

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner

v.

TELCOM VENTURES LLC,
Patent Owner

Patent No. 11,937,172

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,937,172**

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EX1006	International Patent Publication No. WO 2006/087503 A1 to Waters et al. (“Waters”)
EX1007	U.S. Patent No. 7,434,723 to White et al. (“White”)
EX1008	International Patent Publication No. WO 2006/094048 A2 to Morrison (“Morrison”)
EX1009	U.S. Patent Application Publication No. 2002/0116345 A1 to Harrison (“Harrison”)
EX1010	U.S. Patent Application Publication No. 2003/0061111 A1 to Dutta et al. (“Dutta”)
EX1011	U.S. Patent Application Publication No. 2008/0140569 A1 to Handel (“Handel”)
EX1012	U.S. Patent Application Publication No. 2009/0070263 A1 to Davis et al. (“Davis”)
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I. INTRODUCTION

Google LLC (“Petitioner”) respectfully requests *inter partes* review of claims 1-16 (“the challenged claims”) of U.S. Patent No. 11,937,172 (“the ’172 patent”) (EX1001) assigned to Telcom Ventures LLC (“Patent Owner”).

II. MANDATORY NOTICES

Real Parties-in-Interest: Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner identifies Google LLC as the real party-in-interest.¹

Related Matters: The ’172 patent is asserted in *Telcom Ventures LLC v. Samsung Electronics Co., Ltd.*, Case No. 2:24-cv-00691 (E.D. Tex.) and *Telcom Ventures LLC v. Apple Inc.*, Case No. 3:25-cv-05041 (N.D. Cal.).

The ’172 patent is also at issue in *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00957 (PTAB) and *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01238 (PTAB). Petitioner was not involved in any way with these earlier IPRs.

The ’172 patent originates from U.S. Patent Application No. 18/523,863, filed on November 29, 2023, which is a division of application No. 18/489,517, filed on

¹ Google LLC is a subsidiary of XXVI Holdings Inc., which is a subsidiary of Alphabet Inc. XXVI Holdings Inc. and Alphabet Inc. are not real parties-in-interest to this proceeding.

October 18, 2023, now Patent No. 11,924,743 (“the ’743 patent”), which is a continuation of application No. 18/450,517, filed on August 16, 2023, which is a continuation of application No. 17/653,748, filed on March 7, 2022, now Patent No. 11,770,756 (“the ’756 patent”), which is a continuation of application No. 15/929,609, filed on May 12, 2020, now Patent No. 11,304,118, which is a continuation of application No. 16/012,513, filed on June 19, 2018, now Patent No. 10,660,015, which is a division of application No. 15/800,855, filed on November 1, 2017, now Patent No. 10,219,199 (“the ’199 patent”), which is a continuation of application No. 15/251,882, filed on August 30, 2016, now Patent No. 9,832,708 (“the ’708 patent”), which is a continuation of application No. 12/264,711, filed on November 4, 2008, now Patent No. 9,462,411 (“the ’411 patent”). (EX1001, Cover.)

The ’411, ’743, ’756, ’199, and ’708 patents, as well as related U.S. Patent Nos. 10,674,432 (“the ’432 patent”) and 12,028,793 (“the ’793 patent”), are all also at issue in *Telcom Ventures LLC v. Samsung Electronics Co., Ltd.*, Case No. 2:24-cv-00691 (E.D. Tex.) and *Telcom Ventures LLC v. Apple Inc.*, Case No. 3:25-cv-05041 (N.D. Cal.).

Petitioner has filed an IPR petition challenging the ’743 patent in *Google LLC v. Telcom Ventures LLC*, IPR2025-01349 (PTAB).

Additionally, the ’411, ’743, ’756, ’199, ’708, ’432, and ’793 patents are at issue in *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-

00973 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00976 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00977 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00972 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00975 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00974 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00978 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01232 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01233 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01234 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01235 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01236 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01237 (PTAB); and *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01239 (PTAB). Petitioner has had no involvement in any way with those earlier IPRs.

Counsel and Service Information: Lead counsel is Naveen Modi (Reg. No. 46,224). Backup counsel are Daniel Zeilberger (Reg. No. 65,349), Quadeer Ahmed (Reg. No. 60,835), Alexa Lowman (*pro hac vice* to be filed), and Maksim Mints (Reg. No. 78,507). Service information is Paul Hastings LLP, 2050 M Street NW, Washington, D.C. 20036, Tel.: 202.551.1700, Fax: 202.551.1705, email: PH-Google-Telcom-IPR@paulhastings.com. Petitioner consents to electronic service.

III. PAYMENT OF FEES UNDER 37 C.F.R. §§ 42.15 AND 42.103

The PTO is authorized to charge any fees due during this proceeding to Deposit Account No. 50-2613.

IV. GROUNDS FOR STANDING

Petitioner certifies that the '172 patent is available for review and Petitioner is not barred or estopped from requesting review on the grounds identified herein.

V. PRECISE RELIEF REQUESTED AND GROUNDS RAISED

Petitioner respectfully requests review of claims 1-16 of the '172 patent and cancellation of these claims as unpatentable, based on the following grounds:

Ground 1: Claims 1-4, 6-12, and 14-16 are unpatentable under pre-AIA 35 U.S.C. § 103 as being obvious in view of Barnett (EX1005), Waters (EX1006), and White (EX1007).

Ground 2: Claims 5, 8, 13, and 16 are unpatentable under pre-AIA 35 U.S.C. § 103 as being obvious in view of Barnett, Waters, White, and Smith (EX1018).

The earliest possible priority date of the '172 patent is November 4, 2008.² Barnett published from an application filed December 28, 2007 (EX1005, Cover), and thus qualifies as prior art under at least § 102(e). Waters published on August

² Petitioner does not concede that the '172 patent is entitled to a November 4, 2008, priority date.

24, 2006 from an application filed February 15, 2005, and thus qualifies as prior art under at least §§ 102(a), (b), and (e). White issued on October 14, 2008 from an application filed May 26, 2005, and thus qualifies as prior art under at least §§ 102(a) and (e). Smith published on January 31, 2002 from an application filed on July 23, 2001, and thus qualifies as prior art under at least §§ 102(a), (b), and (e).

VI. LEVEL OF ORDINARY SKILL

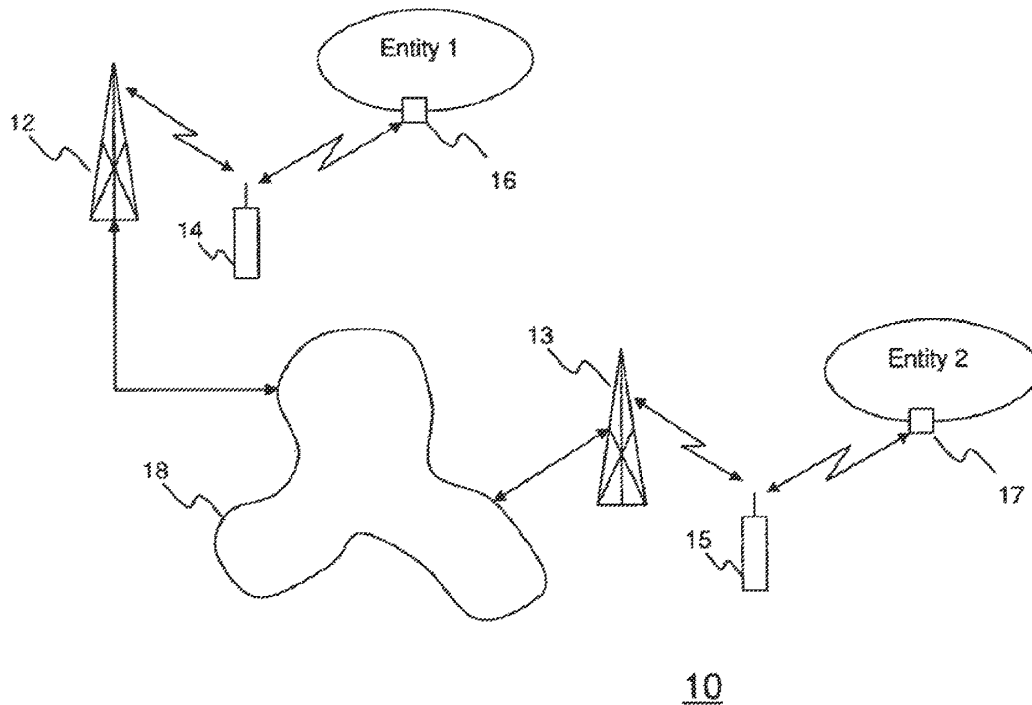
A person of ordinary skill in the art at the time of the alleged invention of the '172 patent ("POSITA") would have had an undergraduate degree in electrical engineering, computer engineering, computer science or a related field along with two years of work experience in the field of mobile communication applications. (EX1002, ¶¶20-21.)³ More education can supplement practical experience and vice versa. (*Id.*)

VII. OVERVIEW OF THE '172 PATENT

The '172 patent describes "[s]ystems/methods...of a two-step process in (i) establishing a capability at a smartphone to conduct a financial transaction and (ii) using the established capability in conducting the financial transaction by paying for a product." (EX1001, Abstract; EX1002, ¶22.)

³ Petitioner submits the declaration of Dr. Sandeep Chatterjee (EX1002), an expert in the field of the '172 patent. (EX1002, ¶¶1-21; EX1003.)

The '172 patent describes a system containing what it refers to as a first device 14, a second device 15, an entity 1 and entity 2, and a communications system 18, among other components. (EX1001, 8:66-10:35, FIG. 1.) The '172 patent explains that the devices 14 and 15 may be mobile devices such as a mobile phone. (*Id.*, 3:17-26.) Entity 1 and entity 2 may be “a person, an animal, a vehicle..., a building..., a product that is for sale, a store that sells one or more products, a check-out counter in a store, a shopping cart that may be used by a customer to carry one or more products selected by the customer for purchase, one or more locations in time and/or space, a geographic area and/or a multi-dimensional region in time and/or space.” (*Id.*, 3:55-63.) The communications system 18 may be, for example, a wireless communications system that wirelessly communicates with the first and second devices. (*Id.*, 12:10-14.)



(*Id.*, FIG. 1; EX1002, ¶22.)

The '172 patent broadly describes communication features between these devices and entities. For example, “a method in a system 10 is provided comprising: detecting that a proximity criterion is satisfied between a first device 14, such as a mobile subscriber device, and Entity 1; and enabling a mode of the first device and/or a mode of a second device 15 responsive to the detecting.” (EX1001, 9:1-7.) “In one particular embodiment, a mobile subscriber device 14 linked to a communications system 18 via base station 12 can enable a function when the device 14 comes within a proximity of Entity 1.” (*Id.*, 9:11-14; EX1002, ¶23.)

The claims of the '172 patent focus on one embodiment in which “[t]he function enabled...[is] a financial transaction.” (EX1001, 9:18-19; *see also id.*,

claims 1-16.) The '172 patent explains with respect to a mobile phone used in this financial transaction embodiment that “the first step of the two-step process is performed responsive to sensing at least one parameter and determining that the at least one parameter sensed satisfies a criterion; then, an authorization to establish said capability is requested.” (*Id.*, Abstract.) Then, “responsive to receiving the authorization, the capability to conduct the financial transaction is established at the smartphone.” (*Id.*) “The second step in said two-step process may be performed, comprising using said capability that has been established to conduct the financial transaction and pay for a product, responsive to the smartphone sensing proximity to an access point maintained by a vendor and responsive to the at least one parameter being sensed and satisfying the criterion.” (*Id.*; EX1002, ¶24)

VIII. CLAIM CONSTRUCTION

For IPR proceedings, the Board applies the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). See 83 Fed. Reg. 51,340-59 (Oct. 11, 2018). Under *Phillips*, claim terms are typically given their ordinary and customary meanings, as would have been understood by a POSITA, at the time of the invention, having taken into consideration the language of the claims, the specification, and the prosecution history of record. *Phillips*, 415 F.3d at 1313; *see also id.* at 1312-16.

The Board, however, only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Sys., Inc.*, IPR2015-00633, Paper No. 11 at 16 (P.T.A.B. Aug. 14, 2015) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Here, given the correlation between the prior art references and the challenged claims of the '172 patent, the Board need not construe any terms of the challenged claims to resolve the underlying controversy, as any reasonable construction reads on the prior art. (EX1002, ¶47.)⁴

IX. DETAILED EXPLANATION OF GROUNDS

As detailed below, each of the challenged claims are unpatentable. (EX1002, ¶¶48-143.)

A. Ground 1: Barnett, Waters, and White Render Obvious Claims 1-4, 6-12, and 14-16

1. Claim 1

i) [1.pre]⁵

To the extent the preamble is limiting, Barnett discloses the limitations therein. (EX1002, ¶¶49-56.)

⁴ Petitioner reserves all rights to raise claim construction and other arguments in other venues.

⁵ Claim language corresponding to the limitations at issue may be found in the claim listing provided as Appendix A.

Barnett discloses a “system and method of communicating shopping information between a consumer and a retailer,” including a “system for enabling a consumer to obtain shopping information from a retailer, and the retailer to obtain information from the consumer, using a communication device, such as a mobile phone.” (EX1005, ¶[0001].) Barnett explains that “a consumer may utilize...a portable communications device 14, such as a mobile phone” (“smartphone”) (*id.*, ¶[0011]), which is “adapted to communicate with a Near Field Communication (NFC) device, a wireless network, such as a Wi-Fi system, and a Bluetooth system, as well as a cellular phone system” (*id.*, ¶[0012]). Barnett describes that the “mobile phone 14 combines the functions of a Wi-Fi device, a contact-less credit card, and a cell phone” (*id.*, ¶[0012]), and thus a POSITA would have understood that a consumer’s mobile phone operates as a “smartphone” because it has advanced features beyond the standard calling and texting features of a cellular phone. (EX1002, ¶50.)

Barnett explains that a store may have “stand-alone NFC-enabled devices 34 [which] are used to identify products to NFC-enabled devices.” (EX1005, ¶[0023].) As shown in Figure 1 below, a consumer may place their “NFC-enabled mobile phone 14” (in red below) “proximate to the product identifier 34” (in yellow below) so that “information is extracted from the product identifier 34 and transmitted to, and stored within, the NFC-enabled mobile phone 14 in a manner similar to a bar

code reader.” (*Id.*, ¶[0023].) For example, the consumer may “retrieve and store information “such as “the identity of the product” (*id.*, ¶[0033]), which may further include “the name of the produce and the price of the produce, as well as technical information about the produce, such as the specifications” (*id.*, ¶[0023]).

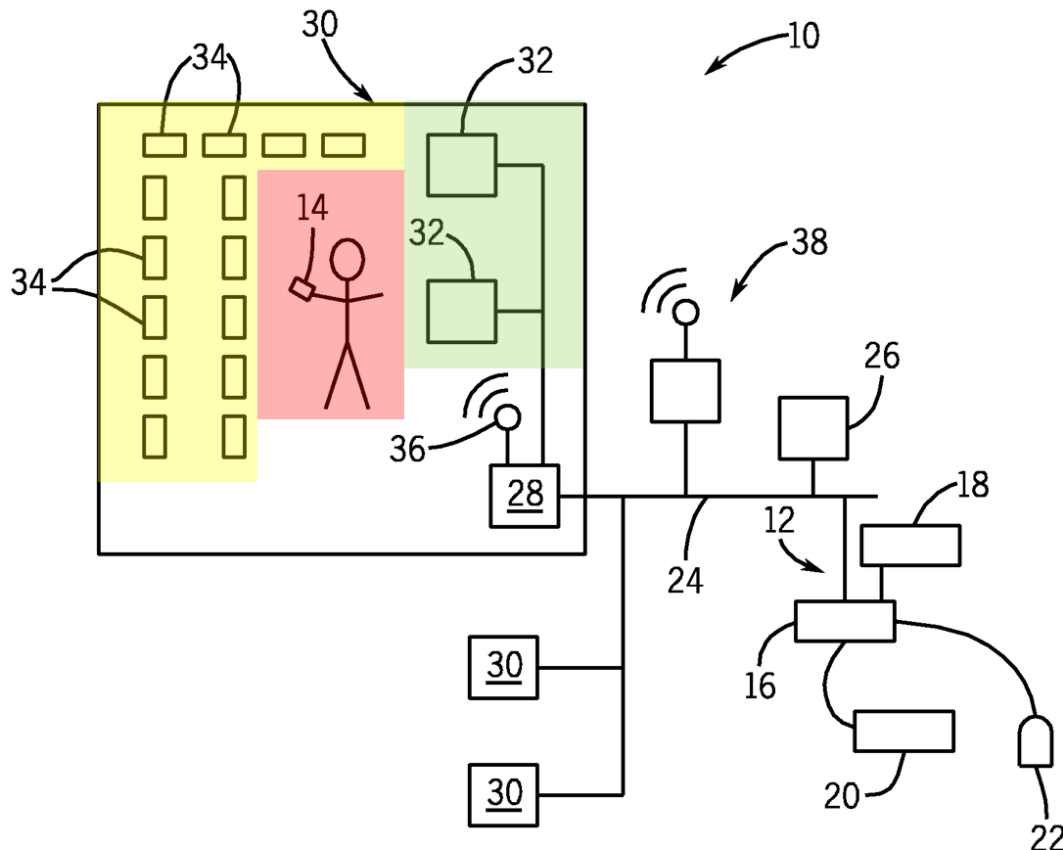


FIG. 1

(*Id.*, FIG. 1 (annotated); EX1002, ¶51.)

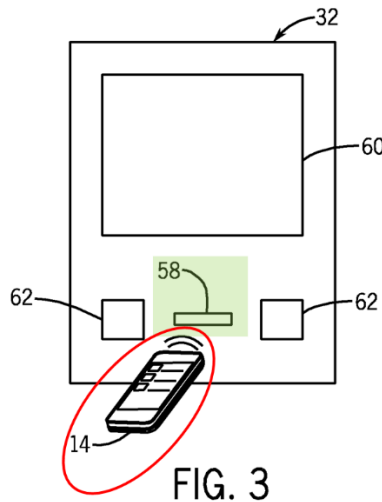
Barnett also explains that “[w]ithin the store 30 are a series of displays 32 that are connected to the store computing system 28.” (EX1005, ¶[0021].) These

“displays 32” (in green above) may be “NFC-enabled displays that can interact with a NFC-enabled mobile phone 14 using device-to-device communication.” (*Id.*) “Alternatively, the displays 32 may be Bluetooth-enabled communications devices” such that “when a Bluetooth-enabled mobile phone is located near the display 32, information is transmitted between the Bluetooth-enabled mobile phone 14 and the display 32.” (*Id.*, ¶[0022]; EX1002, ¶52.)

Barnett explains that the NFC displays 32 have multiple purposes. (EX1002, ¶53.) First, Barnett discloses that after retrieving product identity information from devices 34, a “consumer may then place the mobile phone 14 proximate to a NFC-display 32 which reads the product identity information from the mobile phone 14 and retrieves additional information regarding the product to the consumer.” (EX1005, ¶[0033].) The NFC display 32 may also be used to enable Wi-Fi communication in a consumer’s mobile phone so that the consumer can obtain additional information from the retailer. (*Id.*, ¶¶[0016], [0026], [0035].)

Barnett explains that a display 32, as shown in Figure 3 below, may also “us[e] the NFC interface...to complete the transaction using the cell phone as a credit card, debit card, or electronic purse.” (*Id.*, ¶[0040]; *see also id.*, ¶[0037].) As shown in Figure 3 below, “[t]he NFC-enabled display 32 has an NFC interface 58” (in green) “that is adapted to transmit data between the mobile phone 14 and the display 32.” (*Id.*, ¶[0038].) For example, Barnett discloses that “the mobile phone 14 may be

programmed to provide a specific credit card number when the mobile phone 14 is used in making purchases in a specific store.” (*Id.*, ¶[0032].)



(*Id.*, FIG. 3 (annotated); EX1002, ¶54.) Barnett discloses that transmission of data between the consumer’s phone (in red above) and the NFC display 32 via NFC interface 58 (in green above) may occur when devices are within “a short distance, such as a decimeter.” (EX1005, ¶[0013].)

Thus, Barnett discloses “[a] method of operating a smartphone in performing at least one financial transaction.” (EX1002, ¶55.) NFC-enabled mobile phone must first be brought within a short distance of the NFC-enabled display 32’s NFC interface in order for the phone to enable transmission of data between the phone and NFC display 32, thus establishing the capability at the phone to complete a purchase/transaction at the NFC display 32. (*Id.*) And in a second step, the transaction data would be transmitted between the mobile phone and the NFC

display 32, thus using the capability at the phone to complete a purchase/transaction. (*Id.*) For all of these reasons, and additionally for the reasons discussed below with respect to limitations [1.a]-[1.g], Barnett also discloses “the method including a two-step process in establishing and using a capability in order to perform said at least one financial transaction.” (*Id.*)

To the extent Barnett does not disclose that its method includes a “two-step process in establishing and using a capability in order to perform said at least one financial transaction,” Barnett in view of Waters and White discloses and/or suggests this limitation for the reasons discussed for limitations [1.a]-[1.b]. (*See infra* Sections IX.A.1.ii-iii; EX1002, ¶56.)

ii) [1.a]

Barnett in view of Waters and White discloses and/or suggests this limitation. (EX1002, ¶¶57-84.)

While Barnett does not expressly disclose “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability,” a POSITA would have been motivated and found it obvious to implement such features in the Barnett system/method in view of Waters and White. (EX1002, ¶58.) In particular,

as discussed below in Section IX.A.1.ii.(1), a POSITA would have been motivated and found it obvious to modify the Barnett system/method in view of Waters such that the combined system performs “sensing at least one parameter by at least one sensor of the smartphone and...determining that the at least one parameter that is sensed satisfies a criterion.” (EX1002, ¶58.) And as discussed below in Section IX.A.1.ii.(2), a POSITA would have been motivated and found it obvious to further modify the Barnett-Waters system/method in view of White such that the combined system performs the following bolded/italicized features: “***responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability.***” (EX1002, ¶58.)

(1) Barnett-Waters Combination

First, a POSITA would have been motivated to modify the Barnett system/method in view of Waters such that it performs “sensing at least one parameter by at least one sensor of the smartphone and...determining that the at least one parameter that is sensed satisfies a criterion” in order to enable the NFC capabilities in the user’s phone. (*Id.*, ¶59.)

Like Barnett, Waters discloses a system/method of performing a financial transaction using an NFC-enabled mobile device. (*Id.*, ¶60.) For example, Waters discloses a “mobile terminal 1” such as a “handheld mobile telephone” (EX1006, 4), which includes a “near field or RFID tag 41” (*id.*, 8).⁶ Waters discloses that the near field tag of the mobile terminal may be used to conduct various transactions, such as paying for public transport, making a toll fee payment, or paying for a school lunch. (*Id.*, 1, 11, 11.) Waters discloses that the near field tag is able to “exchange information with a tag reader when the two are brought into close proximity.” (*Id.*, 9.) Thus, Waters is similar to Barnett, which discloses a system/method of purchasing products in a store at an NFC-enabled display/register using an NFC-enabled mobile device. (*See* Section IX.A.1.i.) In other words, both Barnett and Waters relate to conducting financial transactions using a mobile device based at least in part on proximity of the mobile device to a point-of-sale device. A POSITA would have therefore been motivated to consider the teachings of Waters when implementing Barnett’s system/method. (EX1002, ¶60.)

Waters additionally discloses that “the mobile telecommunication device is operable to selectively enable the near field communication device.” (EX1006, 4.)

⁶ Citations to Waters are to the originally-marked page numbers of the WIPO publication.

Waters explains that “[t]he near field tag 41 may be selectively enabled and disabled in order to reduce the opportunity to obtain information from the near field tag 41 by an unauthorised reader.” (*Id.*, 13.) For example, Waters discloses various types of sensors that can be used to activate the near field/RF tag, such as a light sensor, pressure sensor (in combination with a fingerprint or skin resistance sensor), or heat sensor. (*Id.*, 15-16; EX1002, ¶61.) Waters provides this functionality to enhance the device’s security features for conducting financial transactions. (EX1002, ¶61; EX1006, Title (“Improved Security for Wireless Communication”), Abstract, 2 (“The present invention, in one aspect, seeks to provide additional or improved security.”), 4, 13-16.)

With respect to a light sensor, Waters explains that “a photodiode (a sensor that modifies an electric current when exposed to a light source) could be built into the casing of the mobile terminal 1 and act as a switch to activate or deactivate the RF tag 41.” (EX1006, 15.) “The RF tag 41 is controlled by the photo diode so that the RF tag 41 is ***only enabled*** when the mobile terminal 1 is exposed to light,” and is otherwise disabled (e.g., if the mobile terminal is an opaque case or user’s pocket). (*Id.*) Waters discloses that the “photodiode may be sensitive to a particular frequency range—for example visible light, infra red or ultra violet,” and “[t]he tag reader may be provided with a light emitter that emits light at this frequency, in order to activate the tag.” (*Id.*; EX1002, ¶62.)

Waters discloses that a “pressure sensor on the casing of mobile terminal 1” may “act[] as a switch” instead of the light sensor, where the near field/“RF tag 41 is ***only enabled*** when the user physically presses the pressure sensor,” and is otherwise disabled (e.g., when in a case or user’s pocket). (EX1006, 15.) Such a “pressure sensor may be combined with [a] fingerprint scanner 45” so that “[t]he combined sensor detects, not only that pressure is applied, but also that an authorized person is pressing the sensor.” (*Id.*; *see also id.*, 14; EX1002, ¶63.)

“Alternatively, the pressure sensor could be combined with an electrical resistance meter and used to detect that it is a human hand pressing the pressure sensor, rather than some other object.” (EX1006, 15.) For example, Waters explains that “a skin resistance sensor may be provided on the casing of the mobile terminal 1 in dependence of the presence of the pressure sensor described above.” (*Id.*, 16.) “The near field tag 41 will ***only be operated*** when an appropriate resistance, capacitance or inductance is detected, indicating that the user’s hand is touching the sensor.” (*Id.*; EX1002, ¶64.)

“Heat sensors” can similarly be “incorporated in an appropriate position on the casing of the mobile terminal 1” and “configured to detect that the mobile terminal is in a user’s hand by detecting the heat from the hand, and ***only enabling*** the near field tag 41 when heat from the hand is so detected.” (EX1006, 15-16; EX1002, ¶65.)

Accordingly, Waters discloses repeatedly “sensing at least one parameter” (e.g., the type/frequency of light, a fingerprint/pressure combination, a skin resistance/pressure combination, or heat) “by at least one sensor of the smartphone” (e.g., the phone’s light sensor, fingerprint reader/pressure sensor, skin resistance/pressure sensor, or heat sensor) and “determining that the at least one parameter that is sensed satisfies a criterion” (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied) and only enabling the near field tag while that value is satisfied. (EX1002, ¶66.)

A POSITA would have been motivated to incorporate such a sensing mechanism, similar to that disclosed by Waters, to selectively enable/disable the NFC tag in Barnett’s device. (*Id.*, ¶67.) Waters explains, as noted above, that the selective enablement/disablement of the near field tag is intended to improve the security of the tag to prevent unauthorized access (e.g., by an unauthorized reader). (EX1006, 9.) A POSITA would have understood the benefit of such a security measure in the context of Barnett’s system/method, which as discussed above, involves a user similarly interacting with many NFC readers/displays in the same store. (EX1002, ¶67.) Barnett explains that these NFC readers are largely unmonitored by retail workers, since the goal of the invention is to reduce the

number of higher cost human employees in the store. (EX1005, ¶[0043].) The presence of employees provides a security benefit to a store by deterring theft or other unauthorized access to merchandise and store technology. (EX1002, ¶67.) For example, in a store with more employees, a bad actor may be less likely to install a card skimming device or similar unauthorized NFC reader to gain access to customer credit/debit card information. (*Id.*) A POSITA would have thus recognized the importance of implementing security features at each user's mobile phone in an environment with fewer employees, so as to reduce the risk of unauthorized access by an unauthorized NFC reader. (*Id.*) Barnett also emphasizes that security is an important feature of mobile phone communication technologies by explaining, for example, the benefits of authentication mechanisms for accessing wireless internet (EX1005 ¶¶[0005], [0012]) and "secure" Bluetooth technologies (*id.*, ¶[0017]). A POSITA would have thus recognized that communication security is important to the mobile phone and would have been motivated to implement security improvements to the mobile phone's NFC technology, e.g., by selectively enabling/disabling the NFC tag to prevent access by an unauthorized reader. (EX1002, ¶67.) Selectively enabling and disabling the NFC tag of a mobile phone would have numerous user experience benefits as well, such as preventing unintended financial transactions or other unintended use of the NFC tag, and

helping preserve mobile phone battery by disabling the NFC tag when it is not needed. (*Id.*)

A POSITA would have also had a reasonable expectation of success combining the teachings of Barnett and Waters. (EX1002, ¶68.) As discussed above, both references are in the same field of art. Moreover, Barnett suggests that its system/method is flexible and modifications to the NFC-enabled mobile phone are contemplated. (EX1005, ¶[0044].) A POSITA would have had the skill to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known system/method for performing financial transactions using an NFC-enabled mobile phone (Barnett)) according to known methods (e.g., known methods of selectively enabling and disabling NFC tags in mobile phones for use in financial transactions (Waters)) to yield the predictable result of a modified Barnett-Waters system/method with improved security features that implements a sensing mechanism in each user's phone to selectively enable and disable the phone's NFC tag such that sensing a value of the parameter and determining that it meets some criterion is required in order to activate the NFC tag used to conduct financial transactions in the store. (EX1002, ¶68.) *KSR Int'l. Co. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

(2) Barnett-Waters-White Combination

Second, a POSITA would have been motivated to further modify the Barnett-Waters system/method in view of White such that it performs the following bolded/italicized features: “*responsive to* sensing at least one parameter by at least one sensor of the smartphone and *responsive to* determining that the at least one parameter that is sensed satisfies a criterion, *performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability.*” (EX1002, ¶69.)

Like Barnett and Waters, White discloses a system/method of using a mobile device to perform a financial transaction at a point-of-sale device. (*Id.*, ¶70.) White describes a “system and method of completing a pending purchase.” (EX1007, Abstract.) “The system and method include one or more communication devices, wherein a first communication device participates in a transaction with a point-of-sale [device].” (*Id.*, 3:21-23.) White discloses that the consumer’s device (the first communications device) may be a mobile phone. (*Id.*, 3:35-36, 4:15-17.) The “point-of-sale (POS) device...records sales and mediates payments for products or services.” (*Id.*, 3:46-56.) For example, “[i]n credit card transactions, the POS device 102 may communicate with a credit card payment system to obtain payment or payment authorization.” (*Id.*, 3:56-58.) “The POS device 102 may mediate payment from an electronic purse, a debit card, or other payment methods.” (*Id.*, 3:58-60.)

White explains that “[t]he POS device 102 communicates with the first communication device 120 to provide purchase information and to receive...payment information, such as credit card numbers.” (*Id.*, 3:60-65.) The user’s mobile device (the first communication device) “may include one or more adapters for communicating with the POS device 102,” such as a “contactless chip operable to provide a communication link with a compatible device using contactless communication.” (*Id.*, 5:6-10.) Thus, White is similar to both Barnett and Waters, which both disclose systems/methods of purchasing products in a store at a point-of-sale terminal using a chip-enabled mobile phone (e.g., NFC, which a POSITA would have understood is implemented via a chip/tag in the mobile phone). (*See* Sections IX.A.1.i, IX.A.1.ii.(1); EX1002, ¶70.) A POSITA would have therefore been motivated to consider the teachings of White when implementing the Barnett-Waters system/method. (EX1002, ¶70.)

White additionally discloses that its system/method may be used for “mobile payment approval.” (EX1007, 1:23-25.) White discloses that the “system 100 for subscriber payment approval” is shown in Figure 1 below and “includes a point-of-sale (POS) device 102” (in green below), “a network 110, a first communication device 120” (in red below), “a second communication device 130” (in blue below), “and a proxy subscriber approval server 140.” (*Id.*, 3:46-50.) Like the first communication device (in red below), the second communication device (in blue

below) may be a computer-based entity such as a mobile phone. (*Id.*, 4:11-15.) Communication between the first and second communication devices occurs “through the network 110” (*id.*, 4:17-19), which may include “the Internet, a telecommunication wired/wireless network, and/or other computer-based networked systems” (*id.*, 4:5-7).

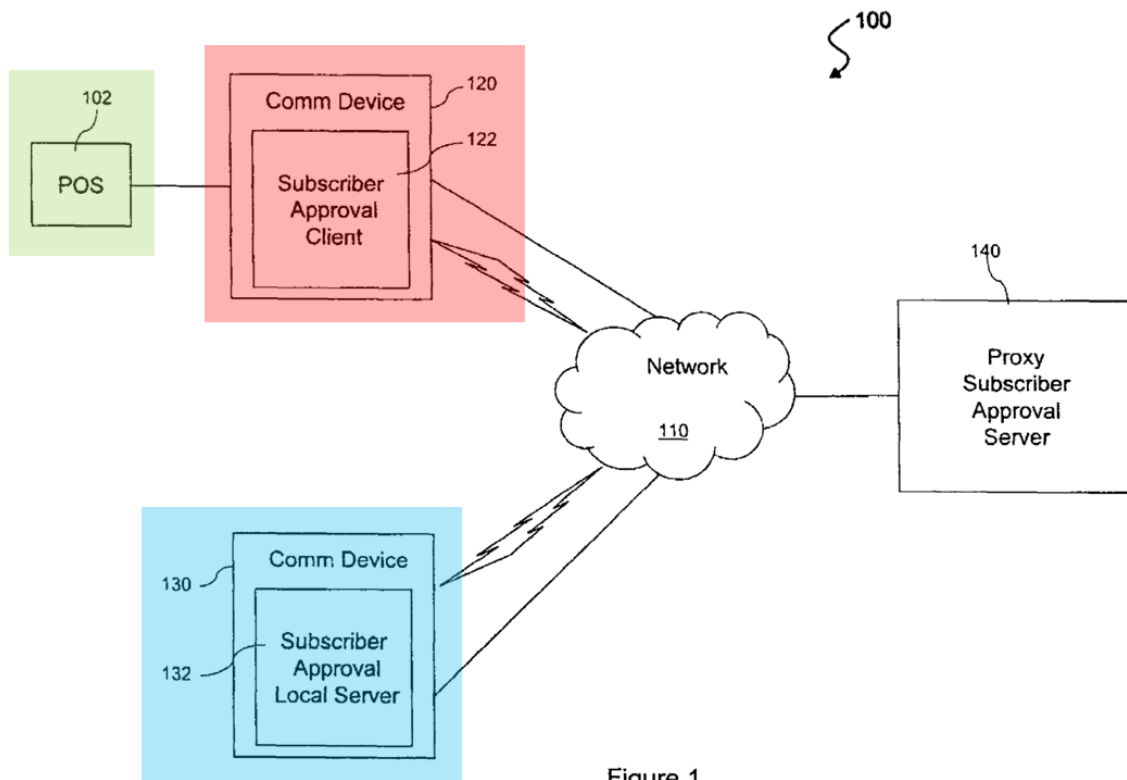


Figure 1

(*Id.*, FIG. 1 (annotated); EX1002, ¶71.)

White discloses that when initiating a transaction, a consumer’s first communication device 120 is first “presented to the POS device 102.” (EX1007,

4:43-44.) “The POS device 102 communicates purchasing information to the first communication device 120 that may include purchase price, identity of the purchased item, identity of the vendor and/or location of the POS device 102.” (*Id.*, 4:44-48.) Upon receiving the purchasing information from the POS terminal/device, the first communication device then initiates a subscriber payment approval process in which the first device transmits a subscriber approval request (containing the purchasing information) to the second communication device, which is responsible for approving the pending purchase. (*Id.*, 1:41-44, 4:48-52.) The second communication device 130 communicates approval of the transaction via a subscriber approval response sent to the first communication device 120. (*Id.*, 1:45-48, 4:52-54; EX1002, ¶72.)

If the second communication device 130 does not acknowledge the communication of the first communication device 120, the first communication device 120 may either interpret the lack of response as a rejection or may direct the approval request to the proxy subscriber approval server 140, a computer-based entity (e.g., a general purpose computer) which can decide whether to approve the transaction based on certain rules. (EX1007, 3:26-31, 4:59-5:, 7:4-7; EX1002, ¶73.) White explains that while communicating with the proxy subscriber approval server may be a fall-back procedure, it may also be used to apply approval rules without communicating with a second communication device (e.g., a parent). (*Id.*, 5:30-44,

6:27-39, FIG. 2B (depicting at blocks 212 and 214 that the proxy subscriber approval server may be initially chosen as the approval entity), 7:53-8:3 (describing FIG. 2B); *see also id.*, 5:30-44; EX1002, ¶74.)

If, however, the transaction is approved (e.g., by the second communication device or the proxy subscriber approval server), the consumer's "first communication device 120 then provides credit card information, debit card information, or electronic purse information to the POS device 102 to complete the payment transaction." (EX1007, 4:55-58.) The POS device then sends that payment information to an authorization entity, such as a financial institution, which returns a completion response upon authorization, thereby completing the payment approval process. (*Id.*, 3:31-39, 3:56-58, 7:40-44; EX1002, ¶75.)

White discloses that the above steps performed by the first communication device 120 may be performed by the first device's "subscriber approval client 122...enabled as a software program, an application, or a function," where the subscriber approval client 122 "operate[s] to collect pending purchase information from the POS device 102," "includes information for completing the pending purchase," and "may also operate to communicate with the second communication device 130 and/or the proxy subscriber approval server 140 through the network 110." (EX1007, 5:30-44.) Similarly, White discloses that the above steps performed by the second communication device 130 may be performed by the second device's

“subscriber approval local server” which “include[s] one or more payment information associated with a credit card number, a debit card number, and/or other monetary account information,” as well as “rules established within the subscriber local approval server” which may be “appl[ied]...to approve payment via the subscriber approval client 122.” (*Id.*, 6:9-39; EX1002, ¶76.)

White discloses that the above payment approval process is applicable to a variety of different scenarios, such that the second communication device to approve the transaction is selected based on the context. (EX1002, ¶77.) For example, an owner of a credit card or debit card may be required to remotely authorize (e.g., from a second, remotely located device) transactions performed by an authorized user of the credit card (e.g., using a first device). (EX1007, 3:7-21, 4:38-42, 4:43-58.) In other remote authorization scenarios, “the operation of the system 100 for subscriber payment approval may be employed for parental control of child spending at the POS device 102,” where the parent’s “second communication device 130 may be alerted through voice, video, and/or text messaging” and the “parent may have the option of approving or rejecting the pending purchase.” (*Id.*, 6:9-64.) Alternatively, “a user of the second communication device 130 may include an employer (i.e., a boss or manager of a business) while, the first communication device 120 may be operated by an employee,” where “[t]he employer may in real-time control the pending purchase(s) made on behalf of the employee.” (*Id.*, 6:65-7:3.) In other

words, White discloses that the second communication device that is sent a subscriber approval request by the first communication device may be chosen based on the card used and the relationship between users (i.e., the request is sent to a remotely located device operated by the owner of a specific card used by the authorized user, or by the parent or boss of that authorized user). (EX1002, ¶77.)

Accordingly, White discloses that the consumer's phone (first communication device) has a "mode to communicate by the smartphone information requesting an authorization to establish said capability" to conduct a financial transaction, where the communication mode involves the consumer's phone sending a subscriber approval request ("information requesting an authorization") from the first communication device to a second communication device (e.g., a device corresponding to the owner of the card used for the transaction, or a proxy subscriber approval server) to request authorization to perform the transaction ("to establish said capability"). (*Id.*, ¶78.)

A POSITA would have been motivated to further modify the Barnett-Waters system/method to incorporate such an authorization feature, similar to that disclosed by White, to enable the authorization communication mode and send an authorization request to a second communications device in response to the presentation of the consumer's mobile device in proximity to an NFC-enabled payment terminal. (EX1002, ¶79.) It was well known at the time of the alleged

invention that authorization rules could be established such that one individual (or their device) could remotely authorize transactions performed by another individual using a mobile phone. (*Id.*) For example, Waters discloses a parent may set times during which their child is able to use a near field/RF tag enabled device to make payments, e.g., for school lunch. (EX1006, 6; *see also* EX1009, ¶¶[0004], [0022], [0028] (describing transaction approval by the device of an “authorizer”); EX1010, FIG. 1, ¶[0016] (authorizing party may approve e-transactions of a proposing party); EX1011, FIG. 2, Abstract, ¶¶[0011]-[0012] (a third party authorizer/approver (e.g., parent or legal guardian of a child) may approve the purchaser’s e-commerce transactions according to certain authorization rules); EX1012, ¶¶[0027], [0050]-[0059] (describing approval of a transaction/funds transfer by a third party, such as a parent); EX1013, Abstract, ¶¶[0174]-[0200] (parent may use their own mobile phone to authorize charges requested by a child’s mobile phone).) Thus, a POSITA would have been motivated to consider various authorization methods in order to allow for purchase approval in the Barnett-Waters system/method. (EX1002, ¶79.)

White discloses that its authorization method is beneficial because unlike other prior art authorization methods, it allows for an owner of a card/payment method to remotely approve transactions on a purchase-by-purchase basis. (EX1007, 3:7-21, 6:9-64, 6:65-7:30.) Thus, White’s authorization method would have allowed for enhanced flexibility, while still offering the security benefits of an

authorization process that allows a card owner to approve transactions performed by authorized users. (EX1002, ¶80.) White's authorization method would have also improved security by increasing oversight of transactions and reducing the risk of unauthorized or inappropriate transactions, consistent with both Barnett's and Waters' security goals. (*Id.*; EX1005, ¶¶[0005], [0012], [0017]; EX1006, 9, 13.)

A POSITA would have also had a reasonable expectation of success combining the teachings of Barnett, Waters, and White. (EX1002, ¶81.) As discussed above, all three references are in the same field of art. Moreover, Barnett suggests that its system/method is flexible and modifications to the NFC-enabled mobile phone are contemplated. (EX1005, ¶[0044].) White's authorization method would have been easily implemented in the Barnett-Waters system/method because Barnett and White use similar technologies. (EX1002, ¶81.) For example, White discloses that the first mobile device may communicate with a second mobile device via the Internet or similar wireless network communication (EX1007, 4:3-19), and Barnett discloses that the consumer's mobile phone can communicate over a Wi-Fi system (EX1005, ¶¶[0016], [0026], [0035]). In addition, Barnett already discloses configuring Wi-Fi communication in response to a user presenting their mobile phone in proximity to an NFC-enabled display/payment terminal. (*Id.*, ¶[0035].) Thus, it would have been straightforward to modify the Barnett-Waters system/method to include a feature similar to that disclosed by White, in which the

first mobile device uses the store's Wi-Fi network to communicate with a remote second mobile device in response to the first device being presented in proximity to an NFC-enabled display/payment terminal. (EX1002, ¶81.)

A POSITA would have had the skill to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known systems/methods for performing financial transactions using an NFC-enabled mobile phone (Barnett, Waters)) according to known methods (e.g., known approval mechanisms for authorizing purchases in mobile phone payment systems (White)) to yield the predictable result of a modified Barnett-Waters-White system/method that further implements a process in which, in response to a user presenting their mobile device in proximity to a POS terminal and receiving purchase information in return, an authorization request is sent via Wi-Fi from the mobile device to a second communication device responsible for approving the transaction. (EX1002, ¶82.) *KSR*, 550 U.S. at 416.

Consistent with the above and in such a combined system, for example, a consumer shopping in a store and using an NFC-enabled mobile phone as a credit/debit card to perform a financial transaction (as taught by Barnett) would have first enabled the NFC tag in the phone by providing a sustained input via, e.g., a light sensor, fingerprint/pressure sensor, skin resistance/pressure sensor, or heat sensor (as taught by Waters). (EX1002, ¶83.) For example, if the mobile device had a light

sensor, a user would present the device to a light source (e.g., implemented at a NFC-enabled POS terminal); if the device had a combination fingerprint/pressure sensor, the user would hold their fingerprint on a sensor included in the device; if the device had a combination skin resistance/pressure sensor, the user would press a sensor using their hand; and if the device had a heat sensor, the user would hold the device to provide heat to the sensor. (*Id.*) Consistent with Waters' disclosure, the NFC tag of the mobile phone would only be enabled while the mobile device detects that a value of the sensor parameter satisfies some criterion (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied) ("sensing at least one parameter by at least one sensor of the smartphone and...determining that the at least one parameter that is sensed satisfies a criterion"). (*Id.*) Thus, in the combined system/method, a user would simultaneously (i.e., while providing sensor input) bring the mobile device in proximity of one of the store's NFC-enabled displays/payment terminals to perform the transaction. (*Id.*)

Then, consistent with White's disclosure, the POS terminal would return purchase information (e.g., price) to the consumer's mobile device if both the sensed value of the parameter satisfies some criterion ("responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining

that the at least one parameter that is sensed satisfies a criterion”) and if the consumer’s mobile device is in close enough proximity to the NFC-enabled POS terminal (i.e., if both conditions for NFC activation and transmission are satisfied) (see Sections IX.A.1.i-ii, IX.A.1.v (further discussing the proximity condition)). (EX1002, ¶84.) This would trigger the consumer’s mobile device to enable an authorization/approval process communication mode in which the mobile device sends a subscriber approval request to a specific approver’s device (e.g., the owner of the specific card for which the consumer is an authorized user, or a proxy subscriber approval server) (“performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability”), upon which the approver’s device is able to authorize the transaction by returning to the consumer’s mobile device a subscriber approval response. (*Id.*) Upon approval, the consumer’s mobile phone is able to perform the financial transaction (i.e., a second step of the “two-step process”) by transmitting payment information to the NFC-enabled POS terminal to complete the transaction. (*Id.*) Consistent with White’s disclosure, the POS terminal sends that payment information to an authorization entity (e.g., financial institution), which returns a response upon authorization, thereby completing the purchasing/approval process. (*Id.*)

iii) [1.b]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶85.) As discussed for limitation [1.a], in the Barnett-Waters-White system/method, while communication between a consumer's mobile device ("smartphone") and an approver's device (e.g., card owner's device or proxy subscriber approval server) ("first device") is enabled ("while the mode is enabled") and before the actual transaction is performed ("as a precursor to performing a second step of said two-step process"), a consumer's mobile device requests authorization for a transaction by sending a subscriber approval request to the approver's device ("transmitting by the smartphone first data to a first device"). (See Section IX.A.1.ii.) As discussed, this request for approval is a request to provide the consumer's phone with the capability to conduct the financial transaction ("requesting the authorization to establish said capability to perform said at least one financial transaction"). (*Id.*)

iv) [1.c]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶86.) As discussed for limitation [1.a], in the Barnett-Waters-White system/method, the approving device ("first device") may authorize the transaction by returning a subscriber approval response to the consumer's mobile device ("receiving by the smartphone second data from the first device, comprising

the authorization”) in response to receiving the subscriber approval request from the consumer’s mobile device (“responsive to said transmitting by the smartphone the first data”). (See Section IX.A.1.ii.)

v) [1.d]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶87.) As discussed for limitation [1.a], in the Barnett-Waters-White combination, the consumer initiates a transaction (“a first transaction of said at least one financial transaction”) by bringing their mobile device within proximity of the NFC-enabled POS terminal (“proximity condition is satisfied”) and providing some sensor input to the phone (that satisfies a specified criterion for a light sensor, fingerprint/pressure sensor, skin resistance/pressure sensor, or heat sensor) to simultaneously activate the phone’s NFC tag (“sensing the at least one parameter and determining that the at least one parameter sensed satisfies the criterion”). (See Section IX.A.1.ii.) If the user’s smartphone detects that both of these conditions are met (“responsive to detecting by the smartphone that a proximity condition is satisfied and responsive to sensing the at least one parameter and determining that the at least one parameter sensed satisfies the criterion”), then the consumer’s mobile phone will request/receive approval from a second device to perform the transaction (i.e., the first step of the “two-step process”), and then subsequently use that approval to actually conduct the transaction and complete the purchase (“performing the

second step of said two-step process comprising performing a first transaction of said at least one financial transaction”). (*Id.*)

vi) [1.e]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶88.)

As discussed for limitation [1.a], in the Barnett-Waters-White system/method, paying for a product in the second step of the two-step process (“wherein said performing the second step of said two-step process comprises”) requires that the consumer’s NFC-enabled mobile phone be brought within proximity (“sensing that the proximity condition is satisfied”) of the NFC-enabled POS terminal maintained by a retailer in a store (“relative to an access point maintained by a vendor at a point of purchase counter”). (*See* Section IX.A.1.ii.) Indeed, as discussed for limitation [1.pre], Barnett discloses that transmission of data between the phone and the NFC-enabled POS terminal occurs only when the two devices are within a short distance (e.g., a decimeter). (EX1005, ¶[0013].) In the payment context, where the mobile phone sends information via NFC to the NFC-enabled POS terminal (“access point”), the phone would establish NFC communication by sensing that the POS terminal (“access point”) is emitting a short-range RF signal (“by detecting a short-range signal that is transmitted by the access point”). (*See, e.g.*, EX1005, ¶[0014]; EX1006, 9; EX1002, ¶88.)

As further discussed for limitation [1.a], in the Barnett-Waters-White system/method, paying for a product also requires that the NFC capability of the mobile phone be enabled, which occurs by sensing a value of a mobile device parameter (e.g., the type/frequency of light, a fingerprint/pressure combination, a skin resistance/pressure combination or heat) and determining whether it satisfies a criterion (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied) (“determining that a value of the at least one parameter that is sensed satisfies the criterion”). (See Section IX.A.1.ii.) As further discussed for limitation [1.a], if both conditions are satisfied (“responsive to having sensed that the proximity condition is satisfied relative to the access point and having determined that the value of the at least one parameter sensed satisfies the criterion”), the consumer’s mobile phone may request/receive approval from a second device to conduct the transaction, and then ultimately conduct the transaction by sending payment information (e.g., credit/debit card information) to the POS terminal via NFC (“paying for a product by selectively sending information to at least one device”). (*Id.*; EX1005, ¶¶[0032], [0037], [0038], [0040]; EX1007, 1:45-48; EX1002, ¶89.)

vii) [1.f]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶90.) As an initial matter, the term “unlicensed frequencies” should not be given patentable weight because it is directed to non-functional descriptive material. *See, e.g., Praxair Distrib. v. Mallinckrodt Hosp. Prods. IP*, 890 F.3d 1024, 1032 (Fed. Cir. 2018). In any event, however, transmitting payment information to at least the POS terminal (“wherein said paying for the product by selectively sending information to at least one device”) via NFC would have been wireless and would have used unlicensed frequencies (“comprises selectively and wirelessly transmitting information to the at least one device using unlicensed frequencies”), as those were standard features of near field communication. (*See, e.g.,* EX1006, 8-9; EX1002, ¶90.)

viii) [1.g]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶91.) As discussed for limitation [1.a], the user’s phone has a sensor that senses a parameter to activate the NFC tag (“wherein said at least one parameter”), such as a light sensor that senses exposure to light or the presence of a certain frequency of light (“a level of brightness”), a combination fingerprint/pressure sensor that senses that a certain authorized person is pressing the sensor (“a physiological state”), a combination skin resistance/pressure sensor

which senses that a human hand is pressing the sensor (“a physiological state”), or a heat sensor that senses heat being applied to the device sensor (e.g., from a hand holding the device) (“a temperature”).⁷ (*See* Section IX.A.1.ii; EX1002, ¶91.)

2. Claim 2

i) [2.pre]-[2.a]

The Barnett-Waters-White combination discloses and/or suggests these limitations. (EX1002, ¶¶92-97.)

First, the Barnett-Waters-White combination discloses and/or suggests “wherein said enabling a mode to communicate by the smartphone information requesting an authorization comprises enabling a first function of the smartphone...responsive to the at least one parameter having been sensed by the at least one sensor of the smartphone and further responsive to having determined that the at least one parameter that is sensed satisfies the criterion.” (*Id.*, ¶93.) As discussed for limitation [1.a], in the Barnett-Waters-White system/method, a value of a parameter (e.g., the type/frequency of light, a fingerprint/pressure combination, a skin resistance/pressure combination, or heat) is sensed by a corresponding phone sensor (e.g., light sensor, fingerprint reader/pressure sensor, skin resistance/pressure

⁷ While Petitioner identifies three of the optional parameters as being disclosed in the Barnett-Waters-White combination, only one is required by the claim.

sensor, heat sensor) (“the at least one parameter having been sensed by the at least one sensor of the smartphone”) and the NFC capability of the mobile device is enabled so long as the value continues to satisfy some criterion (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied) (“having determined that the at least one parameter that is sensed satisfies the criterion”). (See Section IX.A.1.ii.) As further discussed, while providing sensor input, a consumer simultaneously brings the mobile phone within proximity of the NFC-enabled POS terminal. (*Id.*) If both the proximity criterion is satisfied (i.e., close enough to the POS terminal) and the sensed value of the device parameter satisfies the parameter criterion (“responsive to the at least one parameter having been sensed by the at least one sensor of the smartphone and further responsive to having determined that the at least one parameter that is sensed satisfies the criterion”), then the consumer’s mobile device enables a transaction approval process (“first function of the smartphone”), thus allowing the mobile device to send a subscriber approval request to an approving device to request authorization to perform the transaction (“wherein said enabling a mode to communicate by the smartphone information requesting an authorization comprises enabling a first function of the smartphone”). (*Id.*)

Second, the Barnett-Waters-White combination discloses and/or suggests “and then selectively communicating with the first device by using a communications capability of the first function, selectively establishing a master-slave relationship with the first device, and selectively requesting from the first device the authorization to establish the capability to conduct said at least one financial transaction.” (EX1002, ¶94.) As discussed for limitation [1.a], in the Barnett-Waters-White system/method, the transaction approval process of the consumer’s mobile device (“first function”) must be enabled in order for a consumer’s mobile phone to selectively communicate with a specific approving device (i.e., the credit card owner’s device or proxy subscriber approval server) (“selectively communicating with the first device”) over a Wi-Fi network (“by using a communications capability of the first function”) to seek transaction approval/authorization from that second device. (See Section IX.A.1.ii.) This communication is “selective[]” because the approving device is chosen based on the card used and the relationship between users (i.e., the request is sent to the owner of a specific card used by the authorized user, or to the parent or boss of that authorized user) or based on various approval rules (i.e., the rules determine whether the request may be initially sent to the proxy subscriber approval server). (*Id.*; EX1002, ¶94.) This selective establishment of communication involves “selectively establishing a master-slave relationship” between the consumer’s mobile phone (“slave”) and the

approving communication device (“master”), depending on the relationship or card used for the transaction and the approval rules. Indeed, White’s disclosure of a “master-slave relationship” is consistent with that described in the ’172 patent, which describes a “slave” communications device that sends an authorization request to a “master” communications device, which may then authorize the “slave” device to perform the transaction. (EX1001, 5:43-67.) And as further discussed for limitation [1.a], the mobile phone’s transaction approval communication process with the approving device also involves sending a subscriber approval request to the second device in order to seek authorization to conduct the transaction (“selectively requesting from the first device the authorization to establish the capability to conduct said at least one financial transaction”). (See Section IX.A.1.ii.)

A POSITA would have further been motivated to implement the Barnett-Waters-White combination in view of Barnett such that when the transaction approval process (“first function”) is enabled (i.e., in response to the proximity and sensor conditions being satisfied), some “second function” of the mobile phone is disabled. (EX1002, ¶95.)

Barnett discloses that “the mobile phone 14 may be programmed with a plurality of different credit card numbers” and “to provide a specific credit card number when the mobile phone 14 is used in making purchases in a specific store.” (EX1005, ¶[0032].) In particular, “the mobile phone 14 may be programmed to

provide a first credit card number when the consumer is in a first store and provide a second credit card number when the consumer is in a second store.” (*Id.*) Barnett discloses that “once this information is initially programmed into the mobile phone 14, the configuration of the mobile phone 14 as a credit card is done automatically simply by placing the mobile phone 14 proximate to the NFC-enabled display 32 so that the desired information may be exchanged between the two.” (*Id.*) In other words, the credit card used for a particular transaction is selected at the time of the transaction so that the “consumer does not have to scroll through menus or follow any other time consuming process simply to configure the mobile phone 14 each time they make a purchase.” (*Id.*; EX1002, ¶96.)

It would have been beneficial to implement the Barnett-Waters-White system/method such that when the transaction approval process (“first function of the smartphone”) is enabled, the phone’s function allowing for the selection of one of several credit cards (“second function of the smartphone”) would have been disabled.⁸ (EX1002, ¶97.) Such an implementation would have provided increased

⁸ These communication/payment “function[s] of the smartphone” (i.e., the transaction approval function (a communication function) and the credit card selection function (a payment function)) are consistent with those described in the ’172 patent, which describes “functions” broadly as encompassing an “ever-

security by limiting the potential exposure of credit card information. (*Id.*) Limiting exposure of the other credit cards not currently being used for a transaction would have been beneficial in order to reduce the risk of unauthorized access to that credit card information. (*Id.*) Disabling the ability to select other credit cards when the mobile phone's NFC capability associated with a first credit card is enabled would have also reduced the risk of accidental charges to a different credit card, and would

increasing suite" of features/tasks, including communication and payment functions. (EX1001, 1:40-44 ("People are relying more and more on mobile wireless devices to perform an ever-increasing suite of function such as, for example, navigation, e-mail, web surfing, streaming video, etc."), 4:39-6:16 (enabling a "pay toll" function), 6:17-8:12 (enabling a communications function), 8:13-65 (enabling a "pay" function), 9:14-24 (describing a "function" broadly as "any number of functions at the mobile subscriber device 14 or even at the mobile subscriber device 15" (i.e., at first or second mobile device), and explaining that the "function enabled can be a financial transaction, the transmission of communications, such as data, and/or some other function that may provision the mobile subscriber device 14 and/or the mobile subscriber device 15 with additional functionality not previously available/activated at the respective devices").)

have streamlined the implementation of the approval process at the consumer's mobile phone. (*Id.*)

A POSITA would have had the skill to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known systems/methods for performing financial transactions using an NFC- or chip-enabled mobile phone (Barnett, Waters, White)) according to known methods (e.g., known methods for selecting certain credit cards for a transaction (Barnett)) to yield the predictable result of a modified Barnett-Waters-White system/method that disables the credit card selection capability when the mobile phone's transaction approval process associated with a first card is enabled ("wherein said enabling a mode to communicate by the smartphone information requesting an authorization comprises enabling a first function of the smartphone while disabling a second function of the smartphone") in response to the proximity and sensor conditions being satisfied, as discussed above. (EX1002, ¶98.) *KSR*, 550 U.S. at 416.

3. Claim 3

i) [3.pre]-[3.c]

The Barnett-Waters-White combination discloses and/or suggests these limitations. (EX1002, ¶¶99-104.)

As discussed for limitations [1.a] and [2.a], in the Barnett-Waters-White system/method, a value of a parameter (e.g., the type/frequency of light, a fingerprint/pressure combination, a skin resistance/pressure combination, or heat) is continuously/repeatedly sensed (“repeatedly sensing the at least one parameter”) and the NFC capability of the mobile device is **only enabled** so long as the value continues to satisfy some criterion (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied) (“comparing a value of the at least one parameter sensed to the criterion”). (See Sections IX.A.1.ii.(1), IX.A.2.i; see EX1006, 15-16.) Indeed, because Waters explains that the NFC capability is **only enabled/operated** when a sensor is actively detecting the light, fingerprint/pressure, skin resistance/pressure, or heat (depending on the sensor implementation), the phone must continuously/repeatedly sense a value of the parameter (“repeatedly sensing said value of the parameter”) and determine whether the value of the parameter satisfies the criterion (“comparing the value of the

parameter to the criterion”) in order to allow the NFC capability to be enabled ***only*** when the sensed value of the parameter actively meets the appropriate criterion. (See, e.g., EX1006, 15 (“the RF tag 41 is ***only enabled*** when the mobile terminal 1 is exposed to light”), 15 (“RF tag 41 is ***only enabled*** when the user physically presses the pressure sensor”), 15 (“[t]he combined sensor detects, not only that pressure is applied, but also that an authorized person is pressing the sensor”), 15 (“configured to detect that the mobile terminal is in a user’s hand by detecting the heat from the hand, and ***only enabling*** the near field tag 41 when heat from the hand is so detected”), 16 (“The near field tag 41 will ***only be operated*** when an appropriate resistance, capacitance or inductance is detected, indicating that the user’s hand is touching the sensor.”); EX1002, ¶100.)

As further discussed, while providing sensor input, a consumer simultaneously brings the mobile phone within proximity of the NFC-enabled POS terminal, and if both the proximity criterion is satisfied and the sensed value of the device parameter satisfies the parameter criterion, then the consumer’s mobile device enables a transaction approval function (“first function of the smartphone”). (See Sections IX.A.1.ii, IX.A.2.i.) The sensed parameter value is repeatedly sensed and compared to the parameter criterion (“comparing a value of the at least one parameter sensed to the criterion” (limitation [3.a]) and “deciding that said value of the at least one parameter continues to satisfy the criterion” (limitation [3.b])), and

provided the criterion continues to be met (and the mobile device is within proximity of the NFC-enabled POS terminal), the mobile device's transaction approval function continues to be enabled until the transaction is complete ("repeatedly deciding, based on comparing a value of the at least one parameter sensed to the criterion, whether or not to maintain enabled said first function while maintaining disabled said second function" (limitation [3.a]) and "maintaining enabled said first function...responsive to deciding that said value of the at least one parameter continues to satisfy the criterion" (limitation [3.b])). (See Sections IX.A.1.ii, IX.A.2.i.) As further discussed for limitation [1.a], the NFC capability is maintained so long as the value of the sensor parameter continues to meet the criterion, but the NFC capability is disabled (and thus the connection between the mobile phone and NFC-enabled POS terminal breaks, disabling the phone's ongoing transaction approval function/process ("first function")) if the criterion is no longer satisfied ("disabling said first function...responsive to deciding that the value of the at least one parameter no longer satisfies the criterion"). (See Section IX.A.1.ii; EX1002, ¶101.)

As discussed for limitation [2.a], a POSITA would have been motivated to implement the Barnett-Waters-White combination in view of Barnett such that when the transaction approval process ("first function") is enabled (i.e., in response to the mobile device being in proximity to the NFC-enabled POS terminal and in response

to sensing that a value of a parameter satisfies some criterion), the mobile phone's capability to select other credit cards ("second function") is disabled. (See Section IX.A.2.i.) For similar reasons, a POSITA would have also been motivated to implement the Barnett-Waters-White combination in view of Barnett such that the ability to select other credit cards ("second function") remains disabled for the entire time the mobile phone is engaged in the transaction approval process for a first credit card (i.e., the time in which the "first function" is enabled), and similarly, so that the ability to select other credit cards ("second function") is enabled again when the mobile phone's transaction approval process associated with a first card ("first function") is disabled. (EX1002, ¶102.) This implementation would have been consistent with the security benefits discussed for limitations [1.a] and [2.a] because it would have further enhanced the device's security features by limiting potential exposure of alternate credit card information by ensuring the ability to select a different credit card remains disabled for the entire transaction approval process. (*Id.*; see also Section IX.A.2.i.) Reenabling the ability to select a different credit card as soon as the transaction approval is complete (i.e., when the first function is disabled) would have also enhanced efficiency and flexibility by allowing for another transaction to be performed, potentially with a different credit card. (EX1002, ¶102.)

A POSITA would have had the skill to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known systems/methods for performing financial transactions using an NFC- or chip-enabled mobile phone (Barnett, Waters, White)) according to known methods (e.g., known methods for selecting certain credit cards for a transaction (Barnett)) to yield the predictable result of a modified Barnett-Waters-White system/method that disables the credit card selection capability when the mobile phone's transaction approval process associated with a first card is enabled, and enables the credit card selection capability again when the transaction approval process associated with the first card is disabled. (*Id.*, ¶103.) *KSR*, 550 U.S. at 416.

Consistent with the above and in such a combined system, for example, a consumer would provide a sensor input to activate the NFC capability and would simultaneously bring the phone in proximity of the NFC-enabled POS terminal to initiate the transaction, thus triggering the transaction approval function of the phone ("first function of the smartphone"). (EX1002, ¶104.) The value of a parameter (e.g., the type/frequency of light, a fingerprint/pressure combination, a skin resistance/pressure combination, or heat) would be repeatedly sensed ("repeatedly sensing the at least one parameter") and the NFC capability of the mobile device would only be enabled so long as the value continues to satisfy some criterion (e.g.,

the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied) (“comparing a value of the at least one parameter sensed to the criterion”). (*Id.*) The sensed parameter would be repeatedly sensed and compared to the parameter criterion, and provided the criterion continues to be met (and the mobile device remains within proximity of the NFC-enabled POS terminal), the mobile device’s transaction approval function would remain enabled until the transaction is complete (“repeatedly deciding, based on comparing a value of the at least one parameter sensed to the criterion, whether or not to maintain enabled said first function”). (*Id.*) While the transaction approval function is still enabled (i.e., while the value of the parameter still satisfies the criterion and while the proximity criterion is met), the ability to select another credit card for a transaction would be disabled (i.e., because the transaction approval is in progress) (“while maintaining disabled said second function”). (*Id.*) The transaction approval capability would remain enabled so long as the sensed parameter continues to satisfy the parameter criterion and the mobile device satisfies the proximity criterion, and similarly the ability to select a different credit card would also remain disabled during that time (“maintaining enabled said first function while maintaining disabled said second function responsive to deciding that said value of the at least one parameter continues”).

to satisfy the criterion”). (*Id.*) However, if the sensed parameter no longer satisfies the criterion (i.e., indicating that the transaction approval is no longer taking place), the transaction approval function would end (i.e., be disabled) and the ability to select a different credit card would be enabled again (e.g., so that another transaction may take place) (“disabling said first function and enabling said second function responsive to deciding that the value of the at least one parameter no longer satisfies the criterion”). (*Id.*)

4. Claim 4

i) [4.pre]-[4.a]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶105.) As discussed for limitation [1.a], in the Barnett-Waters-White combination, the consumer initiates a transaction by bringing their mobile device within proximity of the NFC-enabled POS terminal and providing some sensor input to the phone (that satisfies a specified criterion for a light sensor, fingerprint/pressure sensor, skin resistance/pressure sensor, or heat sensor) to simultaneously activate the phone’s NFC tag (“at least one parameter having been sensed by the at least one sensor of the smartphone and...having determined that the at least one parameter that is sensed satisfies the criterion”). (*See* Section IX.A.1.ii.) If the user’s smartphone detects that the proximity condition is met and the parameter sensed satisfies the criterion (“responsive to the at least one parameter having been

sensed by the at least one sensor of the smartphone and is further responsive to having determined that the at least one parameter that is sensed satisfies the criterion”), then the consumer’s mobile phone will initiate a transaction approval process that involves the consumer’s phone sending a subscriber approval request to an approving device (“transmitting by the smartphone first data to a first device”) to request approval to perform the transaction. (*Id.*)

ii) [4.b]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶106.) As discussed for limitation [1.a], in the Barnett-Waters-White system/method, a consumer’s mobile device selectively requests authorization for a transaction based on the card used or approval rules in place (e.g., requests authorization from the card owner’s device or proxy subscriber approval server) and sends a subscriber approval request (“transmitting by the smartphone the first data”) to that approving device. (*See* Section IX.A.1.ii.) As further discussed for limitation [1.a], the approving device (“first device”) may authorize the transaction by returning a subscriber approval response (“second data”) to the consumer’s mobile device (“wherein said receiving by the smartphone second data from the first device”) in response to the received subscriber approval request (“responsive to said transmitting by the smartphone the first data”). (*Id.*) As discussed, this approval response provides the consumer’s phone with the

authorization to establish and use the capability to conduct the financial transaction (“receiving by the smartphone information relating to an acknowledgement and/or authorization to establish and use the capability to perform said at least one financial transaction”). (*Id.*) The receipt of the subscriber approval response also serves as an acknowledgment to the subscriber approval request. (EX1002, ¶106.) Thus, receipt of the subscriber approval response by the mobile device in the Barnett-Waters-White system includes receiving information relating to an acknowledgement and/or authorization to establish and use the capability to perform said at least one financial transaction, as claimed. (*Id.*)

5. Claim 6

i) [6.pre]-[6.a]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶107.) As discussed for limitation [1.a], in the Barnett-Waters-White system/method, a consumer’s mobile device is Wi-Fi enabled and sends a subscriber approval request to the approver’s device (e.g., the card owner’s device or proxy subscriber approval server) (“transmitting by the smartphone first data to a first device”) and receives approval via a subscriber approval response (“receiving by the smartphone second data from the first device”) by wirelessly transmitting and receiving information over the store’s Wi-Fi network (“wirelessly

transmitting/receiving by the smartphone using...a WiFi air interface protocol").⁹

(See Section IX.A.1.ii.)

6. Claim 7

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶108.) In particular, Barnett explains that the consumer may complete a transaction by using the mobile phone as a debit card, which is used to pay for products by withdrawing money from an account (“wherein said paying for a product further comprises deducting/withdrawing an amount of money from an account”). (EX1005, ¶¶[0013], [0040]; EX1002, ¶108.)

⁹ This claim limitation recites several options in the alternative. By teaching “wirelessly transmitting/receiving by the smartphone using...a WiFi air interface protocol,” the remaining options are not required.

7. Claim 8¹⁰

i) [8.pre]-[8.a]

The Barnett-Waters-White combination discloses and/or suggests these limitations. (EX1002, ¶¶109-112.)

As discussed for limitation [1.f], in the Barnett-Waters-White combination, NFC involves communication using unlicensed frequencies. (*See* Section IX.A.1.vii.) While NFC communication does not use unlicensed frequencies in a Time Division Duplex operation, a POSITA would have further been motivated to implement the Barnett-Waters-White combination in view of Barnett such that the communication between a consumer’s mobile phone and the POS terminal occurs via Bluetooth instead of NFC. (EX1002, ¶110.) Bluetooth “us[es] unlicensed frequencies in a Time Division Duplex operation” as these were standard features of Bluetooth communication. (EX1005, ¶[0017]; EX1008, 48:5-6.)¹¹

¹⁰ Because limitation [8.b] recites “and/or” language, only one of limitations [8.a], [8.b], or [8.c] is required by claim 8. (*See* Appendix A.) Petitioner nevertheless demonstrates how the Barnett-Waters-White combination discloses and/or suggests each limitation.

¹¹ As noted above for claim limitation [1.f], the term “unlicensed frequencies” should also not receive patentable weight. (*See* Section IX.A.1.vii.)

In particular, Barnett explains that a consumer's mobile phone may also be "adapted to communicate with...a Bluetooth system" in addition to NFC. (EX1005, ¶[0012].) Barnett discloses that instead of the displays 32 (used as POS terminals) being NFC-enabled displays, "[a]lternatively, the displays 32 may be Bluetooth-enabled communications devices" such that "when a Bluetooth-enabled mobile phone is located near the display 32, information is transmitted between the Bluetooth-enabled mobile phone 14 and the display 32." (*Id.*, ¶[0022]; EX1002, ¶111.) Barnett discloses that Bluetooth is beneficial because it "provide[s] low-rate mesh networking, allowing low-cost devices to form networks within the retail environment." (EX1005, ¶[0017].) A POSITA would have thus been motivated to consider Bluetooth instead of or in addition to NFC when implementing the communication features between a mobile phone and POS terminal in the Barnett-Waters-White system/method. (EX1002, ¶111.) Bluetooth would have been beneficial in stores where a longer communication range is desired (e.g., up to 10 meters), or where faster data transfer speeds are desired. (*Id.*)

A POSITA would have also had a reasonable expectation of success in implementing the Barnett-Waters-White system/method in view of Barnett in this manner because it would have involved an implementation that Barnett already suggests is feasible—using Bluetooth instead of NFC to perform transactions using mobile phones at POS terminals. (*Id.*, ¶112.) A POSITA would have had the skill

to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known systems/methods for performing financial transactions using an NFC- or chip-enabled mobile phone (Barnett, Waters, White)) according to known methods (e.g., known methods of using Bluetooth instead of NFC for mobile phone transactions at POS terminals (Barnett)) to yield the predictable result of a modified Barnett-Waters-White system/method that further uses Bluetooth (which “us[e]s unlicensed frequencies in a Time Division Duplex operation,” as discussed above) communication instead of NFC. (EX1002, ¶112.) *KSR*, 550 U.S. at 416.

ii) [8.b]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶¶113-114.) As discussed for limitation [1.a], a mobile phone sending payment information to the POS terminal (“wherein said selectively sending information to at least one device comprises selectively, sending information to the access point maintained by the vendor at the point of purchase counter”) also involves sending that information to a financial institution’s device (“selectively sending information...to at least one other device that is predetermined”), since the POS terminal forwards the payment information to an authorization entity such as a financial institution. (See Section IX.A.1.ii.) This financial institution device would

have corresponded to the issuer of the card used for the transaction, and thus would have been a “predetermined” device. (EX1002, ¶114.)

iii) [8.c]

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶¶115-116.) As discussed for limitation [1.a], a consumer’s mobile phone receives information from various devices throughout the purchasing/approval process, including receiving purchase information from the POS terminal (“selectively receiving information from the access point maintained by the vendor at the point of purchase counter”) before the authorization process occurs, as well as receiving a subscriber approval response from a predetermined second device (a device corresponding to the owner of the chosen credit card or the proxy subscriber approval server) authorizing the transaction (“selectively receiving information...from at least one other device that is predetermined”). (See Section IX.A.1.ii.)

8. Claim 9

i) [9.pre]

To the extent the preamble is limiting, Barnett discloses the limitations therein. (EX1002, ¶117.) As discussed for limitation [1.pre], Barnett discloses a mobile phone (“smartphone”) with “smart” features to perform the functions of a Wi-Fi device, a contact-less credit/debt card, and a cell phone. (See Section

IX.A.1.i.) As further discussed for limitation [1.pre], the phone (“smartphone”) is configured such that, in response to a consumer bringing the phone within a short distance of the NFC interface of the NFC-enabled display 32 (serving as an NFC-enabled payment register), the phone performs operations as part of a two-step process to first enable NFC transmission between the phone and display 32, thus establishing the capability at the phone to perform a purchase/transaction at the NFC display 32, and second, to transmit transaction data between the mobile phone and NFC display 32, thus using the capability to perform a purchase/transaction (“configured to perform operations, comprising a two-step process, associated with establishing and using a capability in order to perform at least one financial transaction”). (See Section IX.A.1.i.; EX1002, ¶117.)

ii) [9.a]-[9.g]

The Barnett-Waters-White combination discloses and/or suggests these limitations for the same reasons as discussed for limitations [1.a]-[1.g]. (EX1002, ¶118; see Section IX.A.1.ii-viii.)

9. Claim 10

i) [10.pre]-[10.a]

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitations [2.pre]-[2.a]. (EX1002, ¶119; see Section IX.A.2.i.)

10. Claim 11

i) [11.pre]-[11.c]

The Barnett-Waters-White combination discloses and/or suggests these limitations for the same reasons as discussed for limitations [3.pre]-[3.c]. (EX1002, ¶120; *see* Section IX.A.3.i.)

11. Claim 12

i) [12.pre]-[12.b]¹²

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitations [4.pre]-[4.b]. (EX1002, ¶121; *see* Sections IX.A.4.i-ii.)

12. Claim 14

i) [14.pre]-[14.a]

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitations [6.pre]-[6.a]. (EX1002, ¶122; *see* Section IX.A.5.i.)

¹² Petitioner assumes that the language “use t capability” in limitation [12.b] is intended to read “use the capability,” similar to that recited in limitation [4.b]. (*See* Section IX.A.4.ii; Appendix A.)

13. Claim 15

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for claim 7. (EX1002, ¶123; *see* Section IX.A.6.)

14. Claim 16

i) [16.pre]-[16.c]

The Barnett-Waters-White combination discloses and/or suggests these limitations for the same reasons as discussed for limitations [8.pre]-[8.c]. (EX1002, ¶124; *see* Section IX.A.7.i-iii.)

B. Ground 2: Barnett, Waters, White, and Smith Render Obvious Claims 5, 8, 13, and 16

1. Claim 5

i) [5.pre]-[5.a]

Barnett in view of Waters, White, and Smith discloses and/or suggests this limitation. (EX1002, ¶¶125-137.)

As discussed for limitation [1.a], when a mobile phone completes a financial transaction (“responsive to performing a financial transaction”), the phone sends payment information to both the POS terminal device and to a financial institution’s device (“causing data to be transmitted selectively to at least one device”), since the POS terminal forwards the payment information to an authorization entity such as a financial institution. (*See* Section IX.A.1.ii.) This financial institution device would

have corresponded to the issuer of the card used for the transaction, and thus payment information would have been transmitted “selectively” to the financial institution’s device based on the card used for the transaction. (EX1002, ¶126.)

While the Barnett-Waters-White combination does not explicitly disclose and/or suggest “responsive to performing a financial transaction...*further causing data to be received selectively from at least one device*,” the Barnett-Waters-White combination further in view of Smith discloses and/or suggests this limitation. (*Id.*, ¶127.)

As discussed for limitation [1.a], White discloses that after the consumer’s mobile phone sends payment information to the POS device, the POS device sends the payment information to an authorization entity (e.g., a device of a predetermined financial institution), which returns a response upon authorization to complete the payment approval process. (Section IX.A.1.ii.(2); EX1007, 3:31-39, 3:56-58, 7:40-44.) However, White does not disclose what the authorization response is used for, or which devices receive the response. A POSITA would have thus had good reason to consider Smith’s implementation, which as discussed below, discloses that the response returned by the authorization entity is used by the point-of-sale terminal to generate and transmit a receipt to the consumer’s phone. (EX1002, ¶128.)

Like Barnett, Waters, and White, Smith discloses a system/method of using a mobile device to perform a financial transaction at a point-of-sale device. (*Id.*,

¶129.) Smith relates to “[e]lectronic transactions involving the transfer of money,” including those involving “[g]oods and services...purchased...using credit or debit accounts with electronic authorization.” (EX1018, 1:17-20.) Smith describes electronic transactions occurring between a “purchaser device” (e.g., a “wireless purchasing device (WPD)”) and a “vendor device at a point-of-sale.” (*Id.*, 4:5-21.) The wireless purchaser device “may take the form of a personal digital assistant (PDA), a wireless phone or some other wireless communication device.” (*Id.*, 4:19-21.) Smith explains that the wireless purchaser device and the vendor point-of-sale device may operate in a wireless system, where communication between the two devices may occur through various short-range wireless networking technologies. (*Id.*, 4:22-26, 6:12-20, 6:30-7:6.) Thus, Smith is similar to Barnett, Waters, and White, which also disclose systems/methods of purchasing products at a point-of-sale terminal using short-range wireless communication technologies (e.g., NFC). (*See* Sections IX.A.1.i, IX.A.1.ii.(1)-(2); EX1002, ¶129.) A POSITA would have therefore been motivated to consider the teachings of Smith when implementing the Barnett-Waters-White system/method. (EX1002, ¶129.)

Smith additionally discloses that its system/method allows for the vendor point-of-sale device to transmit electronic receipts to the purchaser device after a transaction is authorized and completed. (*Id.*, ¶130.) Smith explains that “[t]ransactions involving a credit or debit account require authorization from the

organization who issues the card,” where “authorization is generally obtained at the point-of-sale by a vendor through electronic communications channels.” (EX1018, 1:26-28.) Smith discloses that purchase/account information is transmitted to a card issuer or authorization provider, and the vendor may in return receive an authorization code if the transaction is successful (i.e., if the account has sufficient credit/funds to cover the transaction). (*Id.*, 1:28-34, 2:2-5, 9:4-30.)

Following authorization by the card issuer or authorization processor, Smith discloses that “an electronic receipt will be generated by a vendor device at a point-of-sale.” (*Id.*, 4:5-6.) “When a transaction takes place, an electronic receipt may be transmitted from the vendor device to a purchaser device where the receipt may be stored for further processing within the device or for further transmission to other devices and systems.” (*Id.*, 4:6-8; *see also id.*, 4:15-17.) Smith explains that the receipt is transmitted from the point-of-sale device to the purchaser device using the short-range wireless connection. (*Id.*, 4:23-24, 6:16-17, 7:6-8; EX1002, ¶131.)

Smith discloses that the receipt generated at the point-of-sale device may include “authorization information,” as well as other “purchase transaction information including, but not limited to, total purchase price, vendor ID, purchaser ID, item descriptions, itemized pricing, purchase date, purchase time, discount information, creditor information, ..., receipt management information and other transaction information.” (EX1018, 7:34-8:3; *see also id.*, 3:33-4:2.) Smith also

discloses that the purchaser device may “transfer...receipt information...to [a] secondary computing device 30 for further processing, storage, archiving and other functions.” (*Id.*, 8:12-14.) The secondary computing device 30 may be a “web server 42” that can “compile[] receipt information including itemized and categorized purchase and budget information” and later “transmit compiled information 48 back to purchaser device 2 for display and reference.” (*Id.*, 8:15-23; *see also id.*, 7:10-23; EX1002, ¶132.)

Thus, Smith discloses that after a purchase is completed (“responsive to performing a financial transaction”), a consumer’s phone may receive a receipt from the vendor point-of-sale device used in the transaction, where the receipt received by the consumer’s phone may also include authorization information from an authorization entity/device. (EX1002, ¶133.) In addition, the consumer’s phone may also receive compiled receipt information from a secondary computing device. (*Id.*) In other words, Smith discloses that after a purchase is complete, information may be selectively received (e.g., based on the credit card and POS terminal used) from at least three devices, including the vendor point-of-sale device, an authorization entity/device, and a secondary computing device (“further causing data to be received selectively from at least one device”). (*Id.*)

A POSITA would have been motivated to modify the Barnett-Waters-White combination to use the response returned by the authorization entity to provide a

receipt, similar to that disclosed by Smith, so that after completing a transaction, a consumer's phone may receive the receipt for the transaction, as well as compiled information relating to multiple transactions. (*Id.*, ¶134.) Providing a receipt to a consumer would have offered numerous benefits, including providing proof of purchase, the amount of the purchase, and a record of the transaction for tracking purposes, as well as providing a means for consumers to later make a return or exchange of the purchased goods. (*Id.*)

In addition, allowing a consumer to later retrieve compiled receipt information from a secondary computing device (e.g., web server), similar to that disclosed by Smith, would have had organizational and efficiency benefits as well, as it would have allowed a user to more effectively track purchases and manage/budget their finances. (*Id.*, ¶135.) Indeed, Smith discloses that “[w]eb server 42 may further provide banking, automated bill payment, tax preparation and other financial services in connection with receipt information management.” (EX1018, 8:18-20.) Thus, these financial planning and management tasks would have been enhanced by the ability for a consumer's phone to receive receipt information, including individual receipts from a point-of-sale terminal and compiled receipts from a secondary computing device/server. (EX1002, ¶135.)

A POSITA would have also had a reasonable expectation of success combining the teachings of Barnett, Waters, White, and Smith. (EX1002, ¶136.) As

discussed above, both references are in the same field of art. Moreover, Barnett suggests that its system/method is flexible and modifications to the NFC-enabled mobile phone are contemplated. (EX1005, ¶[0044].) Smith similarly discloses that its receipt feature can be adapted to a variety of short-range wireless communication methods. (EX1018, 4:22-26, 6:12-20, 6:30-7:6.) Thus, it would have been straightforward to modify the NFC-based system of the Barnett-Waters-White combination to include a receipt feature similar to that disclosed by Smith. (EX1002, ¶136.)

A POSITA would have had the skill to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known system/method for performing financial transactions using an NFC-enabled mobile phone (Barnett, Waters, and White)) according to known methods (e.g., known methods of transmitting receipt information from a POS terminal and secondary computing device (Smith)) to yield the predictable result of a modified Barnett-Waters-White-Smith system/method that implements a receipt feature in which a user's phone may receive receipt information (including authorization information from an authorization entity) from a POS terminal, as well as compiled receipt information from a secondary computing device/server. (EX1002, ¶137.) *KSR*, 550 U.S. at 416.

2. Claim 8¹³

i) [8.pre]-[8.b]

The Barnett-Waters-White combination discloses and/or suggests these limitations for the same reasons as discussed for Ground 1, limitations [8.pre]-[8.b]. (EX1002, ¶138; *see* Sections IX.A.7.i-ii.)

ii) [8.c]

Barnett in view of Waters, White, and Smith discloses and/or suggests this limitation. (EX1002, ¶¶139-140.)

As discussed for Ground 1, limitation [8.c], the Barnett-Waters-White combination discloses and/or suggests this limitation because the consumer's phone receives purchase information from the POS terminal ("selectively receiving information from the access point maintained by the vendor at the point of purchase counter") before the authorization process occurs, and receives a subscriber approval response from a predetermined second device (a device corresponding to the owner of the chosen credit card or the proxy subscriber approval server) authorizing the

¹³ Because limitation [8.b] recites "and/or" language, only one of limitations [8.a], [8.b], or [8.c] is required by claim 8. Petitioner nevertheless demonstrates how the Barnett-Waters-White combination discloses and/or suggests each limitation. (*See also* n.10.)

transaction (“selectively receiving information...from at least one other device that is predetermined”). (See Section IX.A.5.ii; EX1002, ¶139.)

To the extent this limitation is found to require that the “selectively receiving information from the access point maintained by the vendor at the point of purchase counter and from at least one other device that is predetermined” occurs after payment is complete, the Barnett-Waters-White combination further in view of Smith discloses and/or suggests this limitation for the same reasons as discussed for Ground 2, limitation [5.a]. (EX1002, ¶140; Section IX.B.1.i.) Indeed, as discussed for Ground 2, limitation [5.a], in the Barnett-Waters-White-Smith combination, after a purchase is completed, a consumer’s phone may receive a receipt from the vendor point-of-sale device used in the transaction (“selectively receiving information from the access point maintained by the vendor at the point of purchase counter”), where the receipt received by the consumer’s phone may also include authorization information from an authorization entity/device (“selectively receiving information...from at least one other device that is predetermined”). (EX1002, ¶140; Section IX.B.1.i.) In addition, the consumer’s phone may also receive compiled receipt information from a secondary computing device (“selectively receiving information...from at least one other device that is predetermined”). (EX1002, ¶140; Section IX.B.1.i.)

3. Claim 13

i) [13.pre]-[13.a]

The Barnett-Waters-White-Waters combination discloses and/or suggests this limitation for the same reasons as discussed for Ground 2, limitations [5.pre]-[5.a]. (EX1002, ¶141; *see* Section IX.B.1.i.)

4. Claim 16

i) [16.pre]-[16.b]

The Barnett-Waters-White combination discloses and/or suggests these limitations for the same reasons as discussed for Ground 1, limitations [8.pre]-[8.b]. (EX1002, ¶142; *see* Sections IX.A.7.i-ii.)

ii) [16.c]

The Barnett-Waters-White-Smith combination discloses and/or suggests this limitation for the same reasons as discussed for Ground 2, limitation [8.c]. (EX1002, ¶143; *see* Section IX.B.2.ii.)

X. DISCRETIONARY DENIAL IS NOT APPROPRIATE

In view of the Patent Office's interim process regarding discretionary denial, Petitioner will substantively address this issue during discretionary denial briefing.

XI. CONCLUSION

Petitioner requests institution of IPR for claims 1-16 of the '172 patent based on the grounds specified in this petition.

Respectfully submitted,

Dated: August 6, 2025

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing
Petition for *Inter Partes* Review of U.S. Patent No. 11,937,172 contains, as
measured by the word-processing system used to prepare this paper, 13,954 words.
This word count does not include the items excluded by 37 C.F.R. § 42.24 as not
counting towards the word limit.

Respectfully submitted,

Dated: August 6, 2025

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CERTIFICATE OF SERVICE

I hereby certify that on August 6, 2025, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 11,937,172 and supporting exhibits to be served via express mail on the Patent Owner at the following correspondence address of record as listed on Patent Center:

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XII. APPENDIX A (CLAIM LISTING)

[1.pre]	A method of operating a smartphone in performing at least one financial transaction; the method including a two-step process in establishing and using a capability in order to perform said at least one financial transaction; the method comprising:
[1.a]	responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability;
[1.b]	while the mode is enabled, and as a precursor to performing a second step of said two-step process, transmitting by the smartphone first data to a first device requesting the authorization to establish said capability to perform said at least one financial transaction; and
[1.c]	receiving by the smartphone second data from the first device, comprising the authorization, responsive to said transmitting by the smartphone the first data; then
[1.d]	performing the second step of said two-step process comprising performing a first transaction of said at least one financial transaction, responsive to detecting by the smartphone that a proximity condition is satisfied and responsive to sensing the at least one parameter and determining that the at least one parameter sensed satisfies the criterion;
[1.e]	wherein said performing the second step of said two-step process comprises sensing that the proximity condition is satisfied relative to an access point maintained by a vendor at a point of purchase counter, by detecting a short-range signal that is transmitted by the access point, determining that a value of the at least one parameter that is sensed satisfies the criterion and then, responsive to having sensed that the proximity condition is satisfied relative to the access point and having determined that the value of the at least one parameter sensed satisfies the criterion, paying for a product by selectively sending information to at least one device;
[1.f]	wherein said paying for a product by selectively sending information to at least one device comprises selectively and wirelessly transmitting information to the at least one device using unlicensed frequencies; and

[1.g]	wherein said at least one parameter comprises a signal, a number, a word, a code, a velocity, an acceleration, a time-of-day, a humidity, a temperature, a height, a level of brightness, a level of darkness, a blood pressure, a heart rate, a blood content, a physiological state and/or a psychological state.
[2.pre]	The method of claim 1,
[2.a]	wherein said enabling a mode to communicate by the smartphone information requesting an authorization comprises enabling a first function of the smartphone while disabling a second function of the smartphone responsive to the at least one parameter having been sensed by the at least one sensor of the smartphone and further responsive to having determined that the at least one parameter that is sensed satisfies the criterion; and then selectively communicating with the first device by using a communications capability of the first function, selectively establishing a master-slave relationship with the first device, and selectively requesting from the first device the authorization to establish the capability to conduct said at least one financial transaction.
[3.pre]	The method of claim 2, further comprising:
[3.a]	repeatedly sensing the at least one parameter and repeatedly deciding, based on comparing a value of the at least one parameter sensed to the criterion, whether or not to maintain enabled said first function while maintaining disabled said second function; and
[3.b]	maintaining enabled said first function while maintaining disabled said second function responsive to deciding that said value of the at least one parameter continues to satisfy the criterion; or
[3.c]	disabling said first function and enabling said second function responsive to deciding that the value of the at least one parameter no longer satisfies the criterion.
[4.pre]	The method of claim 1,
[4.a]	wherein said transmitting by the smartphone first data to a first device is responsive to the at least one parameter having been sensed by the at least one sensor of the smartphone and is further responsive to having determined that the at least one parameter that is sensed satisfies the criterion; and

[4.b]	wherein said receiving by the smartphone second data from the first device is responsive to said transmitting by the smartphone the first data and comprises receiving by the smartphone information relating to an acknowledgement and/or authorization to establish and use the capability to perform said at least one financial transaction.
[5.pre]	The method of claim 1, further comprising:
[5.a]	responsive to performing a financial transaction, causing data to be transmitted selectively to at least one device and further causing data to be received selectively from at least one device.
[6.pre]	The method of claim 1,
[6.a]	wherein said transmitting by the smartphone first data to a first device and receiving by the smartphone second data from the first device comprises wirelessly transmitting/receiving by the smartphone using unlicensed frequencies, licensed frequencies, a WiFi air interface protocol, an Orthogonal Frequency Division Multiplexing air interface protocol and/or an Orthogonal Frequency Division Multiple Access air interface protocol.
[7]	The method of claim 1, wherein said paying for a product further comprises deducting/withdrawing an amount of money from an account.
[8.pre]	The method of claim 7,
[8.a]	wherein said using unlicensed frequencies comprises using unlicensed frequencies in a Time Division Duplex operation;
[8.b]	wherein said selectively sending information to at least one device comprises selectively, sending information to the access point maintained by the vendor at the point of purchase counter and to at least one other device that is predetermined; and/or
[8.c]	wherein the method further comprises selectively receiving information from the access point maintained by the vendor at the point of purchase counter and from at least one other device that is predetermined.
[9.pre]	A smartphone that is configured to perform operations, comprising a two-step process, associated with establishing and using a capability in order to perform at least one financial transaction; the operations comprising:
[9.a]	responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate information requesting an authorization to establish said capability;

[9.b]	while the mode is enabled, and as a precursor to performing a second step of said two-step process, transmitting first data to a first device requesting the authorization to establish said capability to perform said at least one financial transaction; and
[9.c]	receiving second data from the first device, comprising the authorization, responsive to said transmitting the first data; then
[9.d]	performing the second step of said two-step process comprising performing a first financial transaction of said at least one financial transaction, responsive to detecting by the smartphone that a proximity condition is satisfied and responsive to sensing the at least one parameter and determining that the at least one parameter sensed satisfies the criterion;
[9.e]	wherein said performing the second step of said two-step process comprises sensing that the proximity condition is satisfied relative to an access point maintained by a vendor at a point of purchase counter, by detecting a short-range signal that is transmitted by the access point, determining that a value of the at least one parameter that is sensed satisfies the criterion and then, responsive to having sensed that the proximity condition is satisfied relative to the access point and having determined that the value of the at least one parameter sensed satisfies the criterion, paying for a product by selectively sending information to at least one device;
[9.f]	wherein said paying for a product by selectively sending information to at least one device comprises selectively and wirelessly transmitting information to the at least one device using unlicensed frequencies; and
[9.g]	wherein said at least one parameter comprises a signal, a number, a word, a code, a velocity, an acceleration, a time-of-day, a humidity, a temperature, a height, a level of brightness, a level of darkness, a blood pressure, a heart rate, a blood content, a physiological state and/or a psychological state.
[10.pre]	The smartphone of claim 9,

[10.a]	wherein said enabling a mode to communicate by the smartphone information requesting an authorization comprises enabling a first function of the smartphone while disabling a second function of the smartphone responsive to the at least one parameter having been sensed by the at least one sensor of the smartphone and further responsive to having determined that the at least one parameter that is sensed satisfies the criterion; and then selectively communicating with the first device by using a communications capability of the first function, selectively establishing a master-slave relationship with the first device, and selectively requesting from the first device the authorization to establish the capability to conduct said at least one financial transaction.
[11.pre]	The smartphone of claim 10, wherein the operations further comprise:
[11.a]	repeatedly sensing the at least one parameter and repeatedly deciding, based on comparing a value of the at least one parameter sensed to the criterion, whether or not to maintain enabled said first function while maintaining disabled said second function; and
[11.b]	maintaining enabled said first function while maintaining disabled said second function responsive to deciding that said value of the at least one parameter continues to satisfy the criterion; or
[11.c]	disabling said first function and enabling said second function responsive to deciding that the value of the at least one parameter no longer satisfies the criterion.
[12.pre]	The smartphone of claim 9,
[12.a]	wherein said transmitting first data to a first device is responsive to the at least one parameter having been sensed by the at least one sensor of the smartphone and is further responsive to having determined that the at least one parameter that is sensed satisfies the criterion; and
[12.b]	wherein said receiving by the smartphone second data from the first device is responsive to said transmitting by the smartphone the first data and comprises receiving by the smartphone information relating to an acknowledgement and/or authorization to establish and use t capability to perform said at least one financial transaction.
[13.pre]	The smartphone of claim 9, wherein the operations further comprise:
[13.a]	responsive to performing a financial transaction, causing data to be transmitted selectively to at least one device and further causing data to be received selectively from at least one device.
[14.pre]	The smartphone of claim 9,

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[14.a]	wherein said transmitting first data to a first device and said receiving second data from the first device comprises wirelessly transmitting/receiving by the smartphone using unlicensed frequencies, licensed frequencies, a WiFi air interface protocol, an Orthogonal Frequency Division Multiplexing air interface protocol and/or an Orthogonal Frequency Division Multiple Access air interface protocol.
[15]	The smartphone of claim 9, wherein said paying for a product further comprises deducting/withdrawing an amount of money from an account.
[16.pre]	The smartphone of claim 9,
[16.a]	wherein said using unlicensed frequencies comprises using unlicensed frequencies in a Time Division Duplex operation;
[16.b]	wherein said selectively sending information to at least one device comprises selectively sending information to the access point maintained by the vendor at the point of purchase counter and to at least one other device that is predetermined; and/or
[16.c]	wherein the operations further comprise selectively receiving information from the access point maintained by the vendor at the point of purchase counter and from at least one other device that is predetermined.