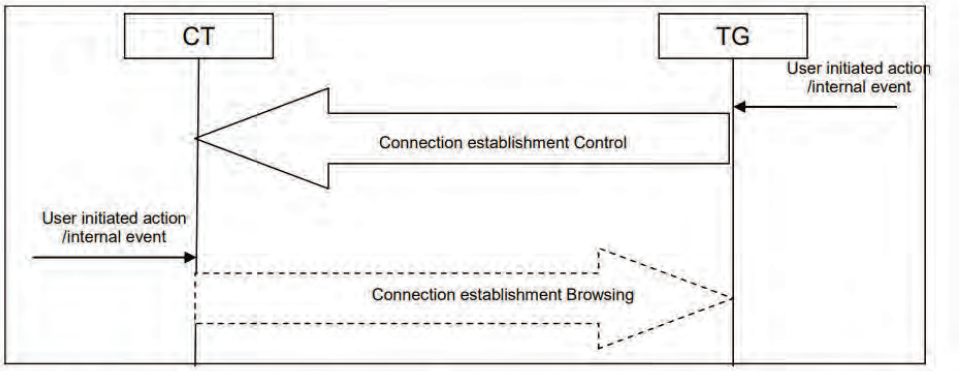


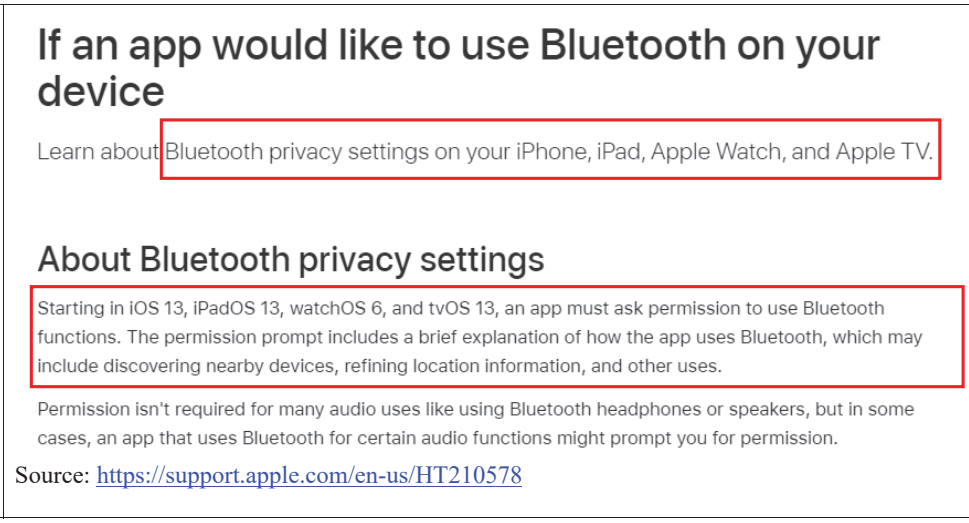

*Figure 4.3: Control channel establishment initiated by TG and browsing channel establishment initiated by CT when needed.*

Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 25

299

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| | **How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

300



## If an app would like to use Bluetooth on your device

Learn about Bluetooth privacy settings on your iPhone, iPad, Apple Watch, and Apple TV.

### About Bluetooth privacy settings

Starting in iOS 13, iPadOS 13, watchOS 6, and tvOS 13, an app must ask permission to use Bluetooth functions. The permission prompt includes a brief explanation of how the app uses Bluetooth, which may include discovering nearby devices, refining location information, and other uses.

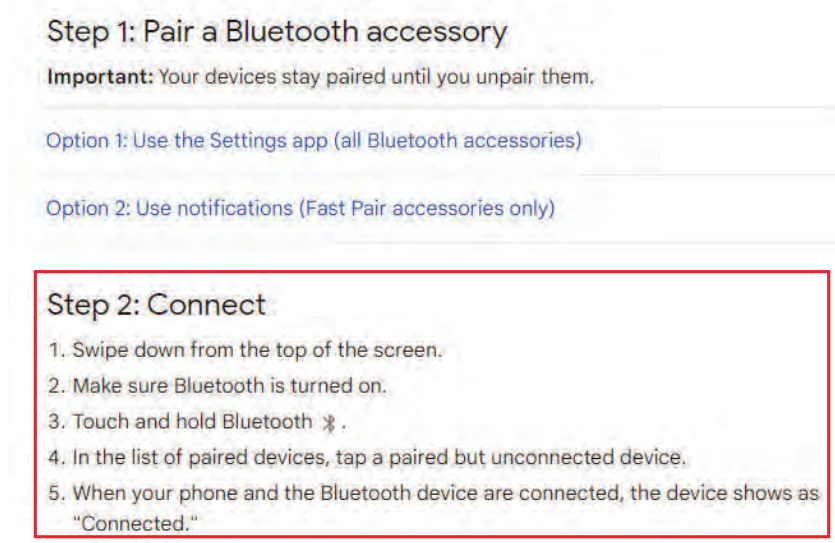
Permission isn't required for many audio uses like using Bluetooth headphones or speakers, but in some cases, an app that uses Bluetooth for certain audio functions might prompt you for permission.

Source: https://support.apple.com/en-us/HT210578

301

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| | **Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

302




Source: https://support.google.com/android/answer/9075925?hl=en

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|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

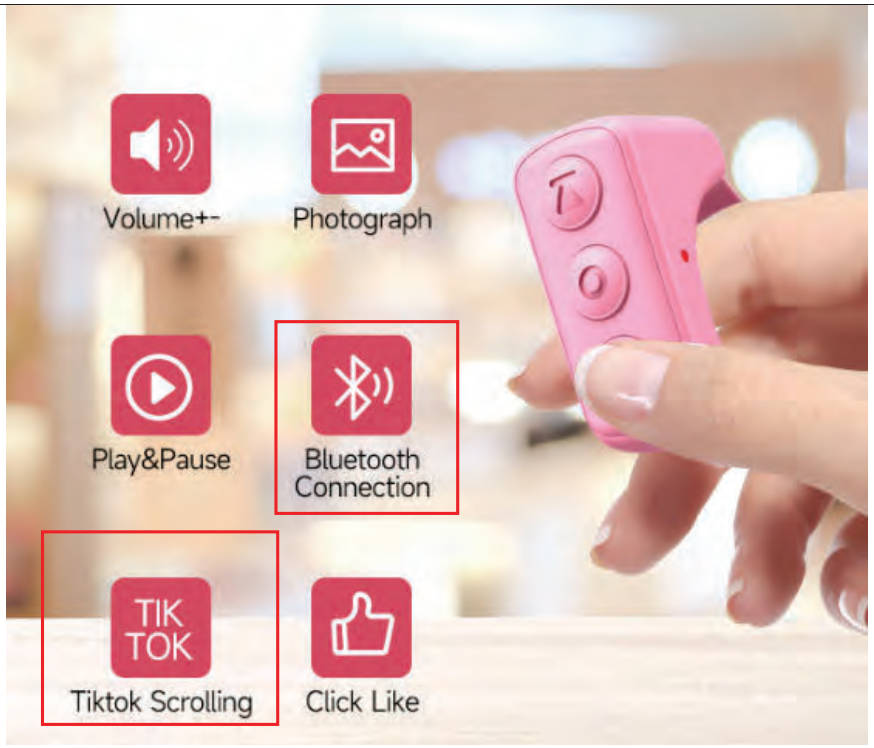
303

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| | android.permission.AUTHENTICATE_ACCOUNTS<br>android.permission.BLUETOOTH<br>android.permission.BLUETOOTH_CONNECT<br>android.permission.CAMERA<br>Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions<br><br>In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.<br><br>**Bluetooth permissions**<br><br>In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.<br><br>The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.<br><br>Source: https://developer.android.com/guide/topics/connectivity/bluetooth |

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br><br>`Name: BLUETOOTH`<br><br>`Description: Allows an application to view configuration of the local Bluetooth phone and to make and accept connections with paired devices.`<br>Source: https://blog.malcore.io/p/tiktok63 |

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>For example, the TikTok app detects a command (“new data”) captured at the Bluetooth remote when the user clicks a specific button on the Bluetooth remote. The command is first received at the mobile device (in which the TikTok app is installed) and then processed by the TikTok app to perform the functionality (such as liking/scrolling the video) corresponding to the command. |

306

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

307



LifeScan, Inc. Ex. 1036
Page 2150 of 2225
IPR2025-00102

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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

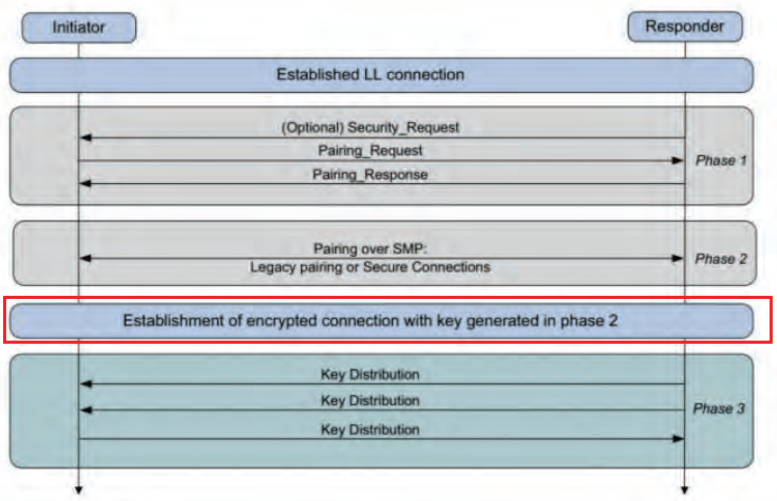
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.2] wherein establishing the Bluetooth paired connection comprises the | Defendant provides a mobile software application wherein establishing the Bluetooth paired connection comprises the Bluetooth enabled data capture device cryptographically authenticating an identity of the Bluetooth enabled cellular phone. |





LifeScan, Inc. Ex. 1036
Page 2152 of 2225
IPR2025-00102

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| Bluetooth enabled data capture device cryptographically authenticating an identity of the Bluetooth enabled cellular phone, | This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the mobile device ("Bluetooth enabled cellular phone") and the Bluetooth device (such as AirPods, Bluetooth-enabled earphones, and Bluetooth remote) ("Bluetooth enabled data capture device") are connected through an encrypted connection created by exchanging secret keys. The exchanged secret keys are used to cryptographically authenticate the identity of the devices such that a Bluetooth paired connection is established between the two devices. The mobile device can be authenticated using one of the three algorithms: Numeric comparison, Passkey Entry, and Out of Band (OOB).<br><br>In the *Bluetooth*® Core specification, there are three major architectural layers: Controller, Host and Application. In the Host Layer, there is a module called Security Manager (SM) which defines the methods and protocols for pairing and key distribution, the corresponding security toolbox, and the Security Manager Protocol (SMP) which defines the pairing command frame format, frame structure and timeout restriction. The Security Manager (SM) uses a key distribution approach to perform identity and encryption functionalities in radio communication.<br><br>Pairing is performed to establish keys which can then be used to encrypt a link. A transport specific key distribution is then performed to share the keys. The keys can be used to encrypt a link in future reconnections, verify signed data, or perform random address resolution. In general, there are 3-phase for paring.<br><br>Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/<br><br>**2.4 Profile fundamentals**<br><br>The profile fundamentals, with which all applications shall comply, are the following.<br><br>1. Support for authentication and encryption is mandatory, such that the device can take part in the corresponding procedures if requested from a peer device.<br>2. A link shall be established before commands can be initiated or received.<br>3. There are no fixed master/slave roles.<br>4. In this profile, the A/V functions are classified into four categories defined in Section 2.2.2. All devices that conform to this profile shall support at least one category, and may support several categories.<br>5. Transfer Octet Order; Packets shall transfer multiple-octet fields in standard network octet order (Big Endian), with more significant (high-order) octets being transferred before less-significant (low-order) octets.<br><br>Source: https://www.bluetooth.org/docman/handlers/downloaddoc.ashx?doc_id=457082, Page 20 |




Source: https://www.bluetooth.com/blog/bluetooth-pairing-part-1-pairing-feature-exchange/

**4.2.9 Authentication**

A device can be authenticated by using one of three algorithms. The choice of algorithm is determined by the combination of the IO capabilities of the two devices.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1437

311

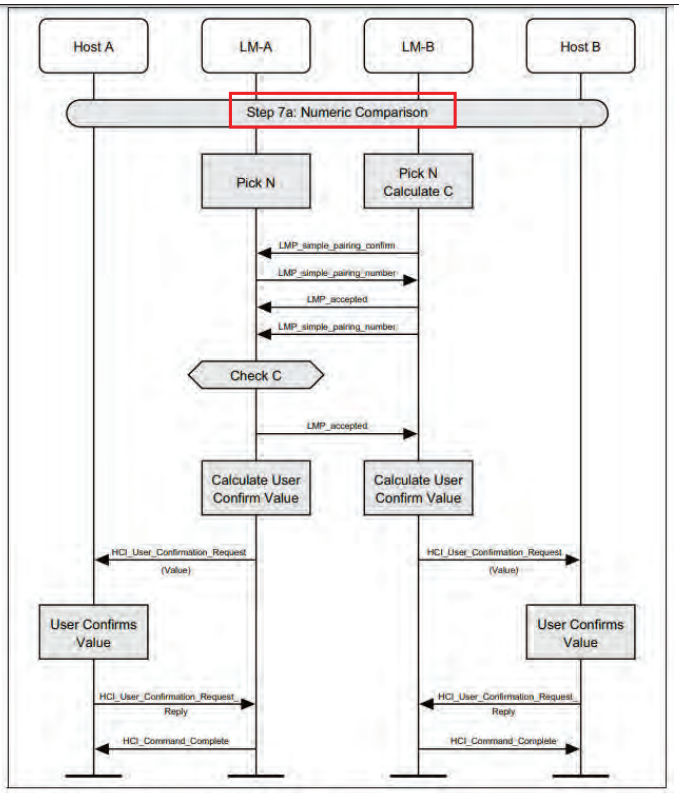



*Figure 4.14: Numeric comparison authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1438

312

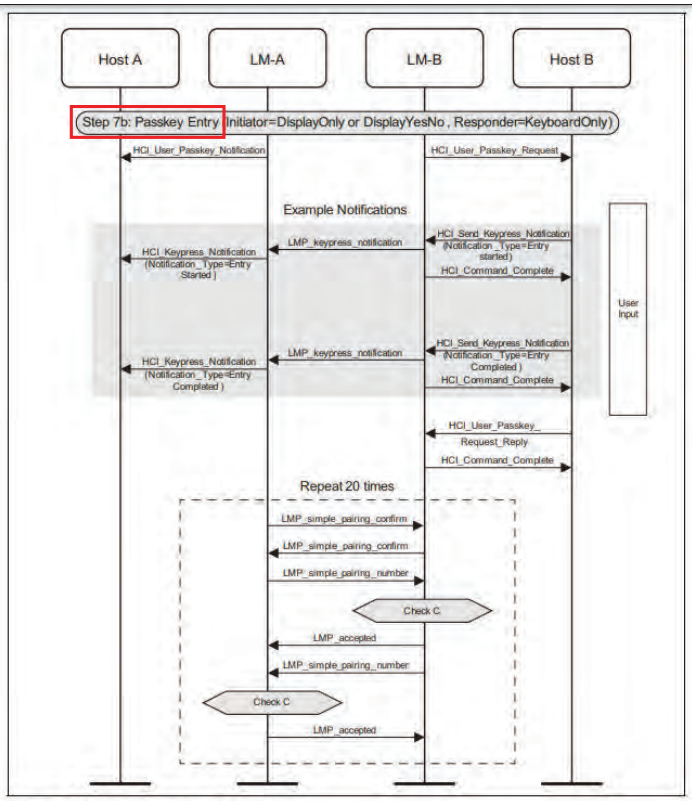



*Figure 4.17: Passkey entry authentication*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1441

313

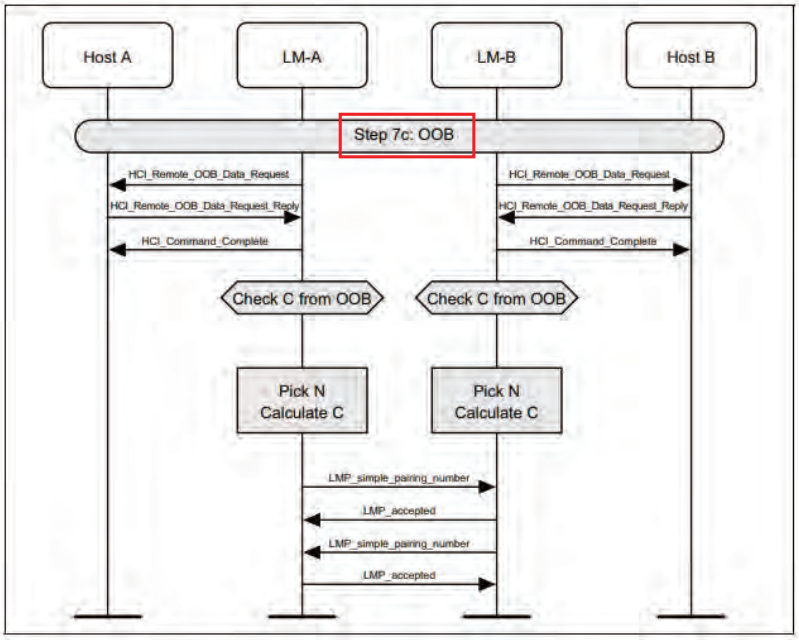



*Figure 4.20: OOB authentication (P-192)*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 1444

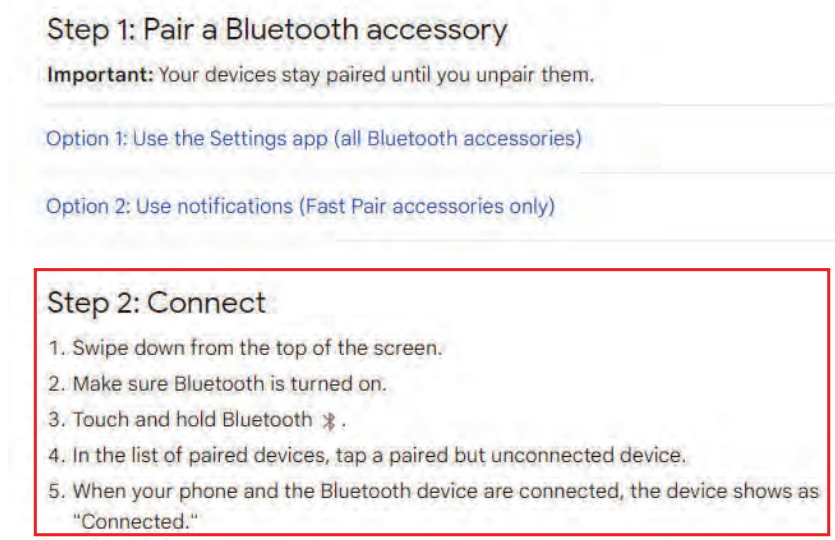
314

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| | **Bluetooth security**<br>There are two types of Bluetooth in Apple devices, Bluetooth Classic and Bluetooth Low Energy (BLE). The Bluetooth security model for both versions includes the following distinct security features:<br>• *Pairing:* The process for creating one or more shared secret keys<br>• *Bonding:* The act of storing the keys created during pairing for use in subsequent connections to form a trusted device pair<br>• *Authentication:* Verifying that the two devices have the same keys<br>• *Encryption:* Message confidentiality<br>• *Message integrity:* Protection against message forgeries<br>• *Secure Simple Pairing:* Protection against passive eavesdropping and protection against man-in-the-middle attacks<br>Source: https://support.apple.com/guide/security/bluetooth-security-sec82597d97e/web |

315



LifeScan, Inc. Ex. 1036
Page 2158 of 2225
IPR2025-00102




Source: https://support.google.com/android/answer/9075925?hl=en

316



LifeScan, Inc. Ex. 1036
Page 2159 of 2225
IPR2025-00102

In order for Bluetooth-enabled devices to transmit data between each other, they must first form a channel of communication using a *pairing* process. One device, a *discoverable device*, makes itself available for incoming connection requests. Another device finds the discoverable device using a *service discovery* process. After the discoverable device accepts the pairing request, the two devices complete a *bonding* process where they exchange security keys. The devices cache these keys for later use. After the pairing and bonding processes are complete, the two devices exchange information. When the session is complete, the device that initiated the pairing request releases the channel that had linked it to the discoverable device. The two devices remain bonded, however, so they can reconnect automatically during a future session as long as they're in range of each other and neither device has removed the bond.

**Bluetooth permissions**

In order to use Bluetooth features in your application, you must declare two permissions. The first of these is `BLUETOOTH`. You need this permission to perform any Bluetooth communication, such as requesting a connection, accepting a connection, and transferring data.

The other permission that you must declare is `ACCESS_FINE_LOCATION`. Your app needs this permission because a Bluetooth scan can be used to gather information about the location of the user. This information may come from the user's own devices, as well as Bluetooth beacons in use at locations such as shops and transit facilities.

Source: https://developer.android.com/guide/topics/connectivity/bluetooth



**SPECIFICATION**

- Bluetooth version:Bluetooth Ver.5.0
- Bluetooth name: D01
- Control Distance: 10 meters
- Transmit power: classII(- 6dBm~ + 4dBm)
- Battery Capacity: 200+25mAh

Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa?th=1

317

**Encryption Key Size Control Enhancements**

New and enhanced Host Controller Interface (HCI) commands provide more efficient methods for hosts to ensure a minimum acceptable key length is used to encrypt a connection between Bluetooth Classic (BR/EDR) devices. These HCI enhancements can improve signaling efficiency in many Bluetooth Classic products, as the use of encryption is either mandatory or highly encouraged in all Bluetooth BR/EDR connections.

Bluetooth® wireless devices typically use encryption to ensure unauthorized third parties cannot access data being transmitted between two connected devices. One key factor that determines the strength of the protection provided is the size, or length, of the key being used to encrypt the data. In Bluetooth Classic (BR/EDR), the key size used to encrypt data is negotiated by the two controllers during connection establishment. It is up to the hosts to subsequently query their controllers to ensure a key of an acceptable minimum length has been selected, and if not, the hosts can choose to not send data over the connection. While this method can ensure data is not transmitted over connections that hosts do not see as appropriately protected, it is not the most efficient.

Source: https://www.bluetooth.com/blog/new-core-specification-v5-3-feature-enhancements/

| | |
|---|---|
| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

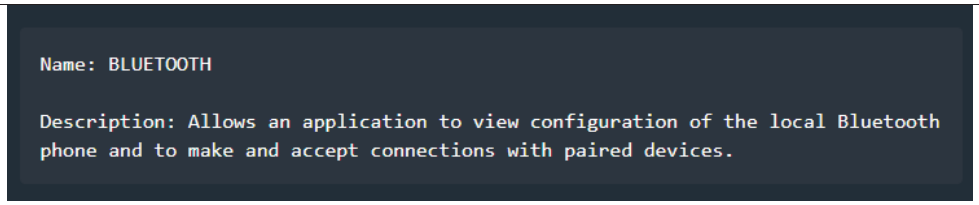
Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

| | |
|---|---|
| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

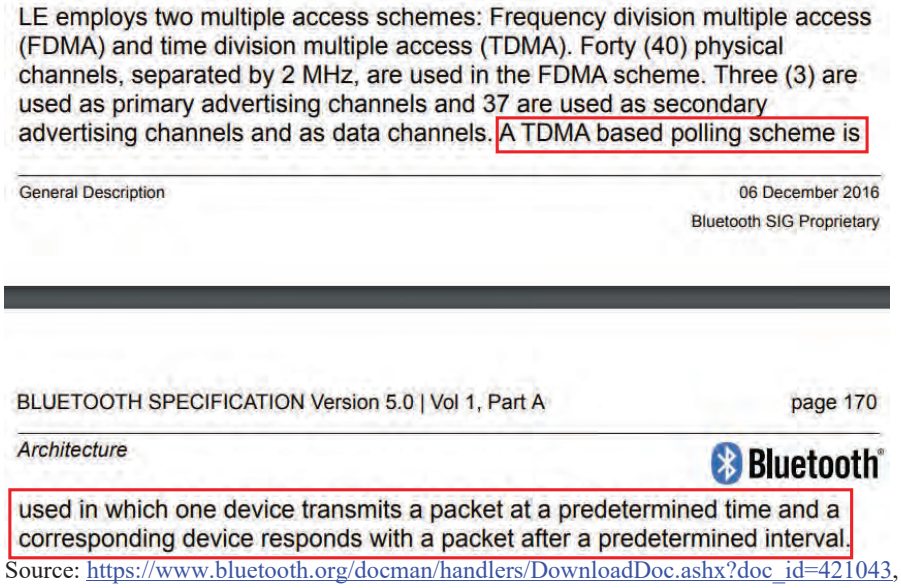
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| |  <br>Source: https://blog.malcore.io/p/tiktok63<br><br>  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.3] wherein detecting and receiving new-data acquired in the Bluetooth enabled data capture device comprises: said mobile software application for the Bluetooth enabled cellular phone configured to poll the Bluetooth enabled data capture | Defendant provides mobile software application wherein detecting and receiving new-data acquired in the Bluetooth enabled data capture device comprises: said mobile software application for the Bluetooth enabled cellular phone configured to poll the Bluetooth enabled data capture device for new-data, over the established paired Bluetooth connection, wherein polling comprises sending a request to the Bluetooth enabled data capture device to check if the acquired new-data is available for transfer.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, after a Bluetooth connection is established between the mobile device ("Bluetooth enabled cellular phone") and the Bluetooth device ("Bluetooth enabled data capture device"), the Bluetooth devices capture the user's command and send the command to the mobile device through the Bluetooth connection. As is inherent |

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| device for new-data, over the established paired Bluetooth connection, wherein polling comprises sending a request to the Bluetooth enabled data capture device to check if the acquired new-data is available for transfer; and | to how the Bluetooth Low Energy (BLE) works, POLL packets are sent to the Bluetooth device, requesting to transmit a response message including either the new acquired data or a NULL packet when there is no new acquired data by the Bluetooth device. Further, the Bluetooth device captures the user's command ("new-data"), processes it and sends the commands meant for the TikTok app in the mobile device in response to the POLL packet. Upon information and belief, the TikTok app accesses the mobile device's Bluetooth capability to send the POLL requests to the Bluetooth device.<br><br>For example, the Bluetooth devices such as AirPods or earphones capture the audio command provided by the user and the Bluetooth devices such as the Bluetooth remote captures the command that the user provides by clicking the specific button on the remote. Further the TikTok app installed on the mobile device sends a request to the Bluetooth device (audio command and information corresponding to the button pressed) to check if the data is acquired and available for transfer, so that, the TikTok app performs the functionality corresponding to the command. |

320



LifeScan, Inc. Ex. 1036
Page 2163 of 2225
IPR2025-00102


LE employs two multiple access schemes: Frequency division multiple access (FDMA) and time division multiple access (TDMA). Forty (40) physical channels, separated by 2 MHz, are used in the FDMA scheme. Three (3) are used as primary advertising channels and 37 are used as secondary advertising channels and as data channels. A TDMA based polling scheme is

General Description 06 December 2016

Bluetooth SIG Proprietary

BLUETOOTH SPECIFICATION Version 5.0 | Vol 1, Part A page 170

*Architecture*

Bluetooth

used in which one device transmits a packet at a predetermined time and a corresponding device responds with a packet after a predetermined interval.

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 412

321

*Figure 1: Slot time and uncertainty window*

Each time the slave device receives a packet from the master, it will update its local timing data using the actual packet arrival time. This allows the slave to begin looking for the next transmission at the received packet arrival time plus 1240 µs (two slot times minus the 10 µs, i.e. one half of the uncertainty window). The implication is that the slave must receive periodic transmissions in order to keep in sync with the master. If the transmissions are spread further apart, the slave must widen its uncertainty window, or it may never be able to re-sync with the master, causing a link loss due to link supervision timeout. When two connected devices are unable to exchange packets for an agreed-up period of time, the link supervision timeout value, the connection is automatically terminated.

Consider an example from two real devices. The trace snapshot in Figure 2 below illustrates the link maintenance packet exchanges using POLL and NULL packets. Since neither packet carries payload data they are very small, which reduces power consumption. The master device sends a POLL (slaves are not permitted to send POLL packets). A POLL packet requires the slave to respond even if it has no data to transmit at the time. If the link is not currently carrying LMP or higher protocol data, the slave will respond with a NULL packet.

| Packet | C1 | Freq | CAC | HDR | Addr | | Flow | Arqn | Seqn | HEC | TimeDelta | Time Stamp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 86717 | M | 2463 | | | 0x1 | POLL | 1 | 0 | 1 | 0x5C | 625.700 µs | 00061.760 7750 |
| 86719 | S | 2432 | | | 0x1 | NULL | 1 | 0 | 0 | 0x6F | 20.624 ms | 00061.761 4007 |
| 86753 | M | 2477 | | | 0x1 | POLL | 1 | 0 | 1 | 0x5C | 625.700 µs | 00061.782 0252 |
| 86755 | S | 2413 | | | 0x1 | NULL | 1 | 0 | 0 | 0x6F | 19.374 ms | 00061.782 6509 |
| 86787 | M | 2469 | | | 0x1 | POLL | 1 | 0 | 1 | 0x5C | 625.700 µs | 00061.802 0254 |
| 86789 | S | 2460 | | | 0x1 | NULL | 1 | 0 | 0 | 0x6F | 18.750 ms | 00061.802 6511 |

*Figure 2: POLL and NULL packets in sniffer trace window*

Source: https://www.bluetooth.com/wp-content/uploads/2019/03/Sniff-and-Sniff-Sub-rating-Modes_WP_V10.pdf, Page 8.

322

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| | ***6.5.1.3 POLL Packet***<br>The POLL packet is very similar to the NULL packet. It does not have a payload. In contrast to the NULL packet, it requires a confirmation from the recipient. It is not a part of the ARQ scheme. The POLL packet does not affect the ARQN and SEQN fields. Upon reception of a POLL packet the slave shall respond with a packet even when the slave does not have any information to send unless the slave has scatternet commitments in that timeslot. This return packet is an implicit acknowledgment of the POLL packet. This packet can be used by the master in a piconet to poll the slaves. Slaves shall not transmit the POLL packet. POLL packets shall not be sent on a Connectionless Slave Broadcast logical transport.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 412<br><br>***4.5.1.5 Default Packet Types***<br>On the ACL links, the default type is always **NULL** both for the master and the slave. This means that if no user information needs to be sent, either a **NULL** packet is sent if there is **ACK** or **STOP** information, or no packet is sent at all. The **NULL** packet can be used by the master to allocate the next slave-to-master slot to a certain slave (namely the one addressed). However, the slave is not forced to respond to the **NULL** packet from the master. If the master requires a response, it sends a **POLL** packet.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 394. |

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| | If the slave's response is received, the master shall change to using the master parameters, so it shall use the channel access code and the master clock. The lower clock bits $CLK_0$ and $CLK_1$ shall be reset to zero at the start of the **FHS** packet transmission and are not included in the **FHS** packet. Finally, the master enters the **CONNECTION** state in step 5. The master BD_ADDR shall be used to change to a new hopping sequence, the *basic channel hopping sequence*. The basic channel hopping sequence uses all 79 hop channels in a pseudo-random fashion, see also Section 2.6.4.7. The master shall now send its first traffic packet in a hop determined with the new (master) parameters. This first packet shall be a POLL packet. See Section 8.5. This packet shall be sent within *newconnectionTO* number of slots after reception of the FHS packet acknowledgment. The slave may respond with any type of packet. If the POLL packet is not received by the slave or the POLL packet response is not received by the master within *newconnectionTO* number of slots, the master and the slave shall return to **page** and **page scan** substates, respectively.<br>Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 454. |

324

The Bluetooth device transmits a constant bit pattern. This pattern is transmitted periodically with packets aligned to the slave TX timing of the piconet formed by tester and DUT. The same test packet is repeated for each transmission.

The transmitter test is started when the master sends the first POLL packet. In non-hopping mode the agreed frequency is used for this POLL packet.

The tester (master) transmits control or POLL packets in the master-to-slave transmission slots. The DUT (slave) shall transmit packets in the following slave-to-master transmission slot. The tester's polling interval is fixed and defined by the LMP_test_control PDU. The device under test may transmit its burst according to the normal timing even if no packet from the tester was received. In this case, the ARQN bit is shall be set to NAK.

The burst length may exceed the length of a one slot packet. In this case the tester may take the next free master TX slot for polling. The timing is illustrated in Figure 1.2.

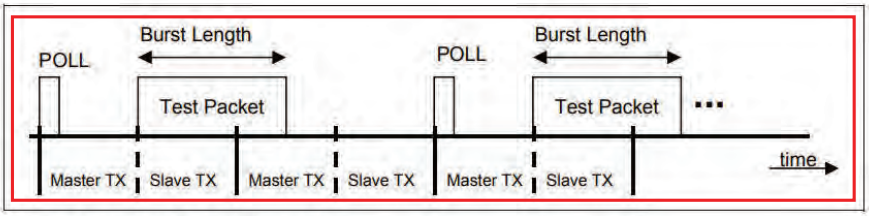



*Figure 1.2: Timing for Transmitter Test*

Source: https://www.bluetooth.org/docman/handlers/DownloadDoc.ashx?doc_id=421043, Page 2116.

325

# Bluetooth Low Energy

Android provides built-in platform support for Bluetooth Low Energy (BLE) in the central role and provides APIs that apps can use to discover devices, query for services, and transmit information.

Common use cases include the following:

- Transferring small amounts of data between nearby devices.
- Interacting with proximity sensors to give users a customized experience based on their current location.

In contrast to classic Bluetooth, BLE is designed for significantly lower power consumption. This allows apps to communicate with BLE devices that have stricter power requirements, such as proximity sensors, heart rate monitors, and fitness devices.

Source: https://developer.android.com/develop/connectivity/bluetooth/ble/ble-overview

In most cases, your app has no way of knowing when a service's characteristic value will change on a connected device. You could repeatedly query the device (polling) to detect changes, but a more efficient way is to register to receive notifications when changes occur.

Subscribe to the value of a characteristic by passing a value of `YES` to the `setNotifyValue:forCharacteristic:` method of the `CBPeripheral` class, as shown in Listing 17-4. Whenever the characteristic's value changes, the peripheral calls the `peripheral:didUpdateValueForCharacteristic:error:` method of its delegate object.

Source: https://developer.apple.com/library/archive/documentation/Performance/Conceptual/EnergyGuide-iOS/BluetoothBestPractices.html

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| **Bluetooth** | Allows to to connect to paired bluetooth devices. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

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| **android.permission.BLUETOOTH_CONNECT** | App customer permission. |

Source: https://ar.apkshub.com/app/com.ss.android.ugc.trill

android.permission.AUTHENTICATE_ACCOUNTS
android.permission.BLUETOOTH
android.permission.BLUETOOTH_CONNECT
android.permission.CAMERA

Source: https://www.apkmirror.com/apk/tiktok-pte-ltd/tik-tok/tik-tok-29-2-4-release/tiktok-29-2-4-3-android-apk-download/#apkPermissions

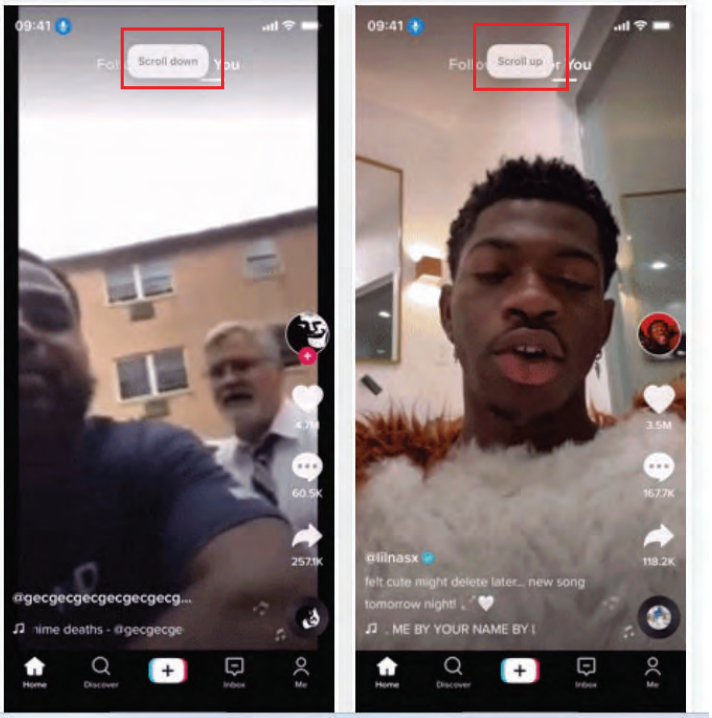
| | |
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| **Chip** | H1 headphone chip |

Source: https://www.apple.com/airpods-2nd-generation/specs/

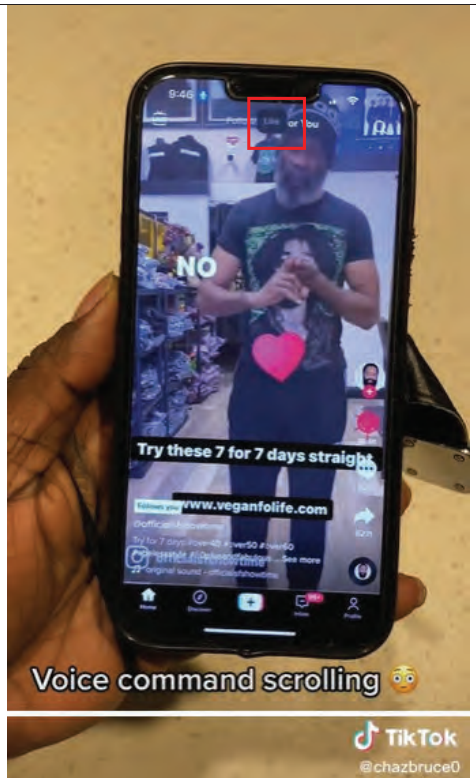
Rather than using off-the-shelf solutions, Pixel Buds Pro's ANC is powered by an integrated system developed by Google - with a custom processor, custom algorithms, and custom speakers. The processor constantly analyzes external sound and cancels it, making background noise disappear.

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| | Source: https://store.google.com/product/pixel_buds_pro<br><br>**How to control your AirPods using Siri-like commands without internet access**<br>Greg Barbosa \| Jan 30 2017 - 10:34 am PT \| 0 Comments<br>  <br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/<br><br>Invoking Voice Control is the same as Siri with AirPods; double-tap on the AirPods and Voice Control comes up. Once invoked, speak clearly and tell Voice Control what you want. Phrases like "Play playlist Boost" and "Play music" will get the desired results.<br><br>Source: https://9to5mac.com/2017/01/30/how-to-control-your-airpods-using-siri-like-commands-without-internet-access/ |

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| | **Use More Voice Commands on TikTok**<br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

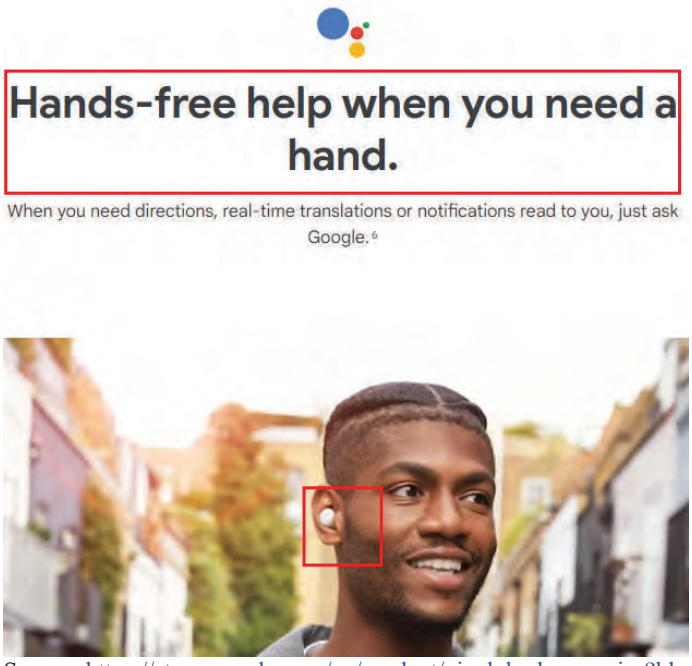
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| |  <br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

330

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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

331

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| | Here is how to scroll through TikTok hands-free on Android:<br>► Install Google's Voice Access app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/<br>• **Activation key:** You can use a physical key, such as a keyboard key or Bluetooth switch, to start and stop Voice Access. To set up an activation key:<br>1. Connect your keyboard or switch to your device:<br>• Bluetooth: Go to your Android device settings, then choose **Bluetooth** to pair the keyboard or switch with your Android device. For more instructions, check the documentation for your switch or keyboard, or learn more about connecting to Bluetooth devices .<br>Source: https://support.google.com/accessibility/android/answer/6151848?hl=en |




Source: https://store.google.com/au/product/pixel_buds_a_series?hl=en-GB#intro-help

```
Name: BLUETOOTH

Description: Allows an application to view configuration of the local Bluetooth
phone and to make and accept connections with paired devices.
```

Source: https://blog.malcore.io/p/tiktok63

333



LifeScan, Inc. Ex. 1036
Page 2176 of 2225
IPR2025-00102

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| |  <br>BLUETOOTH<br>pair with Bluetooth devices<br>  <br>BLUETOOTH_CONNECT<br>connect to paired Bluetooth devices<br><br>Source: https://www.linkedin.com/posts/piatesdorf_tiktok-permissions-activity-7041164003632422912-GO4O |

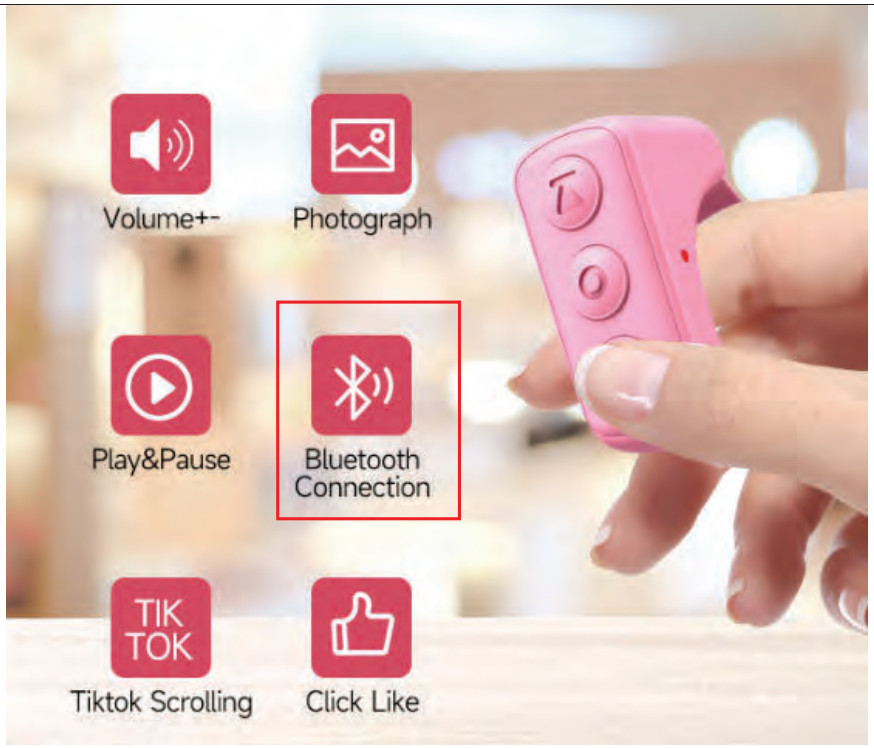
334

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

335



LifeScan, Inc. Ex. 1036
Page 2178 of 2225
IPR2025-00102

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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

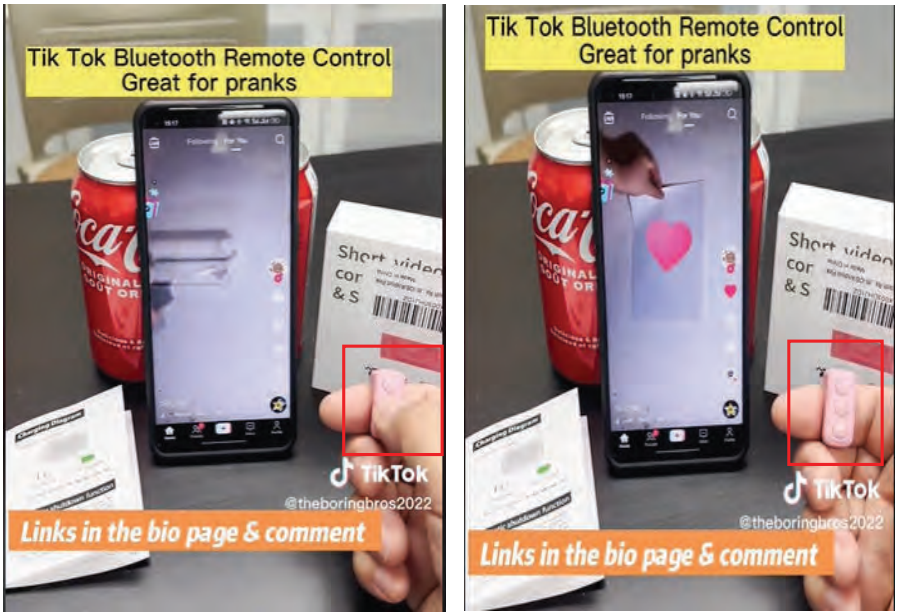
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LifeScan, Inc. Ex. 1036
Page 2179 of 2225
IPR2025-00102

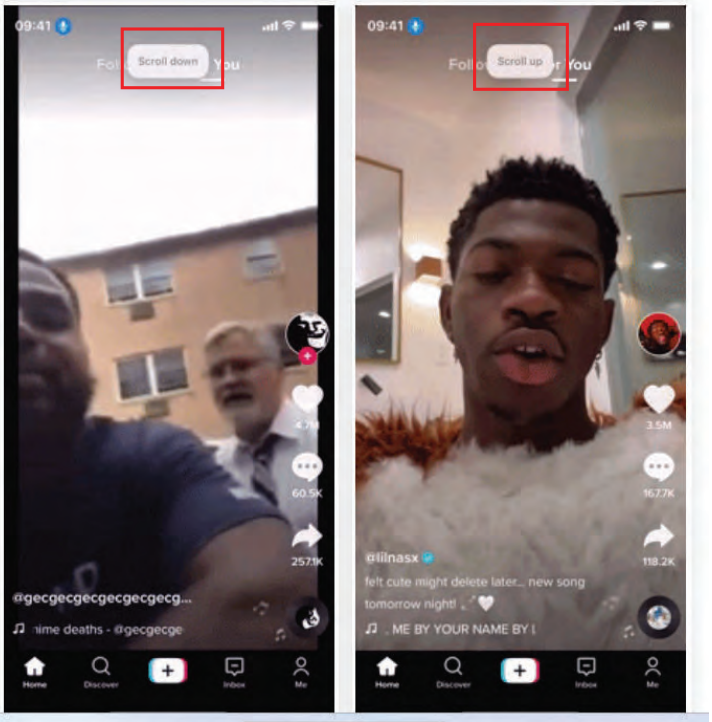
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| | **About this item**<br>• ☆【TIK Tok Button】 You don't need to use your finger to slide videos on Tik Tok any more. This Bluetooth remote could scroll videos, double click to "like", "pause"&"play". Taking Tik Tok videos will be easier, use with a mobile phone holder or just make your phone fixed where you want, no need to ever to touch your phone again.<br>• ☆【With Charging Case】 Use time lasts for 14 hours from single charge and total 86 hours with charging case. Providing convenient charging way with no strings attached.<br>• ☆【High Quality & Smart Wear Design】 The video controller adopts ABS plastic, which is safe and skin-friendly, ergonomic ring design, and comfortable and beautiful to wear. The perfect gift for her or his birthday, valentines and more.<br>• ☆【Perfectly Compatible】 Bluetooth Connection,compatible with iPhone/iPad/Android smartphones and tablets. Record wonderful moments with this handy little gadget. {SMALL TIPS: 1.iOS System needs to open Settings>Accessibility>touch>turn on Assistive touch before it can be used normally. 2. You need make sure the iOS System is above V14.8}<br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.4] said mobile software application for the Bluetooth enabled cellular phone configured to receive, from the Bluetooth enabled data | Defendant provides said mobile software application for the Bluetooth enabled cellular phone configured to receive, from the Bluetooth enabled data capture device, the acquired new-data over the established paired Bluetooth connection; store the received new-data in a memory of the Bluetooth enabled cellular phone.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

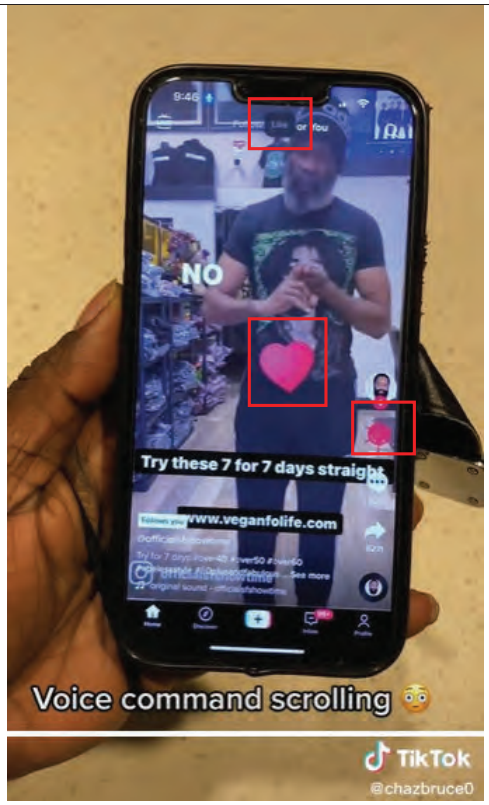
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| capture device, the acquired new-data over the established paired Bluetooth connection; store the received new-data in a memory of the Bluetooth enabled cellular phone; | For example, the TikTok app ("mobile software application") installed on the mobile device ("Bluetooth enabled cellular device") receives the command provided through AirPods, earphones or Bluetooth remote ("Bluetooth enabled data capture device").<br><br>For example, when the user provides the audio command such as "Double Tap" or "Scroll Down" ("the event notification and the acquired new-data") on AirPods or earphones, the TikTok app receives the user's command to 'like' or 'scroll down' the subsequent video. Similarly, when the user provides a command by double clicking the designated button on the Bluetooth remote ("Bluetooth enabled data capture device"), the TikTok app receives the user's command to like or scroll the subsequent video. The TikTok app stores the user's activity including the commands ("received new-data") and the liked videos at least temporarily in the cache memory of the mobile device (in which the app is installed).<br><br>**Use More Voice Commands on TikTok**<br><br>You can say more things to control TikTok if you're interested. For example, if you want to like a TikTok video with only your voice, say "double tap," and Voice Control will simulate double tapping the middle of the screen, liking the video you're watching. However, saying the same thing will *not* undo the like.<br><br>You can also use the following voice commands, and it's just the tip of the iceberg. Go back to Accessibility –> Voice Control –> Customize Commands to review all of the Voice Control gestures you might be able to use. You can even build a custom command if you need to do something specific or just want to say something different than the preprogrammed commands (see the next section below).<br><br>Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/ |

339




Source: https://ios.gadgethacks.com/how-to/scroll-through-tiktok-hands-free-your-iphone-ipad-using-simple-voice-commands-0384514/

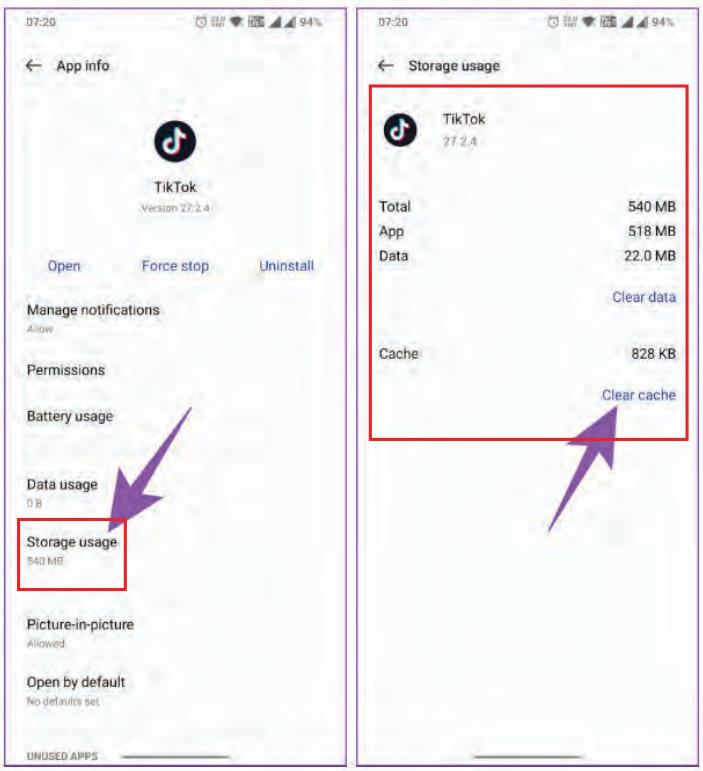
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| |  <br>Source: https://www.tiktok.com/@chazbruce0/video/7094064194034683178?lang=en, at 0:15 |

341

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| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps<br><br>Here is how to scroll through TikTok hands-free on Android:<br><br>► Install Google's **Voice Access** app from Play Store.<br>► Go to **Settings** › **Accessibility**; find and select the Voice Access app.<br>► Tap on **Use service** to enable Voice Access.<br>► When prompted, grant permissions to the Voice Access app.<br>► Click **Continue** to proceed and finally, tap **Finish** to finalize the set-up.<br>► Once done, you will see a blue floating icon on your screen.<br>► Tap on the floating icon to activate Voice Access. You are all set!<br>► Now, open TikTok and say "**scroll down**" to see the magic.<br><br>Source: https://stealthoptional.com/apps/tiktok-auto-scroll-how-to-ios-android/ |

342

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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

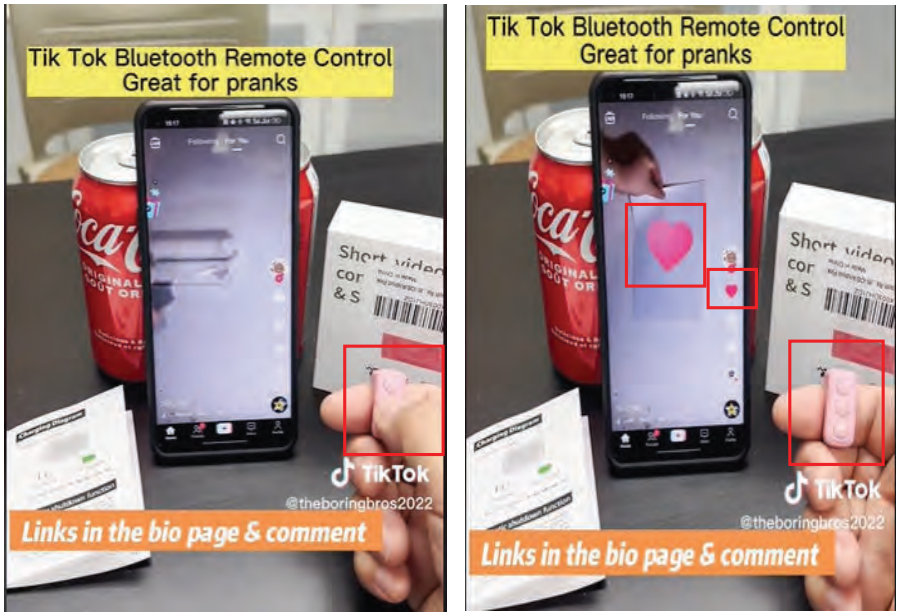
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| |  <br>Source: https://www.amazon.com/Bluetooth-Wireless-Scrolling-Rechargeable-Compatible/dp/B09YHZ3JXL/ref=sxin_16_pa_sp_search_thematic_sspa |

344



LifeScan, Inc. Ex. 1036
Page 2187 of 2225
IPR2025-00102

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| |  <br>Source: https://www.tiktok.com/@theboringbros2022/video/7195648844682595590?lang=en, at 0:08 and 0:09 |

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| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>If you don't post a video (not a creator) and just watch, it also means that the storage space was eaten up by your TikTok **Watch History.**<br><br>As you watch videos, the app size increases and data is stored on your device and cached with other downloads.<br>Source: https://www.techvocast.com/how-to/why-does-tiktok-take-so-much-space/ |

346

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| | **Finding your liked videos**<br><br>To find your liked videos:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap **Heart**, located on the right side of the panel.<br><br>Source: https://support.tiktok.com/en/using-tiktok/exploring-videos/liking<br><br>However, some have been noticing that the app is taking up a huge amount of space on their devices, sometimes gigabytes worth of storage. If you're looking to make more space on your device, here's how to reduce the amount of room TikTok is using on your phone.<br><br>Source: https://www.dexerto.com/entertainment/tiktok-storage-free-up-space-1775839/<br><br>The first is the app's cache. Cache is a collection of files used to help the app load faster, and speed up certain areas of the app like TikTok search.<br><br>These files aren't really necessary. While TikTok will redownload some of them later,<br><br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/ |

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| | **There are many reasons TikTok may take up a lot of storage.**<br>The TikTok app by itself takes up about 300 MB of storage space on your Android, iPhone, or iPad. In addition to the app itself, other files created by TikTok can take up a lot of storage space:<br>• **Cache:** Cache is temporary storage and files that the app saves to make it run smoother. TikTok caches certain files as you browse, which can consume a lot of storage space over time.<br>• **Watch History:** When you watch videos on TikTok, it saves the videos you've watched to your watch history. The more videos you watch, the more space your watch history is going to take up.<br>• **Downloads:** Videos you download from TikTok are saved to your phone. This includes video downloads, effects, and filters, as well as stickers and emojis.<br>• **Your Drafts:** If you save a lot of videos as drafts and do not post them, those videos are saved to your phone. Some users can rack up tens or hundreds of drafts. This adds up to a lot of storage space.<br>Source: https://www.wikihow.com/Why-Does-Tiktok-Take-Up-So-Much-Storage<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [12.5] use Hypertext Transfer Protocol to transfer the received new-data along with a user authentication credential to a remote server over a cellular | Defendant provides mobile software application that use Hypertext Transfer Protocol to transfer the received new-data along with a user authentication credential to a remote server over a cellular data network, wherein the mobile software application is further configured to use the Hypertext Transfer Protocol to send a user preference to the remote server over the cellular data network, and wherein the user preference comprises global positioning system information.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents. |

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| data network, wherein the mobile software application is further configured to use the Hypertext Transfer Protocol to send a user preference to the remote server over the cellular data network, and wherein the user preference comprises global positioning system information; and | For example, the TikTok app utilizes Hypertext Transfer Protocol (HTTP) to upload (or backup) data (related to the commands provided by the user) on the TikTok app's servers. TikTok app uses the user credentials such as username and password ("user identifier") associated with the user's account of TikTok app for uploading the commands. The uploaded data includes the commands provided by the user such as 'like' or 'scroll down'. Further, the uploaded data such as liked/watched videos can be accessed anytime by the user of the TikTok app by logging into the app. Further, the TikTok app fetches the Global Positioning System (GPS) information ("user preference") from the mobile device and updates the TikTok app's servers by sending user's location over HTTP.<br><br>**Initialize video upload**<br><br>To upload a video to a TikTok user's account, the first step is to initialize the upload.<br><br>HTTP URL: /v2/post/publish/inbox/video/init/<br>HTTP Method: POST<br>Scope: video.upload<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>**File upload**<br><br>Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.<br><br>To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint. |

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| | Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide<br><br>**Information You Provide**<br><br>• **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.<br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en<br><br>**Automatically Collected Information**<br><br>• **Usage Information.** We collect information regarding your use of the Platform, *e.g.*, how you engage with the Platform, including how you interact with content we show to you, the advertisements you view, videos you watch and problems encountered, browsing and search history, the content you like, the content you save to 'My Favourites', the users you follow and how you engage with mutual followers.<br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |

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| | **Send Video to TikTok Servers**<br><br>Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.<br><br>Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.<br><br>HTTP URL — Returned in `upload_url`<br>HTTP Method — PUT<br><br>Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/<br><br>For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br><br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance |

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| | **How TikTok collects location information**<br><br>TikTok collects your approximate location information based on your device or network information, such as SIM card and IP address.<br><br>In regions where Location Services are available for the TikTok app, and when you turn it on, TikTok will also collect your location information based on your device's GPS. Learn more about your device's location settings in the Android Help Center and Apple Support. Note: Location Services may not be available in all regions, including the U.S. and South Korea.<br><br>Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok<br><br>• **Location Information.** We collect information about your approximate location, including location information based on your SIM card and/or IP address. With your permission, we may also collect precise location data (such as GPS). In addition, we collect location information (such as tourist attractions, shops, or other points of interest) if you choose to add location information to your User Content.<br><br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en |

TikTok Ads allow you to tailor messages and offers to specific locations including countries, regions, states, provinces, metro areas, cities, zip codes and more. Some targeting options are not available in all countries or regions.

**Note:**

- If you are targeting multiple countries, locations may have regional descriptions (ex. Counties, Districts, etc.) in Ads Manager aligning with local definitions.
- Where available, TikTok enables advertisers to target up to 1500 location selections at a time, per ad group.
- Zip code targeting can be used in instances where an advertiser needs to target a more granular location than DMA or city. For example, if an advertiser provides services to only a portion of a city.
- A zip code or postal code prefix might not be targetable because it's either invalid, has not been made available due to ad policy requirements, or has not launched in those areas.
- TikTok does not support zip code + 4 targeting. If an advertiser tries to upload zip + 4, they will receive an error message.
- Targeting ad campaigns to small geographic areas or sets of zip codes can significantly reduce the number of impressions and clicks delivered, and may result in a higher CPA.
- Some advertisers may be subject to the Housing, Employment, and Credit ad policy.

Location targeting is based on a variety of signals to serve ads to users who align with your location targeting selections. Due to the fact that signals vary, our delivery is not guaranteed and accuracy is not guaranteed in every situation.

**Location Targeting Options**

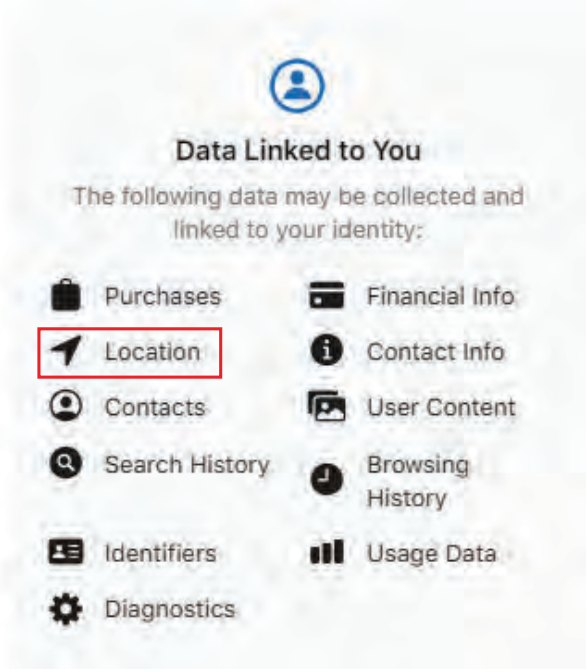
| Location Type | Example |
|---|---|
| City | Salt Lake City, Utah |
| Country / Region | United States |

Source: https://ads.tiktok.com/help/article/location-targeting?lang=en

353



LifeScan, Inc. Ex. 1036
Page 2196 of 2225
IPR2025-00102

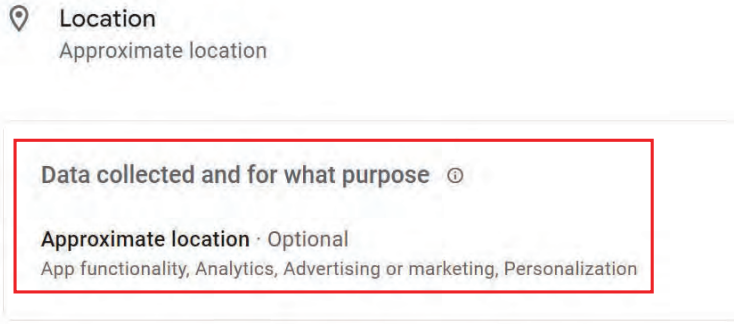



Source: https://apps.apple.com/us/app/tiktok/id835599320

354



LifeScan, Inc. Ex. 1036
Page 2197 of 2225
IPR2025-00102

| | |
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| |  <br>Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US |

355

<table>
<tr><td></td><td>

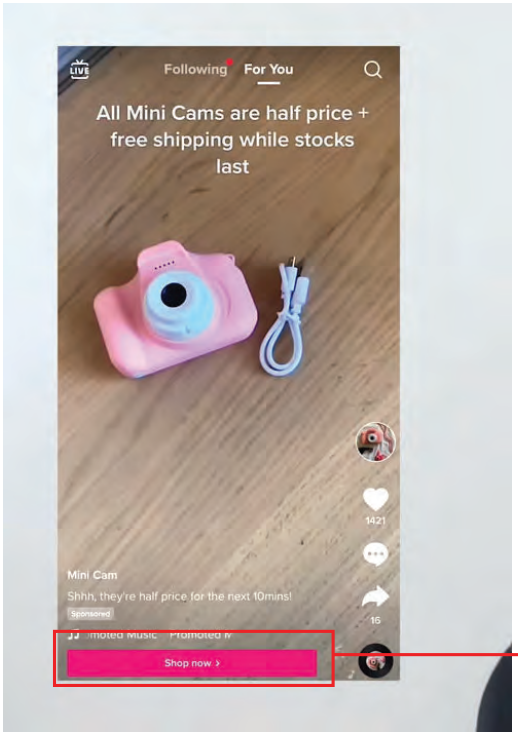
## Ad Targeting

TikTok Ads Manager supports the following targeting dimensions:

| | | |
|---|---|---|
| **Audience** | Include | Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account) |
| | Exclude | Exclude Lookalike or Custom Audiences |
| **Demographics** | Gender | Male, Female |
| | Age | 13-17, 18-24, 25-34, 35-44, 45-54, 55+ |
| | Location | Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only) |

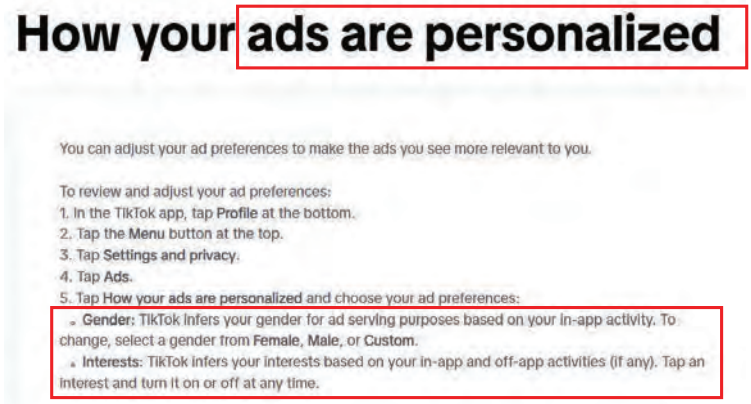
Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en

Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant.</td></tr>
<tr><td>[12.6] display a mobile advertisement inside the mobile software application.</td><td>Defendant provides a mobile software application that display a mobile advertisement inside the mobile software application.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app utilizes the user’s information such as their GPS location, gender, interests, activities, and other information to display customized advertisements in the TikTok app’s interface for the user.</td></tr>
</table>




Source: https://www.youtube.com/watch?v=VRw0q8vpBY0, at 2:30 (annotated)

357

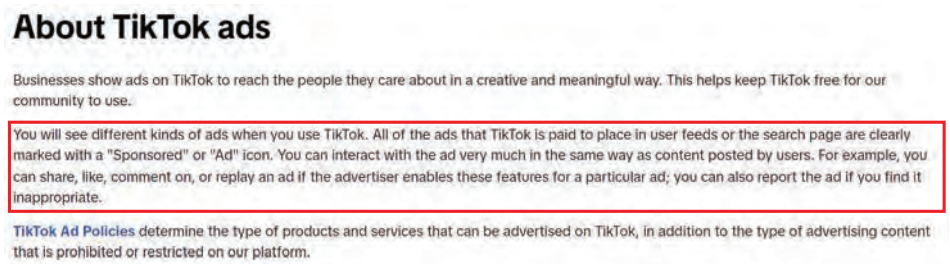


# How your ads are personalized

You can adjust your ad preferences to make the ads you see more relevant to you.

To review and adjust your ad preferences:
1. In the TikTok app, tap **Profile** at the bottom.
2. Tap the **Menu** button at the top.
3. Tap **Settings and privacy**.
4. Tap **Ads**.
5. Tap **How your ads are personalized** and choose your ad preferences:
   - **Gender:** TikTok infers your gender for ad serving purposes based on your in-app activity. To change, select a gender from **Female**, **Male**, or **Custom**.
   - **Interests:** TikTok infers your interests based on your in-app and off-app activities (if any). Tap an interest and turn it on or off at any time.

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/how-your-ads-are-personalized



## About TikTok ads

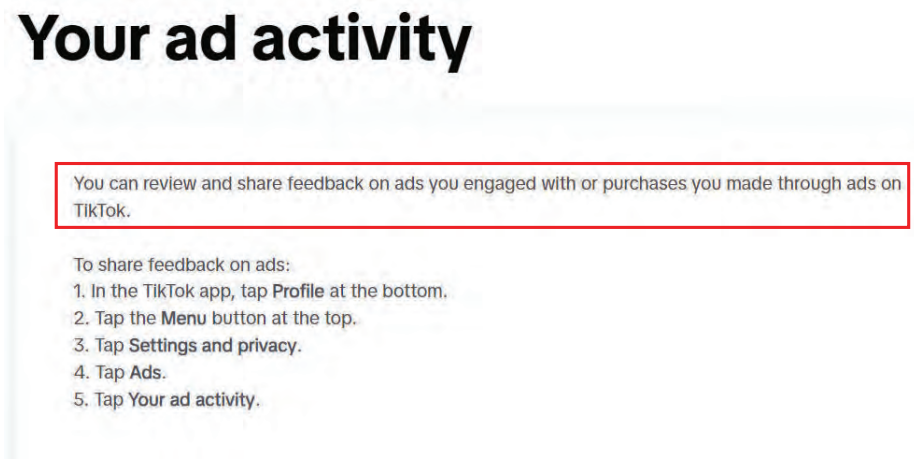
Businesses show ads on TikTok to reach the people they care about in a creative and meaningful way. This helps keep TikTok free for our community to use.

You will see different kinds of ads when you use TikTok. All of the ads that TikTok is paid to place in user feeds or the search page are clearly marked with a "Sponsored" or "Ad" icon. You can interact with the ad very much in the same way as content posted by users. For example, you can share, like, comment on, or replay an ad if the advertiser enables these features for a particular ad; you can also report the ad if you find it inappropriate.

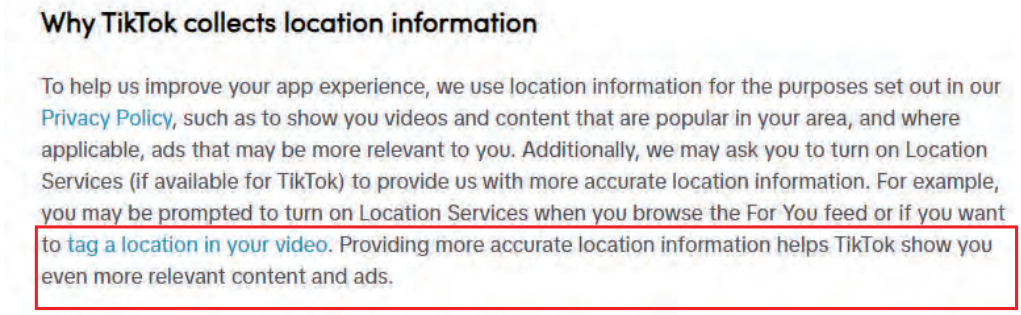
**TikTok Ad Policies** determine the type of products and services that can be advertised on TikTok, in addition to the type of advertising content that is prohibited or restricted on our platform.

Source: https://www.tiktok.com/privacy/ads-and-your-data/en

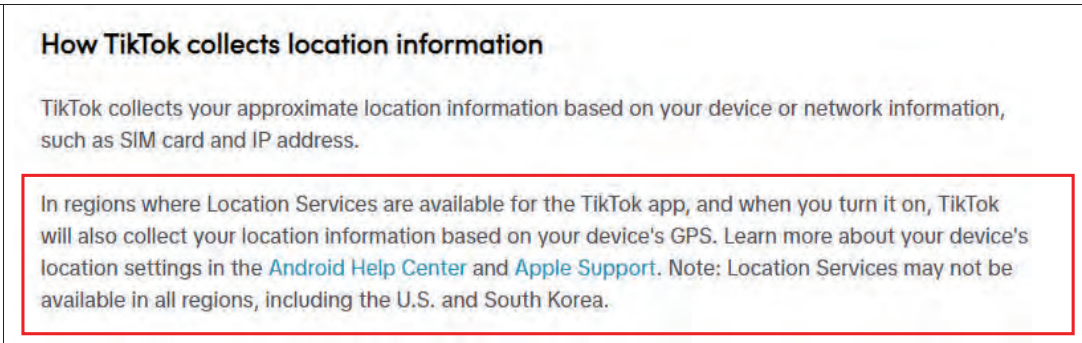
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| | **Information we use for all ads**<br>The following general information may be used to show you either personalized or non-personalized ads.<br>• **Location information:** For example, you may see an ad from an advertiser wanting to reach TikTok users in Berlin, Germany if we think you are in Berlin based on your location information. Learn more about how location information is collected.<br>• **Language information:** For example, you may see an ad from an advertiser wanting to reach Spanish speakers if your app language is set to Spanish.<br>• **Demographic information you provide:** For example, the age you provide when you sign up for a TikTok account can affect whether TikTok shows you an ad for a car rental service available to people aged 25 and over.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en<br>**Information we use for personalized ads**<br>The following additional information may be used to show you personalized ads, depending on your ad personalization choices.<br>• **Demographic information we infer:** For example, we may infer your gender based on your on-TikTok activity, which can be used to tailor the ads that you see. You can update inferred gender for ads at any time in your ads settings. Any updates apply only to your ads settings and do not affect other TikTok services.<br>• **Interest and Behavioral Information**<br>◦ **On-TikTok activity:** TikTok may display ads about things you may be interested in, based on how you view, search, share and like content or interact with creator(s), as well as your previous interactions with similar ads. For example, a pet store might want to advertise a sale on dog toys to people interested in dogs; we might show this ad to users who liked a lot of videos tagged with the hashtag "dogs". Or an outdoor activity store wants to advertise tents to followers of creators who post content about outdoor activities and nature. We will show this ad to followers of those types of creators.<br>◦ **Off-TikTok activity:** TikTok may personalise ads based on the information shared by our Advertisers, measurement and other partners. For example, a fashion brand may want to promote their summer clothing collection to customers who've purchased from their website or app in the past. The brand can share information with us so that we can show its ads to the TikTok users we think it's trying to reach.<br>The shared information may include device information like your phone's advertising ID and/or email addresses and phone numbers that have been encrypted. Partners may also share the actions you take on the advertiser's app or website, like whether you placed an item in a shopping cart.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en |



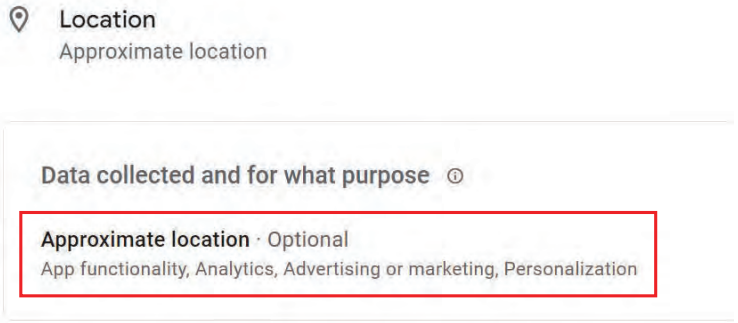

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/your-ad-activity




Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok




Source: https://support.tiktok.com/en/account-and-privacy/account-privacy-settings/location-services-on-tiktok




Source: https://play.google.com/store/apps/datasafety?id=com.zhiliaoapp.musically&hl=en_US&gl=US

361

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| | **Ad Targeting**<br><br>TikTok Ads Manager supports the following targeting dimensions:<br><br>**Audience** — Include — Create a Lookalike or Custom Audience (Customer file, Engagement, App Activity, Website Traffic, Shops Activity, Lead Generation, Business Account)<br>Exclude — Exclude Lookalike or Custom Audiences<br>**Demographics** — Gender — Male, Female<br>Age — 13-17, 18-24, 25-34, 35-44, 45-54, 55+<br>Location — Deliver to users based on their location: Country/Region, State/Province, City, and Designated Market Area/DMA (US Only)<br><br>Source: https://ads.tiktok.com/help/article/ad-targeting?lang=en<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [13] The mobile software application of claim 12, wherein the user authentication credential is stored in the memory of the Bluetooth enabled cellular phone, and wherein the user | Defendant provides the mobile software application of claim 12, wherein the user authentication credential is stored in the memory of the Bluetooth enabled cellular phone, and wherein the user authentication credential is used by the remote server to authenticate a user.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app in the mobile device (“Bluetooth enabled cellular phone”) stores the user's login credentials (“user authentication credential”) such as the username and password within the mobile device's |

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| authentication credential is used by the remote server to authenticate a user. | memory, facilitating automatic authentication upon subsequent logins to their TikTok app's account. When a user attempts a log in into their TikTok account, the TikTok app's servers use the stored user's credentials to authenticate the user.<br><br>**Information You Provide**<br><br>• **Your profile information.** You give us information when you register on the Platform, including your username, password, date of birth (where applicable), email address and/or telephone number, information you disclose in your user profile, and your photograph or profile video.<br>Source: https://www.tiktok.com/legal/page/row/privacy-policy/en<br><br>You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

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| |  <br>Source: https://www.tiktok.com/@akirasashmi/video/7129576154465422619 |

364

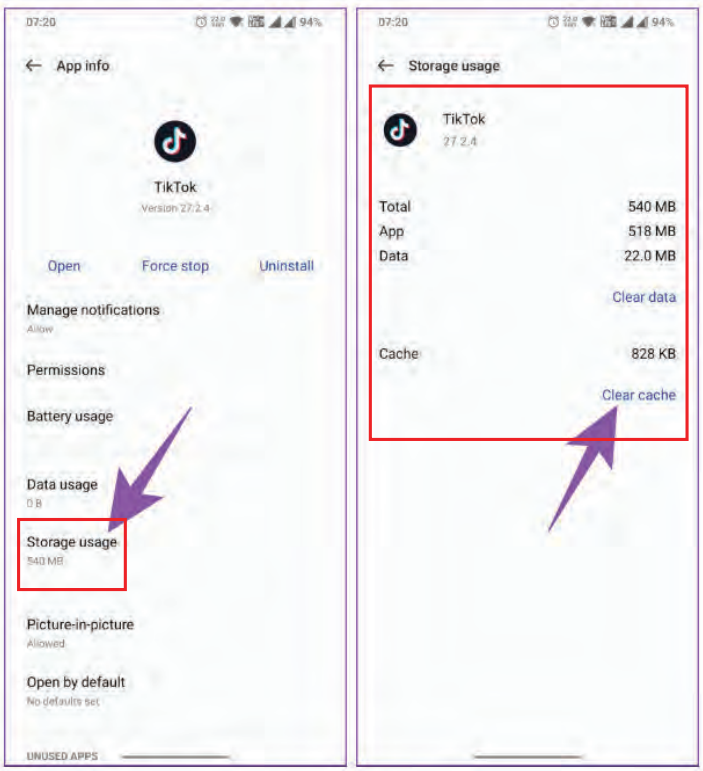
| | |
|---|---|
| | **How to save or delete your login information**<br><br>You can save the login information for your TikTok account so that you won't need to enter your information the next time you log in.<br><br>You can save your login information:<br>• Across all devices using the same iCloud account on iOS.<br>• On a single device on Android.<br><br>To save or delete your login information:<br>1. Go to the login screen on the TikTok app and select the account you'd like to sign into. If you're signing in with Google or Apple, you may be asked for your email address and password associated with either account before proceeding.<br>2. Enter the 6-digit code that was sent to the phone number associated with your account.<br>3. Once you're logged in, tap the **Menu** button at the top.<br>4. Tap **Settings and privacy**.<br>5. Tap **Security**.<br>6. Turn the **Save login info** setting on to save your login information, or turn it off to forget your login information.<br><br>If you save your login information, the next time you login in, tap the account on the login screen to be automatically logged in. If you delete this information, you'll be prompted to enter your login information for the method you select the next time you log in.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/log-in/save-your-login-information |

365



LifeScan, Inc. Ex. 1036
Page 2208 of 2225
IPR2025-00102

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| | **Clear app cache**<br><br>If internet connectivity is not the issue, try clearing your app cache.<br><br>To clear your cache:<br><br>1. Tap **Profile** in the bottom right.<br>2. Tap the **3-line icon** in the top right.<br>3. Tap **Settings and Privacy**.<br>4. Tap **Clear cache**.<br><br>Source: https://support.tiktok.com/en/log-in-troubleshoot/troubleshooting/first-steps |

| | |
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| | **Step 3**: Tap on Storage usage, and on the next screen, tap on Clear cache.<br>  <br><br>Source: https://www.guidingtech.com/what-happens-clear-cache-tiktok/ |

367

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|---|---|
| | When you download the app from Apple's App Store or Google Play, the file size of TikTok is actually quite small.<br><br>On the iOS App Store, the TikTok app is 496.6 mb on iPhone, iPad, and iPod Touch.<br><br>On Google Play, the TikTok app is only 94mb.<br><br>However, if you check how much space the app is taking up on your device, you may find out that the total size is much larger. Why is that? Why is TikTok taking up so much space?<br>Source: https://jamesmcallisteronline.com/tiktok-reduce-size/<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [14] The mobile software application of claim 12, wherein the remote server is configured to store the new-data. | Defendant provides the mobile software application of claim 12, wherein the remote server is configured to store the new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, when the user provides commands such as 'like' or 'scroll down' ("new-data") through the Bluetooth device, the TikTok app installed on the mobile device processes the user's instruction and accordingly performs the command. Further, the liked/watched videos are uploaded on the TikTok app's cloud ("remote server"), and are available online in the liked folder/watch history, which can be accessed anytime by the user of the TikTok app by logging into the app. |

## Initialize video upload

To upload a video to a TikTok user's account, the first step is to initialize the upload.

| | |
|---|---|
| HTTP URL | /v2/post/publish/inbox/video/init/ |
| HTTP Method | POST |
| Scope | video.upload |

Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/

## File upload

Using this method, you can transfer your media to TikTok using HTTP. Upon initializing your video upload with `source=FILE_UPLOAD`, an `upload_url` will be returned. You must send the media binary to this URL.

To learn how to send videos to TikTok servers and for details on the HTTP request (endpoint, request and response schema, and headers), see the API reference for the Upload Video endpoint or the Direct Post endpoint.

Source: https://developers.tiktok.com/doc/content-posting-api-media-transfer-guide

**Send Video to TikTok Servers**

Note: If you used the source=PULL_FROM_URL to initialize the video upload, you can skip this part. The TikTok server will handle the video uploading process for you.

Once you have initialized the video upload and received an `upload_url`, you must send the video file to TikTok for processing. Many video formats are supported and chunking is provided for larger files. Learn more about media transmission.

| | |
|---|---|
| HTTP URL | Returned in `upload_url` |
| HTTP Method | PUT |

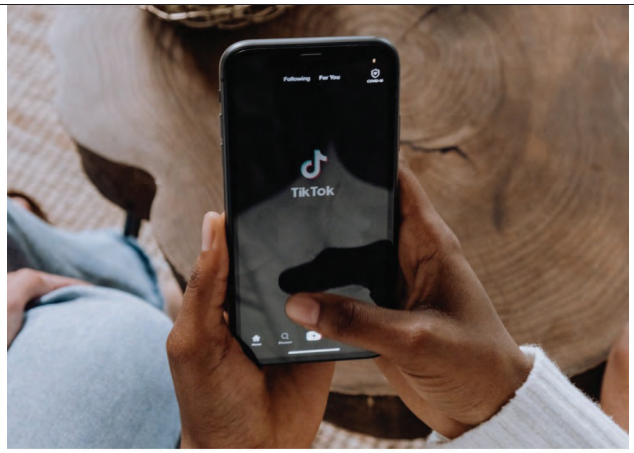
Source: https://developers.tiktok.com/doc/content-posting-api-reference-upload-video/




Source: https://usds.tiktok.com/?gad_source=1&gclid=EAIaIQobChMIx-ywl9vQhAMV3l1HAR22VQlKEAMYASAAEgKPF_D_BwE, at 1:05

370

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| | For more than a year, we've been working with Oracle on several measures as part of our commercial relationship to better safeguard our app, systems, and the security of US user data. We've now reached a significant milestone in that work: we've changed the default storage location of US user data. Today, 100% of US user traffic is being routed to Oracle Cloud Infrastructure. We still use our US and Singapore data centers for backup, but as we continue our work we expect to delete US users' private data from our own data centers and fully pivot to Oracle cloud servers located in the US.<br>Source: https://newsroom.tiktok.com/en-us/delivering-on-our-us-data-governance<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [15] The mobile software application of claim 12, wherein the mobile software application provides a touch based GUI for the received new-data. | Defendant provides the mobile software application of claim 12, wherein the mobile software application provides a touch based GUI for the received new-data.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app ("mobile software application") installed on the mobile device comprises a touch based graphical user interface ("GUI") which allows the user to access the liked and watched videos ("new-data"). |

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| |  <br>Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber |

372



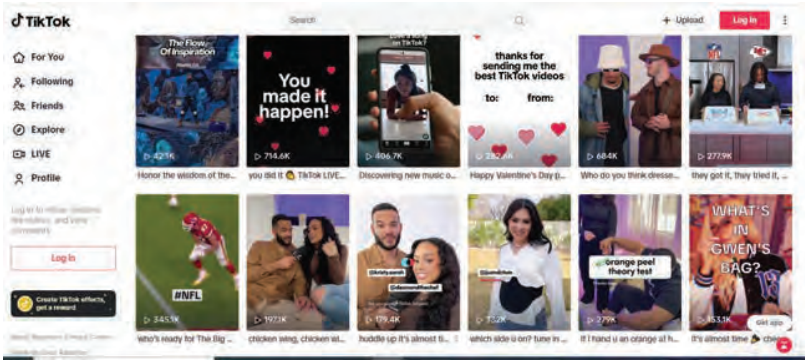
LifeScan, Inc. Ex. 1036
Page 2215 of 2225
IPR2025-00102

## Onboarding - It starts with a Swipe

The process of getting hooked to TikTok starts right away in the users onboarding experience. TikTok asks users to choose their interests. This information is used for personalizing each user's feed. This is a common practice for products with curated content and used by many different apps.

But TikTok's user onboarding is really smart. It encourages users to scroll through the feed and tells them that the content will become more relevant and personalized the more they use it. While this is true for many algorithms, many apps don't tell users this explicitly. By doing so, TikTok encourages users to continue using the app for a better experience

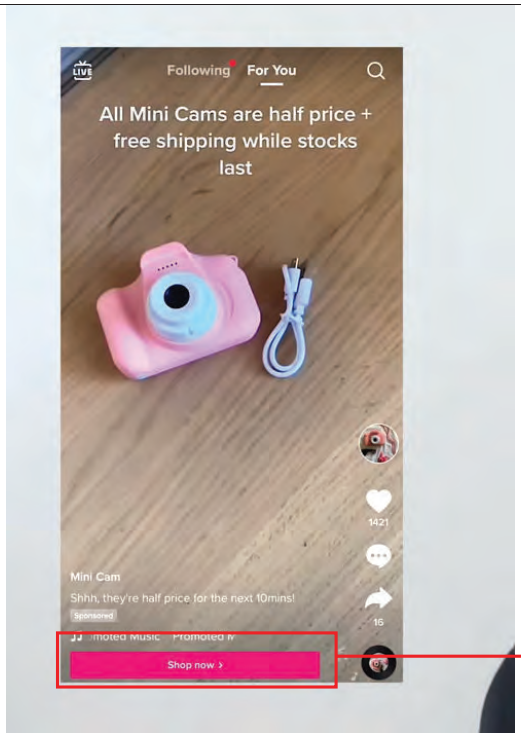
Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber




Source: https://www.tiktok.com/@tiktok

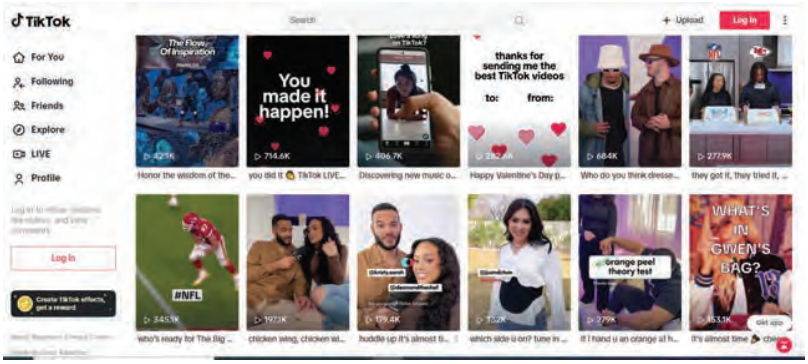
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| | Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |
| [16] The mobile software application of claim 12, wherein the mobile software application provides a touch based advertisement targeted to a user. | Defendant provides the mobile software application of claim 12, wherein the mobile software application provides a touch based advertisement targeted to a user.<br><br>This element is infringed literally, or in the alternative, under the doctrine of equivalents.<br><br>For example, the TikTok app installed on the mobile device comprises a touch based graphical user interface ("GUI") which allows the user to access TikTok app's content and interact with it. Further, the TikTok app dynamically selects advertisements for each user based on their activities and information. Subsequently, the selected advertisement is presented on the TikTok app's interface. Additionally, the TikTok app provides a functionality to the user to engage with the advertisements displayed by the TikTok app on their screens. |

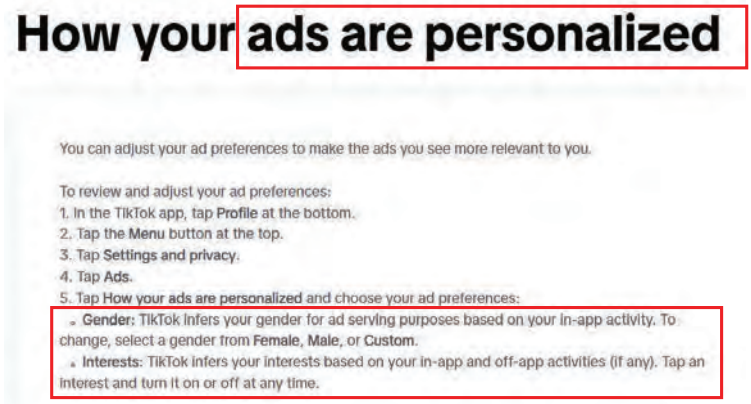



Source: https://www.youtube.com/watch?v=VRw0q8vpBY0, at 2:30 (annotated)

375

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| | **Onboarding - It starts with a Swipe**<br><br>The process of getting hooked to TikTok starts right away in the users onboarding experience. TikTok asks users to choose their interests. This information is used for personalizing each user's feed. This is a common practice for products with curated content and used by many different apps.<br><br>But TikTok's user onboarding is really smart. It encourages users to scroll through the feed and tells them that the content will become more relevant and personalized the more they use it. While this is true for many algorithms, many apps don't tell users this explicitly. By doing so, TikTok encourages users to continue using the app for a better experience<br>Source: https://www.linkedin.com/pulse/tiktok-gui-design-tricks-martin-treiber<br><br>  <br>Source: https://www.tiktok.com/@tiktok |

376



## How your ads are personalized

You can adjust your ad preferences to make the ads you see more relevant to you.

To review and adjust your ad preferences:
1. In the TikTok app, tap **Profile** at the bottom.
2. Tap the **Menu** button at the top.
3. Tap **Settings and privacy**.
4. Tap **Ads**.
5. Tap **How your ads are personalized** and choose your ad preferences:
   - **Gender:** TikTok infers your gender for ad serving purposes based on your in-app activity. To change, select a gender from **Female**, **Male**, or **Custom**.
   - **Interests:** TikTok infers your interests based on your in-app and off-app activities (if any). Tap an interest and turn it on or off at any time.

Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/how-your-ads-are-personalized

## About TikTok ads

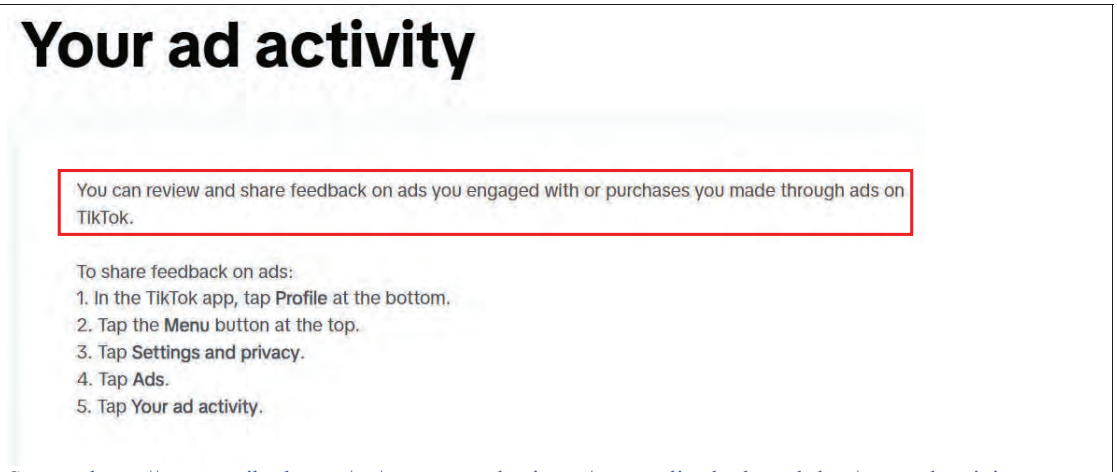
Businesses show ads on TikTok to reach the people they care about in a creative and meaningful way. This helps keep TikTok free for our community to use.

You will see different kinds of ads when you use TikTok. All of the ads that TikTok is paid to place in user feeds or the search page are clearly marked with a "Sponsored" or "Ad" icon. You can interact with the ad very much in the same way as content posted by users. For example, you can share, like, comment on, or replay an ad if the advertiser enables these features for a particular ad; you can also report the ad if you find it inappropriate.

**TikTok Ad Policies** determine the type of products and services that can be advertised on TikTok, in addition to the type of advertising content that is prohibited or restricted on our platform.

Source: https://www.tiktok.com/privacy/ads-and-your-data/en

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| | **Information we use for all ads**<br>The following general information may be used to show you either personalized or non-personalized ads.<br>• **Location information:** For example, you may see an ad from an advertiser wanting to reach TikTok users in Berlin, Germany if we think you are in Berlin based on your location information. **Learn more** about how location information is collected.<br>• **Language information:** For example, you may see an ad from an advertiser wanting to reach Spanish speakers if your app language is set to Spanish.<br>• **Demographic information you provide:** For example, the age you provide when you sign up for a TikTok account can affect whether TikTok shows you an ad for a car rental service available to people aged 25 and over.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en<br>**Information we use for personalized ads**<br>The following additional information may be used to show you personalized ads, depending on your ad personalization choices.<br>• **Demographic information we infer:** For example, we may infer your gender based on your on-TikTok activity, which can be used to tailor the ads that you see. You can update inferred gender for ads at any time in your ads settings. Any updates apply only to your ads settings and do not affect other TikTok services.<br>• **Interest and Behavioral Information**<br>◦ **On-TikTok activity:** TikTok may display ads about things you may be interested in, based on how you view, search, share and like content or interact with creator(s), as well as your previous interactions with similar ads. For example, a pet store might want to advertise a sale on dog toys to people interested in dogs; we might show this ad to users who liked a lot of videos tagged with the hashtag "dogs". Or an outdoor activity store wants to advertise tents to followers of creators who post content about outdoor activities and nature. We will show this ad to followers of those types of creators.<br>◦ **Off-TikTok activity:** TikTok may personalise ads based on the information shared by our Advertisers, measurement and other partners. For example, a fashion brand may want to promote their summer clothing collection to customers who've purchased from their website or app in the past. The brand can share information with us so that we can show its ads to the TikTok users we think it's trying to reach.<br>The shared information may include device information like your phone's advertising ID and/or email addresses and phone numbers that have been encrypted. Partners may also share the actions you take on the advertiser's app or website, like whether you placed an item in a shopping cart.<br>Source: https://www.tiktok.com/privacy/ads-and-your-data/en |

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| |  <br>Source: https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/your-ad-activity<br><br>Further, to the extent this element is performed at least in part by Defendant's software source code, Plaintiff shall supplement these contentions pursuant to production of such source code by the Defendant. |

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