

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DECURTIS LLC
Petitioner,

v.

CARNIVAL CORPORATION,
Patent Owner.

IPR2021-00783
Patent 10,157,514 B2

Before THOMAS L. GIANNETTI, NEIL T. POWELL, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

POWELL, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. BACKGROUND

DeCurtis LLC (“Petitioner”) filed a Petition for *inter partes* review of claim 11 of U.S. Patent No. 10,157,514 B2 (Ex. 1001, “the ’514 patent”). Paper 1 (“Pet.”). Patent Owner, Carnival Corporation, filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018). An *inter partes* review may not be instituted on fewer than all claims challenged in the Petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

Having considered the Petition and the Preliminary Response, we deny institution of *inter partes* review for the reasons provided below.

B. RELATED PROCEEDINGS

The parties indicate that the ’514 patent is involved in *DeCurtis LLC v. Carnival Corp*, Case No. 1:20-cv-22945-RNS (S.D. Fla.). Pet. 3; Paper 5, 2. Petitioner indicates that two additional patents (US 10,045,184 and US 10,049,516) are the subject of petitions for *inter partes* review proceedings. Pet. 3.

C. THE ’514 PATENT

The ’514 patent discloses a guest engagement system that provides guest services, including unlocking doors automatically. Ex. 1001, code (57). The system employs individual guest devices, which guests

carry. *Id.* The system uses the guest devices to “automatically identify and authenticate the guests.” *Id.*

The guest engagement system may use “Bluetooth low energy (BLE) communications.” *Id.* at 2:12–24. Each guest device may “emit a periodic beacon signal broadcasting a unique identifier of the guest device” using BLE. *Id.* at 2:12–19. The guest engagement system may have a sensor network with distributed sensors that detect the guest devices’ beacon signals using BLE. *Id.* at 2:19–24.

The ’514 patent discloses details in connection with Figure 1A, which is reproduced below.

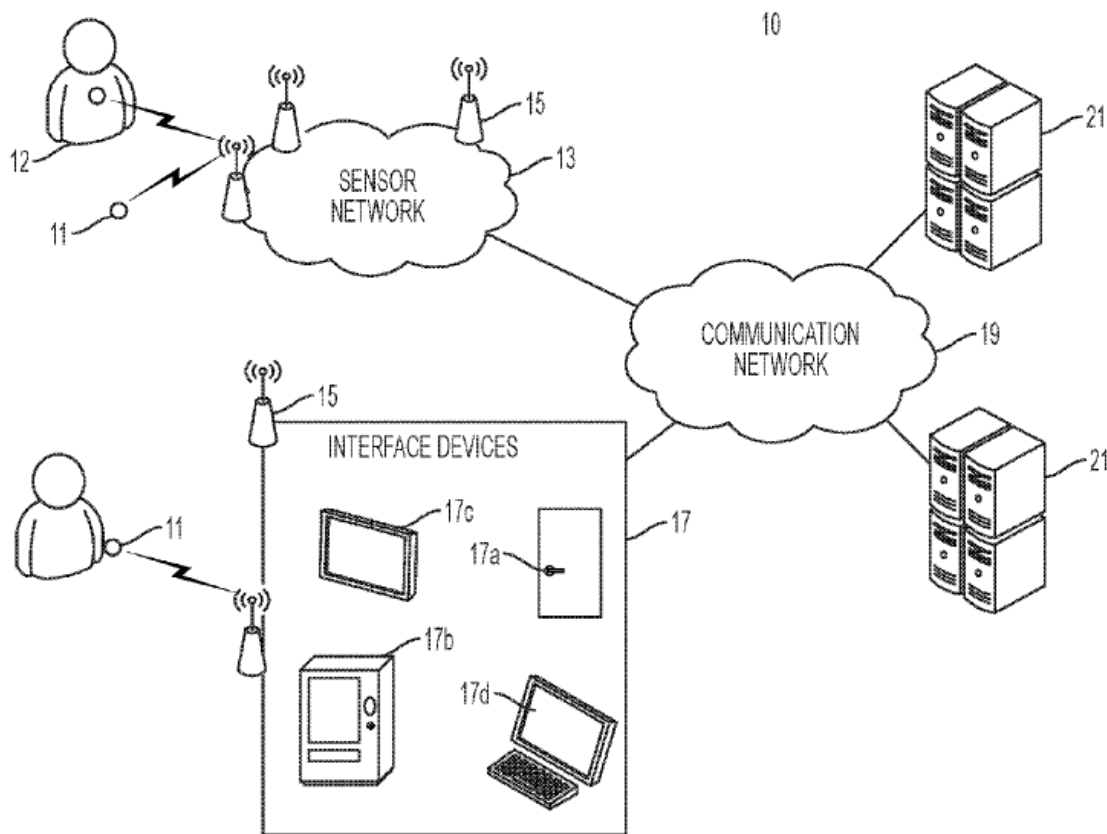


FIG. 1A

Figure 1A shows guest engagement system 10, which includes sensor network 13, interface devices 17, communication network 19, and servers 21. *Id.* at 5:27–28, 6:19–49, 6:66–7:6.

Sensor network 13 includes sensors 15. 6:19–22. Sensors 15 are “configured to communicate wirelessly with guests’ medallions 11.” *Id.* “A sensor 15 of the network may be used for sensing a guest’s location (or proximity to the sensor 15), for example by detecting beacon signals or other signals emitted by the medallion 11.” *Id.* at 6:21–25. Additionally,

A sensor 15 may also be located in or otherwise associated with a particular interface device 17 or interface function of the system, such as a sensor that is associated with a door lock 17*a*, an automatic door or turnstile, a vending terminal 17*b*, a cash register, a slot machine, an interactive display 17*c* or portal 17*d*, or the like.

Id. at 6:28–33.

Servers 21 are in communication with various components of guest engagement system 10. *Id.* at 6:66–7:4. Communication is provided between various components of guest engagement system 10 by “one or more communication network[s] 19.” *Id.* at 7:4–6.

The ’514 patent also explains that

In one example, the guest engagement system 10 includes at least one authentication server used to authenticate guests’ medallions and provide encryption and decryption services. The system can further include one or more servers storing databases of guest information (e.g., guest reservations), payment transaction servers (e.g., including guest billing information), location information (e.g., locations of sensors 15 within the facility, and

locations of medallions 11 throughout the facility and elsewhere) and the like.

Id. at 7:6–15.

The '514 patent discusses the functionality of door lock 17a in more detail in connection with Figures 7A–7I. *Id.* at 17:38–41. Figure 7A is reproduced below.

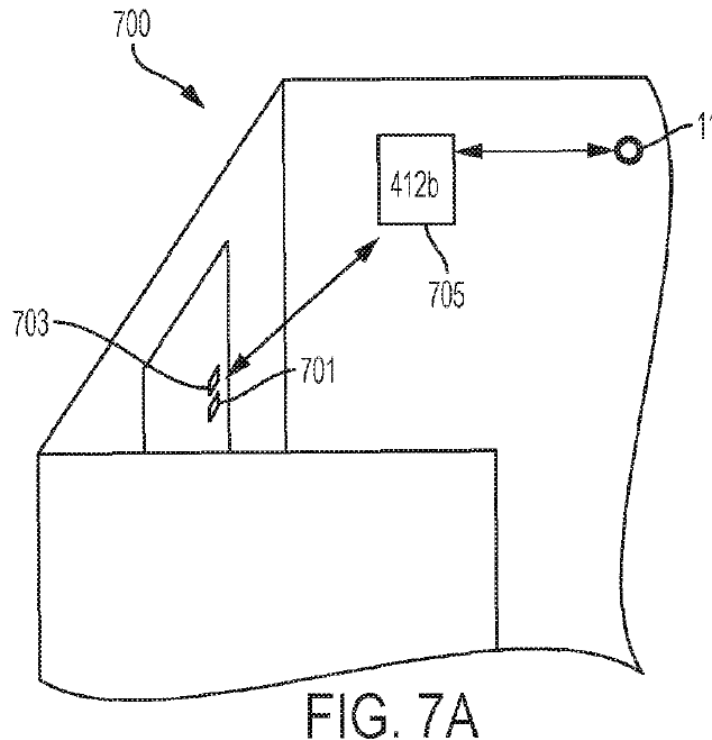


Figure 7A shows “an automated door lock assembly 700 that provides the functionality of the door lock 17a to automatically unlock a door based on an interaction with the guest’s medallion.” *Id.*

Door lock assembly 700 can serve to selectively unlock the guest’s room door, for example, on ship or in a hotel. *Id.* at 17:41–47. Based on wireless communication with guests’ medallion 11 and communication with

central reservation server 21, access panel 705 “determines whether or not to instruct the door lock module 703 to unlock the door.” *Id.* at 18:16–28.

In order to communicate with medallion 11, access panel 705 “maintains its BLE transceiver (or the BLE transceiver of the associated sensor 15) activated so as to detect any beacon signals transmitted by medallions 11 in proximity to the access panel 705.” *Id.* at 20:6–11. When it receives periodic beacon signals from medallion 11, access panel 705 starts a door unlocking sequence. *Id.* at 20:15–19. “[A]ccess panel 705 initiates a secure connection to medallion 11 across which the access panel 705 can request the medallion’s unique private identifier.” *Id.* at 20:24–27. After receiving the unique private identifier, access panel ascertains whether the unique private identifier is associated with a guest that is allowed access. *Id.* at 20:36–41. If so, access panel 705 presents a welcome message and begins door unlocking. *Id.* at 20:48–53.

In some embodiments, medallion 11 is configured to operate in a beacon mode, as well as a bi-directional mode. *Id.* at 21:41–44. When medallion 11 operates in beacon mode, “guest engagement system 10 may need to instruct the medallion 11 to switch to the bi-directional mode of operation in order to enable the medallion 11 to establish the secure communication channel with the access panel 705.” *Id.* at 21:52–58. In some instances, when medallion 11 comes within a certain distance, such as 100 feet, of a door, “guest engagement system 10 causes one or more sensors 15 that are within communication range of the medallion 11 to

transmit a wake command to the medallion 11 to cause the medallion 11 to switch to the bi-directional mode of operation.” *Id.* at 22:21–31.

D. ILLUSTRATIVE CLAIM

Claim 11 is reproduced below with bracketed identifying labels added.¹

11. [11pre] A portable device comprising:
- [11[a]] a body having a fully enclosed cavity, the body having all dimensions equal to or smaller than 2.5 inches, and the body having a thickness equal to or smaller than 5/8 inch;
 - [11[b]] a processor, a memory, a battery, and first and second wireless communication antennas disposed in the cavity,
 - [11[c]] wherein the first and second wireless communication antennas are respectively configured for Bluetooth low energy (BLE) and near field communication (NFC) communications,
 - [11[d]] the processor is configured to establish secure communication links with remote communication devices using the first wireless communication antenna configured for BLE communications,
 - [11[e]] the memory stores both public and private identifiers unique to the portable wireless device,
 - [11[f]] the processor controls the first wireless communication antenna to emit a periodic beacon signal broadcasting the unique public identifier of the portable wireless device using BLE communications, and
 - [11[g]] the processor controls the first wireless communication antenna to transmit the private identifier only across secure communication links established with remote communication devices using BLE communications.

Ex. 1001, 41:33–58.

¹ We use the same labels that Petitioner applies to the limitations of claim 11.

E. ASSERTED GROUNDS OF UNPATENTABILITY

Petitioner challenges the patentability of claim 11 of the '514 patent on the following grounds (Pet. 6):

Claim Challenged	35 U.S.C. §	References
11	103 ²	Soleimani ³ , Yuen ⁴ , Hulusi ⁵
11	103	Berg ⁶ , Badinski ⁷ , Goosen ⁸
11	103	Berg, Badinski, the BLE Specification ⁹
11	103	Raina ¹⁰ , Yuen, Hulusi

In support of its unpatentability contentions, Petitioner also relies on the Declaration of Kevin Almeroth, Ph.D. Ex. 1012.

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the '514 patent issued was filed after that date, with no benefit claim prior to that date, the AIA version of § 103 applies.

³ U.S. Patent 9,483,887 B1 (issued Nov. 1, 2016) (“Soleimani,” Ex. 1003).

⁴ U.S. Patent 8,935,119 B2 (issued Jan. 13, 2015) (“Yuen,” Ex. 1004).

⁵ U.S. Patent Application Publication 2016/0198287 A1 (published July 7, 2016) (“Hulusi,” Ex. 1005).

⁶ International Patent Application WO 2016/177668 A1 (published November 10, 2016) (“Berg,” Ex. 1006).

⁷ U.S. Patent Application Publication 2015/0220109 A1 (published Aug. 6, 2015) (“Badinski,” Ex. 1007).

⁸ Christian Alexander Goosen, *Design and Implementation of a Bluetooth 4.0 LE Infrastructure for Mobile Devices*, Ulm University, Faculty of Engineering and Informatics (May 16, 2014) (“Goosen,” Ex. 1010).

⁹ Specification of the Bluetooth System, Covered Core Package version: 4.0 (June 20, 2010) (“the BLE Specification,” Ex. 1009).

¹⁰ U.S. Patent Application Publication 2016/0055697 A1 (published Feb. 25, 2016) (“Raina,” Ex. 1008).

II. ANALYSIS

A. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner contends that

[a] person of ordinary skill in the art (“POSITA”) relating to the subject matter of the ’514 patent is a person with a Bachelor of Science degree in electrical engineering, computer science, or a related subject matter, plus at least two years of professional experience in the field of computer networks, wireless communications, or a similar field.

Pet. 7 (citing Ex. 1012 ¶¶ 39–41). Petitioner elaborates that “more experience would compensate for less formal education, and vice versa.” *Id.* Patent Owner has not provided an assessment of the level of ordinary skill in the art. To the extent necessary, and for purposes of this Decision, we accept the assessment offered by Petitioner as it is supported by the Almeroth Declaration and is consistent with the ’514 patent and the asserted prior art.

B. CLAIM INTERPRETATION

The Petition explains that “Petitioner and its expert have applied the plain and ordinary meaning of all claim terms of the challenged claims.” Pet. 8. In its Preliminary Response, Patent Owner does not propose any explicit claim constructions. We do not discern a need to construe expressly any claim language. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”); *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an *inter partes* review).

C. GROUND 1 – ALLEGED OBVIOUSNESS OVER SOLEIMANI, YUEN,
AND HULUSI

1. *Overview of Soleimani*

Soleimani relates to methods and systems that allow people to use a wireless device to gain access to a secured area or resource. Ex. 1003, 1:7–10. Figure 2 of Soleimani is reproduced below.

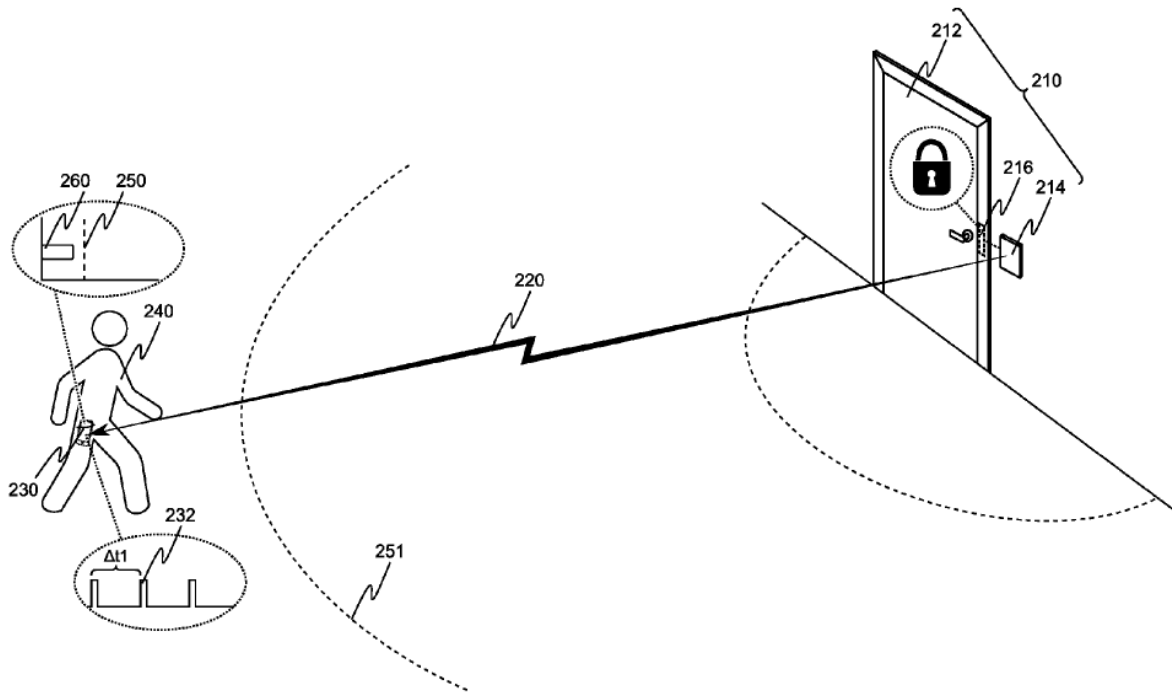


FIG. 2

Figure 2 “illustrates an example of utilizing a wireless mobile device to obtain access to a secured area or resource via an access control device.” *Id.* at 3:27–29.

In particular, Figure 2 shows access control device 210. *Id.* at 5:44–45. Access control device 210 includes “secured door 210, RF communication unit 214, and electronically actuated lock 216.” *Id.* at 5:44–47.

“In the example illustrated in [Figure] 2, RF communication unit 214 repeatedly transmits or broadcasts an RF advertisement 220.” *Id.* at 6:19–21. RF advertisement 220 may include various information, such as “an identifier associated with access control device 210,” various other identifiers, and various other indications. *Id.* at 6:61–7:8.

Figure 2 also shows wireless mobile device 230 carried by user 240. *Id.* at 8:41–43. Wireless mobile device 230 can detect RF advertisement 220. 7:22–23. Also, wireless mobile device 230 may “obtain a received signal strength indicator (RSSI) 260 for the detected RF advertisement 220.” *Id.* at 7:47–50.

Wireless mobile device 230 may compare RSSI 260 to first signal strength threshold 250 shown in Figure 2. *Id.* at 8:29–31. First signal strength threshold “corresponds approximately to a first distance from RF communication unit 214 . . . , which is illustrated by a first distance circle 251.” *Id.* at 8:30–37. In Figure 2, user 240 is outside first distance circle 251, and “RSSI 260 is less than first signal strength threshold.” *Id.* at 8:41–47.

Soleimani continues the example of Figure 2 in Figure 3. *Id.* at 10:22–23. Figure 3 is reproduced below.

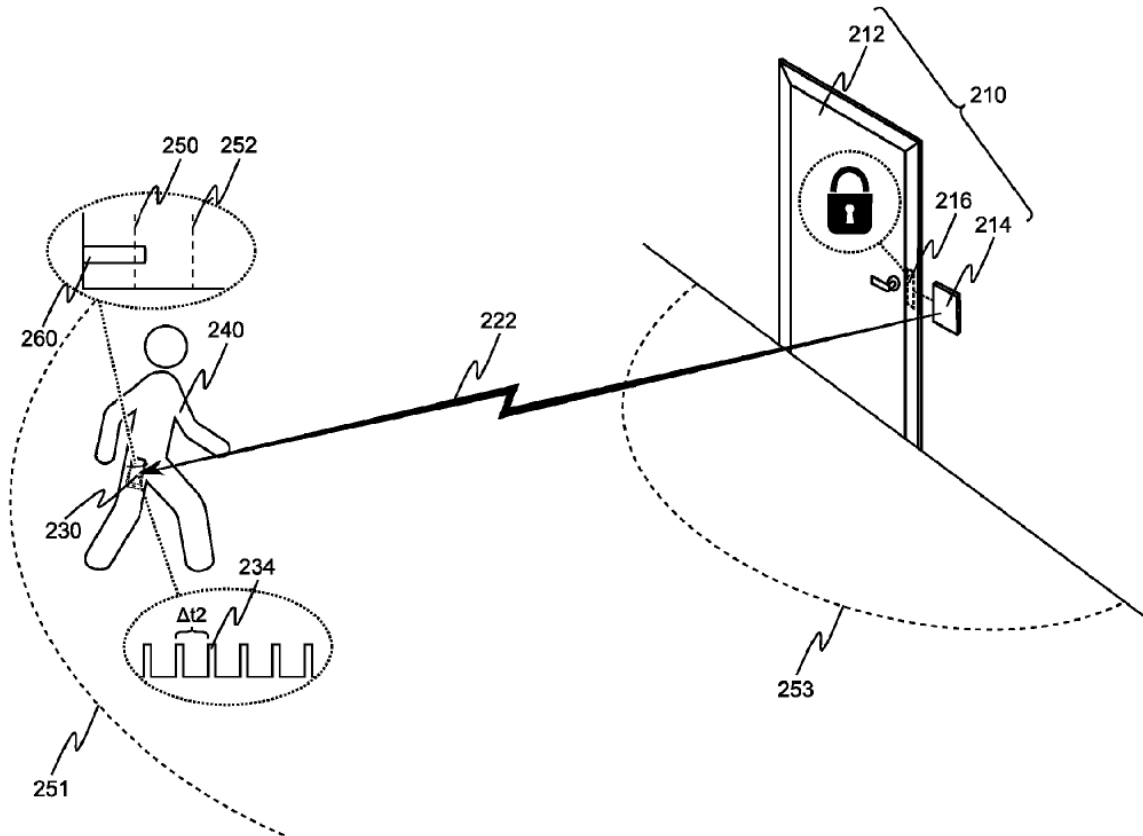


FIG. 3

Figure 3 shows user 240 inside of first distance circle 251 and “RSSI 260 is greater than first signal strength threshold 250.” *Id.* at 10:23–26.

“In response to RSSI 260 being equal to or greater than first signal strength threshold 250, wireless mobile device 230 or other aspects of access control system 100 may perform certain operations.” *Id.* at 10:38–41. For example, “wireless mobile device 230 may provide an indication of its proximity to access control device 210 to access control server 110 or RF communication unit 230.” *Id.* at 10:56–60. Other actions may also be performed. For example, location information and motion information may be considered. *Id.* at 10:43–54. Wireless mobile device 230 may also “scan for RF advertisement messages 222.” *Id.* at 10:64–11:3.

Wireless mobile device 230 may also compare RSSI 260 to second signal strength threshold 252. *Id.* at 11:67–12:2. Second signal strength threshold “corresponds approximately to a second distance from RF communication unit 214, which is illustrated by a second distance circle 253 in [Figure] 3.” *Id.* at 12:2–5. As Figure 3 shows, “second distance circle 253 is closer to RF communication unit 214 than first distance circle 251,” and “[s]econd signal strength threshold 252 is greater than first signal strength threshold 250.” *Id.* at 12:5–9. In Figure 3, user 240 is “outside of second distance circle 253,” and “RSSI 260 is less than the second signal strength threshold [252].” *Id.* at 12:9–15.

Soleimani continues the examples of Figures 2 and 3 in Figure 4. *Id.* at 12:16–17. Figure 4 is reproduced below.

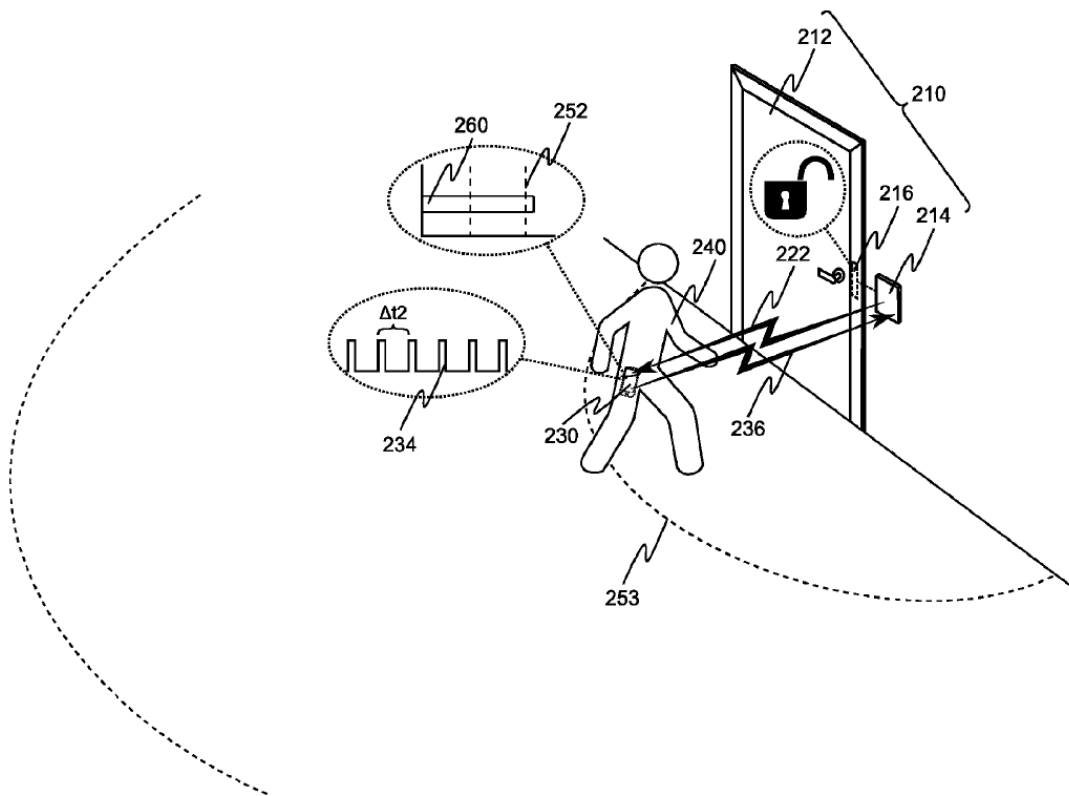


FIG. 4

Figure 4 shows user 240 inside of first distance circle 251 and “RSSI 260 is greater than second signal strength threshold 252.” *Id.* at 12:17–21.

“In response to RSSI 260 being equal to or greater than second signal strength threshold 252, wireless mobile device 230 or other aspects of access control system 100 may perform certain operations.” *Id.* at 12:34–37. For example, location and/or motion information may be considered. *Id.* at 12:39–52.

Also “[i]n response to RSSI 260 being equal to or greater than second signal strength threshold 252, wireless mobile device 230 may transmit message 236 to RF communication unit 214.” *Id.* at 12:53–56.

Message 236 may include various information, such as identifiers and indicators. *Id.* at 13:6–14. RF communication unit 214 may determine whether to grant access based on message 236. *Id.* at 13:15–57.

When discussing Figures 2–4, Soleimani discloses RF communication unit 214 and wireless mobile device 230 swapping messages using BLE. Soleimani discloses RF communication unit 214 sending RF advertisement messages 220, 222 using BLE. *Id.* at 6:24–37, 11:38–42. Soleimani also discloses that wireless mobile device 230 may transmit message 236 using BLE. 12:53–60. Subsequently, Soleimani discloses that “although [Figures] 2-10 discuss examples in which RF communication unit 210 is configured to operate in a BLE GAP Peripheral role and wireless mobile device 230 is configured to operate in a BLE GAP Common role, those roles may be reversed.” *Id.* at 17:60–18:7.¹¹

¹¹ This passage’s references to “RF communication unit 210” appear to be typographical errors. Because the other portions of Soleimani most frequently refer to “RF communication unit” using reference numeral 214, and because no figure appears to show an RF communication unit labeled

2. *Discussion*

In asserting obviousness of claim 11 over Soleimani, Yuen, and Hulusi, Petitioner “relies on Solomoni as a primary reference,” while “rel[ying] on Yuen for its disclosure of the recited form factor dimensions and Hulusi for its disclosure of BLE/NFC antennas pertinent to limitations 11b-11c.” Pet. 21. Petitioner argues that a person of ordinary skill in the art would have been motivated to modify Soleimani’s teachings with those of Yuen and Hulusi. *Id.* at 19–21, 24–25, 29–30.

Patent Owner alleges, among other things, deficiencies in Petitioner’s arguments regarding claim 11’s limitations related to storing and transmitting identifiers. Prelim. Resp. 15–19. We turn now to a detailed discussion of this issue.

a) *Claim 11’s Limitations Related to Storing and Transmitting Identifiers*

Limitation 11[e] recites that “the memory stores both public and private identifiers unique to the portable wireless device.” Ex. 1001, 41:49–50. Limitation 11[f] recites that “the processor controls the first wireless communication antenna to emit a periodic beacon signal broadcasting the unique public identifier of the portable wireless device using BLE communications.” *Id.* at 41:51–54. Limitation 11[g] recites that “the processor controls the first wireless communication antenna to transmit the private identifier only across secure communication links established with remote communication devices using BLE communications.” *Id.* at 41:55–58.

with reference numeral 210, we understand this passage as referring to “RF communication unit 214,” rather than “RF communication unit 210.”

(1) *Petitioner's Arguments*

Petitioner equates Soleimani's wireless mobile device 230 with the claimed "portable wireless device." Pet. 21. Petitioner also argues that "Soleimani describes a portable wireless device with . . . a memory." *Id.* at 26. Following these arguments, Petitioner addresses the claimed "public . . . identifier[]" and then the claimed "private identifier[]." *Id.* at 32–36.

Petitioner argues that Soleimani's RF advertisement 220 contains a public identifier. *Id.* at 32–34. Petitioner explains that RF advertisement message 220 "includes a UUID (Universally Unique Identifier) to uniquely identify RF communication unit 214." *Id.* at 32. Petitioner adds that "[a person of ordinary skill in the art] would recognize that a UUID in the BLE standard is a 'public identifier' as claimed by the '514 patent." *Id.* at 34.

Petitioner also argues that, when Soleimani's device roles are reversed from what Figure 2 shows, a person of ordinary skill in the art would recognize that wireless mobile device 230 stores the UUID of RF advertisement 220. *Id.* at 32–34. Petitioner first explains what Soleimani shows in Figure 2: transmission of RF advertisement message 220 from RF communication unit 214 to wireless mobile device 230. *Id.* at 32. Then, Petitioner cites Soleimani's disclosure that the device roles may be reversed. *Id.* "[I]n this alternative embodiment, mobile device 230 transmits the RF advertisement 220, including transmission of an advertisement with a UUID from the portable user device to the access panel," Petitioner argues. *Id.* at 33. In this reversed embodiment, Petitioner contends, "a [person of ordinary skill in the art] would understand that the UUID is stored in memory on the wireless mobile device 230." *Id.* at 34.

Addressing the claimed “private identifier[],” Petitioner asserts that a person of ordinary skill in the art would recognize that Soleimani’s message 236 includes a private identifier. *Id.* at 35. Petitioner argues that “Soleimani teaches that when wireless mobile device 230 approaches an access control point, the wireless mobile device 230 may transmit an encrypted message (236) via BLE.” *Id.* Petitioner asserts that “[t]he transmitted message 236 encodes, for example, ‘an identifier associated with wireless mobile device 230’ for encrypted transmission.” *Id.*

Accordingly, Petitioner contends that “Soleimani discloses that the wireless mobile device 230 is configured to transmit a private identifier unique to the device to RF communication unit 214 of the access panel.” *Id.* Petitioner adds that “RF communication unit 214 performs ‘validation of message 236, and determine[s] whether access should be granted to the secured area or resource controlled by access control device 210.’” *Id.* at 35. Petitioner also states that, “in some implementations,” Soleimani discloses “pass[ing] message 236 to access control server 110, which ‘maintain(s) a database indicating which users or wireless mobile devices should be granted access.’” *Id.* at 35–36. Petitioner further argues that

[a person of ordinary skill in the art] would recognize that in order for the access panel to validate message 236 and determine whether to grant access, the mobile device would have to communicate an identifier that is unique to the device to the access panel so that the identifier could be compared to the door access information in the access control server.

Id. at 36. Petitioner then argues that

[i]n view of the above and the discussion regarding the ‘public identifier’ portion of limitation 11e, a [person of ordinary skill in the art] would view it obvious to store the identifier associated with the mobile device 230 of Soleimani in the memory of

mobile device 230 to facilitate secure wireless communications with numerous external devices as the user of the device travels throughout a secure area or building.

Id.

(2) *Patent Owner's Arguments*

Patent Owner argues that Petitioner's arguments do not accurately capture the scope of Soleimani's role-reversal disclosure. Prelim. Resp. 16–17. Patent Owner asserts that Soleimani's "role reversal should be consistently applied to the BLE roles of the devices." *Id.* at 16. Patent Owner argues, among other things, that

Petitioner relies on an encrypted message 236 that the mobile device 230 of Soleimani transmits to the access control system 'via BLE' to allegedly satisfy claim requirements that the portable device transmits the private identifier. Pet. at 35, 38. But because Petitioner relies on Soleimani's teaching to reverse the BLE roles of the devices . . . , the encrypted message 236 would be *received* by the mobile device 230 under Petitioner's read. This is the opposite to the claim requirements that the portable device stores and *transmits* a private identifier, which Petitioner alleges that the encrypted message 236 shows.

Id. at 16–17.

(3) *Analysis*

Petitioner fails to address persuasively claim limitation 11[e]'s requirement for both public and private identifiers stored in the portable device's memory, along with the requirements of limitations 11[g] and 11[f] that the portable device transmit both the public and private identifiers. As Petitioner states, Soleimani's discussion at column 17, line 60 through column 18, line 7 discloses an "alternative embodiment" from Soleimani's earlier disclosure in connection with Figures 2–10. Pet. 33 ("[I]n this alternative embodiment, mobile device 230 transmits the RF advertisement

220, including transmission of an advertisement with a UUID from the portable user device to the access panel.”).

Petitioner treats Soleimani’s alternative embodiment as if it reverses only the transmission of RF advertisement 220 shown in Figure 2. Relying on the alternative embodiment, Petitioner argues that wireless mobile device 230 transmits RF advertisement 220 and transmits message 236 for validation by RF communication unit 214. Pet. 32–36. Based on its argument that wireless mobile device 230 transmits RF advertisement message 220, Petitioner argues that a person of ordinary skill in the art would recognize that mobile device 230 has a public identifier stored in memory. Pet. 34. Based on its argument that wireless mobile device 230 also transmits message 236 for validation by RF communication unit 214, Petitioner argues that “Soleimani discloses that the wireless mobile device 230 is configured to transmit a private identifier unique to the device to RF communication unit 214 of the access panel.” Pet. 35–36. Petitioner adds that it would have been obvious to store the private identifier in wireless mobile device 230’s memory. *Id.* at 36.

These arguments fail because Soleimani does not suggest that the alternative embodiment reverses only the transmission of RF advertisement 220. Instead, Soleimani’s discussion of the alternative embodiment discloses reversing the devices’ roles compared to the examples of “FIGS. 2-10.” Ex. 1001, 17:60–18:7. Thus, in addition to reversing the device roles shown in Figure 2, Soleimani’s alternative embodiment reverses the roles shown in Figures 3–10. In the unreversed roles of Figures 2–10, RF communication unit 214 transmits RF advertisement 220 to wireless mobile device 230 (Figure 2), after which wireless mobile device 230

transmits message 236 to RF communication unit 214 (Figure 4). *E.g.*, Ex. 1003, 6:19–21, 7:22–23, 12:53–58, Figs. 2, 4. Accordingly, in Soleimani’s alternative embodiment, wireless mobile device 230 transmits RF advertisement message 220 to RF communication unit 214, after which RF communication unit 214 transmits message 236 to wireless mobile device 230. In both the unreversed and reversed embodiments, RF communication unit 214 and wireless mobile device 230 swap RF advertisement message 220 and message 236, such that neither device sends both messages.

Petitioner does not acknowledge this, much less provide a persuasive reason that a person of ordinary skill in the art would have deviated from these embodiments. Nor does Petitioner argue or show that there would have been a reasonable expectation of success for deviating from Soleimani’s message swapping. Failing to support its position that Soleimani discloses wireless mobile device 230 sending both RF advertisement message 220 with a public identifier and message 236 with a private identifier, Petitioner does not provide a persuasive basis for its argument that it would have been obvious to store both public and private identifiers in mobile device 230’s memory. Accordingly, Petitioner fails to demonstrate a reasonable likelihood of prevailing on Ground 1.

D. GROUND 2 – ALLEGED OBVIOUSNESS OVER BERG, BADINSKI,
AND GOOSEN

1. *Overview of Berg*

Berg discloses an access control system that determines whether a person is entering or exiting a protected resource based on information gleaned from one or more mobile devices used by the person. Ex. 1006

¶ 10. Berg shows an access control system in Figure 1, which is reproduced below.

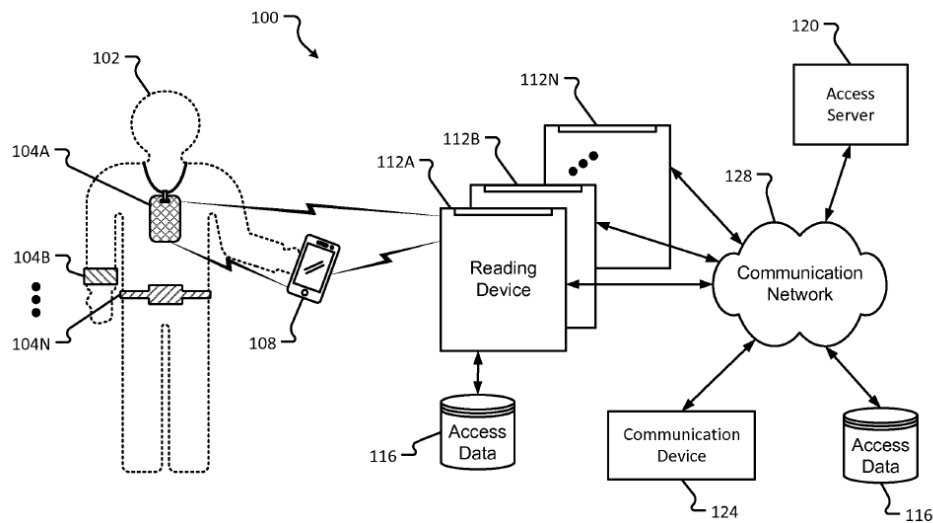


Fig. 1

Figure 1 shows access control system 100 for authenticating user 102. *Id.*

¶ 70.

Access control system 100 includes “at least one reading device 112, at least one wearable device 104, and at least one portable/mobile device 108.” *Id.* Reading device 112 may communicate with wearable device 104 and/or mobile device 108 via wireless connections, including BLE connections. *Id.* ¶ 71. Reading device 112 may “request access control information from the wearable device 104 and/or the mobile device 108.

This access control information may be used to validate the wearable device 104 and/or the mobile device 108 to the reading device.” *Id.* ¶ 74. Then,

In one embodiment, upon validating credential information stored on the wearable device 104, the reading device 112 generates signals facilitating execution of the results of interrogating the wearable device 104 and/or the mobile device 108 (e.g., engages/disengages a locking mechanism, allows/disallows movement of a monitored article, temporarily disables itself, activates an alarm system, provides access to a

computer system, provides access to a particular document, and the like). As provided above, the access server 120 may generate such signals.

Id. ¶ 75.

Access control system 100 can determine whether a person has entered or exited an area based on information related to the person's mobile devices. *Id.* ¶ 102. For example, “[i]n embodiments, . . . access control system 100 makes an ingress or egress determination based at least in part on information about the distance between two mobile devices on the person of the individual or user.” *Id.* This may involve analyzing how the distance between a user's smartphone and a wearable on the user's wrist varies as the user “walks up to (and away from) a door.” *Id.*

2. Discussion

In asserting obviousness of claim 11 over Berg, Badinski, and Goosen, Petitioner “relies on Berg as a primary reference,” while “rel[ying] on Badinski to provide the recited form factor described in limitation 11a and Goosen to provide the periodic beacon signal described in limitation 11f.” Pet. 38. Petitioner argues that it would have been obvious to a person of ordinary skill in the art to modify Berg's teachings with certain teachings of Badinski and Goosen. *Id.* at 19–21, 44–45, 51–53. Patent Owner argues that Petitioner does not demonstrate a motivation to combine Goosen's teachings with Berg's or that combining the references' teachings would produce the portable device of claim 11. Prelim. Resp. 23–25. We turn now to a detailed discussion of these issues.

a) Petitioner's Arguments

Before addressing any specific limitation of claim 11 or any specific modification of Berg based on Goosen, the Petition argues that “[a person of

ordinary skill in the art] would have been motivated to modify the primary references according to the teachings of the secondary references for several reasons common to all grounds.” Pet. 19. Petitioner explains that “[t]he Cited References are in the same field of endeavor as the ’514 patent—portable wireless devices using the BLE communication protocol.” *Id.* Petitioner adds that “[t]he Cited References also use similar techniques to solve the same problems as the ’514 patent.” *Id.* at 20.

Subsequently, the Petition cites Goosen when addressing limitation 11[f]. *Id.* at 51–53. Limitation 11[f] recites “the processor controls the first wireless communication antenna to emit a periodic beacon signal broadcasting the unique public identifier of the portable wireless device using BLE communications.” Ex. 1001, 41:51–54. Petitioner notes that “Berg does not expressly disclose that the wearable device emits a periodic beacon signal broadcasting the unique public identifier.” Pet. 51.

Petitioner argues that “this feature would be obvious in view of the teachings of Goosen.” *Id.* Petitioner explains that “Goosen describes a small, stationary device called a ‘Beacon’ that uses BLE to periodically transmit advertisement packages for applications at expositions and conferences.” *Id.* Petitioner notes that the transmitted advertisement includes a UUID linked to the beacon. *Id.* A smart phone near the beacon may receive the advertisement and its UUID, which allows the smartphone to identify the beacon and supply a server with location sensitive information, Petitioner explains. *Id.* at 52. Petitioner asserts that Goosen describes this as a “very simple,” logical use of BLE technology. *Id.*

Petitioner argues that “while the aforementioned disclosures of Goosen teach the use of stationary beacons transmitting UUIDs, Goosen

further describes that the roles of the mobile device and Beacon can be reversed, such that the smartphone transmits advertising messages and the Beacon scans for messages.” *Id.* Petitioner explains that Goosen teaches this idea “‘can lead to some very interesting applications’ in which ‘the system [can] replace smartphones with something smaller, more efficient, like bracelets, or build[] BLE capabilities into watches.’” *Id.* Petitioner further argues that this idea would “dovetail with Berg’s teachings regarding compact mobile devices that transmit unique identifiers for purposes of authentication with, for example, secured doors.” *Id.* at 53. Petitioner adds that “Goosen, in fact, teaches the use of ‘[w]earable advertisers’ in a ‘smart home’ environment to perform applications, such as unlocking doors.” *Id.* Petitioner concludes that

a [person of ordinary skill in the art] would consider it obvious to use a BLE antenna to emit a periodic beacon signal broadcasting a unique public identifier of a portable wireless device to facilitate wireless communications with external devices while making efficient use of battery power. Ex-1012 at ¶116; Ex-1010 at 1, 41 (highlighting the battery advantages of BLE). A POSITA would further recognize the advantage of using BLE advertising broadcasts because of its low power usage and the resulting ability to use a smaller and more portable wireless device. Ex-1012 at ¶116; Ex-1010 at 43.

Id.

b) Patent Owner’s Arguments

Patent Owner argues that Petitioner does not demonstrate that a person of ordinary skill in the art would have been motivated to modify Berg’s teachings based on Goosen’s. Prelim. Resp. 23–25. Patent Owner contends that many of Petitioner’s arguments about Berg and Goosen “say no more than that a [person of ordinary skill in the art] ‘would have

understood that they *could be* combined,” which “is not enough.” *Id.* at 24 (citing *Pers. Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 993 (Fed Cir. 2017)). Additionally, Patent Owner disputes Petitioner’s suggestion that a person of ordinary skill in the art would have been motivated to add Goosen’s advertising transmissions to Berg’s portable devices for reduced power usage. *Id.* at 24–25. Patent Owner explains that

If Berg does not teach, and therefore can operate without, emitting a periodic beacon signal, modifying Berg to do so *increases* power consumption. Thus, if making efficient use of battery power is desirable as Petitioner alleges, a POSITA would have been motivated to *not* add to Berg’s working device a feature that consumes more power.

Id.

Patent Owner also argues that combining Goosen’s disclosure of mobile devices transmitting periodic advertisements with Berg’s disclosure would not result in the portable device of claim 11. *Id.* at 25. Patent Owner explains that “Goosen’s beacon refers to a ‘very simple’ Bluetooth device” that “does *little else* than to periodically advertise themselves with small 31 byte data packages.” *Id.* (quoting Ex. 1010, 9 (emphasis in Preliminary Response)). Patent Owner adds that “[c]onsistent with the beacon’s very limited capability, when the roles of beacons and smartphone (the portable device) are reversed, ‘nothing happens on the smartphone, since it is only advertising itself to the scanning beacons.’” *Id.* (quoting Ex. 1010, 37). According to Patent Owner, “[t]his teaches away from the claimed portable wireless device, which is configured to, among others, establish secure communication links and transmit the private identifier only across secure communication links.” *Id.*

c) Analysis

Petitioner's arguments about combining Berg and Goosen do not provide persuasive support for its obviousness conclusion. Petitioner takes an illogical position by arguing that (1) Berg does not teach sending periodic advertisements and (2) a person of ordinary skill in the art would modify Berg by adding Goosen's periodic advertisements for reasons related to reduced power usage and enabling small portable devices. Pet. 51, 53. As Patent Owner reasons, modifying Berg to send more signals (advertising signals that it does not already send) would apparently use more, not less, power. Additionally, Berg already discloses using small portable devices, such as "watches, rings, . . . jewelry, . . . buttons, necklaces, . . . pins . . . and/or any other wearable item." Ex. 1006 ¶ 12. Accordingly, logic does not support Petitioner's suggestion that a person of ordinary skill in would have added Goosen's periodic advertisement signal to Berg's system to conserve power and enable use of small portable devices. To the extent there exists some way to reconcile Petitioner's position with logic, Petitioner does not do so.

Aside from the arguments tied to power consumption, Petitioner's other arguments about combining the references also fail to provide a persuasive reason that a person of ordinary skill in the art would have combined the references. These other unavailing arguments include Petitioner's allegations of similarity between the references and Petitioner's contention that the references "dovetail" with one another. We agree with Patent Owner that these arguments, at most, might demonstrate that a person of ordinary skill in the art could have combined the references' disclosures,

which does not support a conclusion of obviousness. *Pers. Web Techs.*, 848 F.3d at 993.

Moreover, Petitioner does not explain persuasively how a combination of Berg and Goosen would be consistent with claim 11's limitations. As Patent Owner notes, in Goosen's approach for using a portable device to transmit a periodic advertisement, the portable device "nothing happens on the [portable device], since it is only advertising itself to the scanning beacons." Ex. 1010, 37. This does not match claim 11's requirement that the portable device must both "emit a periodic beacon signal broadcasting the unique portable wireless device using BLE communications" and "transmit the private identifier only across secure communication links established with remote communication devices using BLE communications." Ex. 1001, 41:51–58. In sum, Petitioner does not provide rational underpinning for its conclusion of obviousness. Accordingly, Petitioner does not demonstrate a reasonable likelihood of prevailing on Ground 2.

E. GROUND 3 – ALLEGED OBVIOUSNESS OVER BERG, BADINSKI,
AND THE BLE SPECIFICATION

1. *Discussion*

In asserting obviousness of claim 11 over Berg, Badinski, and the BLE Specification, Petitioner "relies on Berg and Badinski as in Ground 2," while "rel[ying] on the BLE Specification for its disclosure regarding the periodic beacon signal described in limitation 11f." Pet. 38. Petitioner argues that it would have been obvious to a person of ordinary skill in the art to modify Berg's teachings with certain teachings of Badinski and the BLE Specification. *Id.* at 19–21, 44–45, 57–58. Patent Owner argues that Petitioner does not demonstrate a motivation to combine the BLE

Specification's teachings with Berg's. Prelim. Resp. 25–28. We turn now to a detailed discussion of that issue.

a) Petitioner's Arguments

Before addressing any specific limitation of claim 11 or any specific modification of Berg based on the BLE Specification, the Petition argues that “[a person of ordinary skill in the art] would have been motivated to modify the primary references according to the teachings of the secondary references for several reasons common to all grounds.” Pet. 19. Petitioner explains that “[t]he Cited References are in the same field of endeavor as the ’514 patent—portable wireless devices using the BLE communication protocol.” *Id.* Petitioner adds that “[t]he Cited References also use similar techniques to solve the same problems as the ’514 patent.” *Id.* at 20.

Subsequently, the Petition cites Berg when addressing limitation 11[f]. *Id.* at 55–58. Limitation 11[f] recites “the processor controls the first wireless communication antenna to emit a periodic beacon signal broadcasting the unique public identifier of the portable wireless device using BLE communications.” Ex. 1001, 41:51–54. Petitioner notes that “Berg does not expressly disclose that the wearable device emits a periodic beacon signal broadcasting the unique public identifier.” Pet. 55.

Petitioner argues that “this feature would be obvious in view of the teachings in the BLE Specification.” *Id.* Petitioner argues that the BLE Specification discloses using a “public device address” to uniquely identify a wireless device to proximate devices during a BLE advertising event. *Id.* Petitioner adds that “[t]he BLE Specification also discloses that a mobile device can use BLE to broadcast the public device address by emitting a

periodic beacon signal on an advertising event interval (including fixed-length ‘advInterval’ and pseudorandom-length ‘advDelay’).” *Id.*

Given Berg’s disclosure of using BLE with a wearable device, Petitioner argues that a person of ordinary skill in the art would have been motivated “to review and incorporate portions of the BLE Specification.” *Id.* at 57. Petitioner also argues that a person of ordinary skill in the art would recognize that the BLE Specification’s disclosure of periodically transmitting a public device address with a BLE beacon “dovetails with Berg’s teachings regarding compact mobile devices that use BLE to transmit unique identifiers for purposes of authentication with, for example, secured doors.” *Id.* Petitioner also contends that

in view of the disclosures of Berg and the BLE Specification, a [person of ordinary skill in the art] would recognize as well-known and obvious at the time of invention to use a BLE antenna to emit a periodic beacon signal broadcasting a unique public identifier of a portable wireless device to facilitate wireless communications with external devices while making efficient use of battery power. Ex-1012 at ¶125. A [person of ordinary skill in the art] would further recognize the advantage of using BLE advertising broadcasts because of its low power usage and the resulting ability to use a smaller and more portable wireless device. *Id.*

Id. at 57–58. Petitioner adds that

design objectives such as advances in access control technology, including device and communication protocols that evolve to offer more security, portability, and interoperability, like BLE as demonstrated by its codification as a wireless specification, would have favored combining Berg and the BLE Specification and would have motivated a POSITA to combine these references to achieve improvements and in battery efficiency and wireless interactions with access and payment portals.

Id. at 58. Petitioner also argues that a person of ordinary skill in the art would have had a reasonable expectation of success. *Id.*

b) Patent Owner's Arguments

Noting that Petitioner uses some of the same motivation arguments from Ground 2 in Ground 3, Patent Owner argues they equally fail to support Ground 3. Prelim. Resp. 25–26. As with Ground 2, Patent Owner argues that Petitioner relies heavily on arguments that, at most, might demonstrate that a person of ordinary skill in the art could have combined the references' teachings, "not that a [person of ordinary skill in the art] would have been motivated to combine them." *Id.* at 26. Patent Owner also reiterates that Petitioner's suggestion that it would have been obvious to conserve power by adding a periodic advertisement to Berg's mobile device "does not even make sense." *Id.*

Patent Owner also disputes Petitioner's argument that "advances in access control technology" would have motivated the proposed combination. *Id.* at 27. Among other things, Patent Owner explains that

the alleged advances include the evolution of communication protocols "to offer more security, portability, and interoperability." [Pet. 58.] But adding a periodic beacon broadcast to Berg's disclosures does not serve any security purpose, does not make the devices smaller or more portable, and requires the same modification to both transmitting and receiving devices and is thus at best neutral with respect to interoperability. Petitioner does not explain why doing so would increase any of these characteristics.

Id.

c) Analysis

Petitioner does not show sufficiently that a person of ordinary skill in the art would have been motivated in view of the BLE Specification to

modify Berg’s portable device to emit a periodic beacon signal. As discussed above in Section II.D.4.c, we find unpersuasive Petitioner’s vague, illogical suggestion that a person of ordinary skill in the art would have been motivated to add a periodic beacon signal to Berg’s portable device in order to conserve power and enable a small device. Pet. 57–58. Also, as with Ground 2, Petitioner relies heavily on arguments that might show the references’ teachings could have been combined, but do not explain why a person of ordinary skill in the art would have combined the references. These unavailing arguments include Petitioner’s assertions of similarities between the references and Petitioner allegation that the references’ teachings “dovetail[.]” *Id.* at 19–21, 57–58.

Petitioner’s arguments about “design objectives such as advances in access control technology” also fail to show sufficiently that a person of ordinary skill in the art would have been motivated to modify Berg’s teachings in the proposed manner. *Id.* at 58. Petitioner references specific improvements that evolving protocols allegedly could provide, including “more security, portability, and interoperability.” *Id.* As Patent Owner argues, however, Petitioner does not explain persuasively how any of those potential improvements would result from the combination Petitioner proposes. Pet. 58; Prelim. Resp. 27–28.

Even if we assumed some general motivation existed for combining some of the references’ teachings, Petitioner does not demonstrate sufficiently that a person of ordinary skill in the art would have had a reason for specifically modifying Berg’s portable device to emit period beacon signals. Relevant to this specific modification, Petitioner and Dr. Almeroth state that “the BLE Specification also discloses that a mobile device can use

BLE to broadcast the public device address by emitting a periodic beacon signal on an advertising event interval.” Pet. 56 (citing Ex. 1009, 2223); Ex. 1012 ¶ 124 (citing Ex. 1009, 2223).

Petitioner and Dr. Almeroth do not support this assertion with persuasive evidence. They cite the BLE Specification’s disclosure at page 2223. *Id.* Page 2223 of the BLE Specification discloses how certain aspects of “advertising events” occur. Ex. 1009, 2223. But page 2223 of the BLE Specification does not disclose “a mobile device,” much less emitting a periodic beacon signal from “a mobile device.” *Id.* In spite of this, Petitioner and Dr. Almeroth simply state that it does, providing no persuasive explanation for their characterization of the cited passage. Pet. 56 (citing Ex. 1009, 2223); Ex. 1012 ¶ 124 (citing Ex. 1009, 2223).

Moreover, even if we agreed with Petitioner that the BLE Specification discloses “a mobile device . . . can . . . emit[] a periodic beacon signal,” Petitioner does not show why a person of ordinary skill in the art would have modified Berg’s portable device to do so. In sum, Petitioner has not provided sufficient rational underpinning for its conclusion of obviousness. Accordingly, Petitioner has not demonstrated a reasonable likelihood of prevailing on Ground 3.

F. GROUND 4 – ALLEGED OBVIOUSNESS OVER RAINA, YUEN, AND HULUSI

a) Overview of Raina

Raina discloses “a secure short-distance-based communication and access control system.” Ex. 1008 ¶ 18. Raina shows one such system in Figure 1, which is reproduced below.

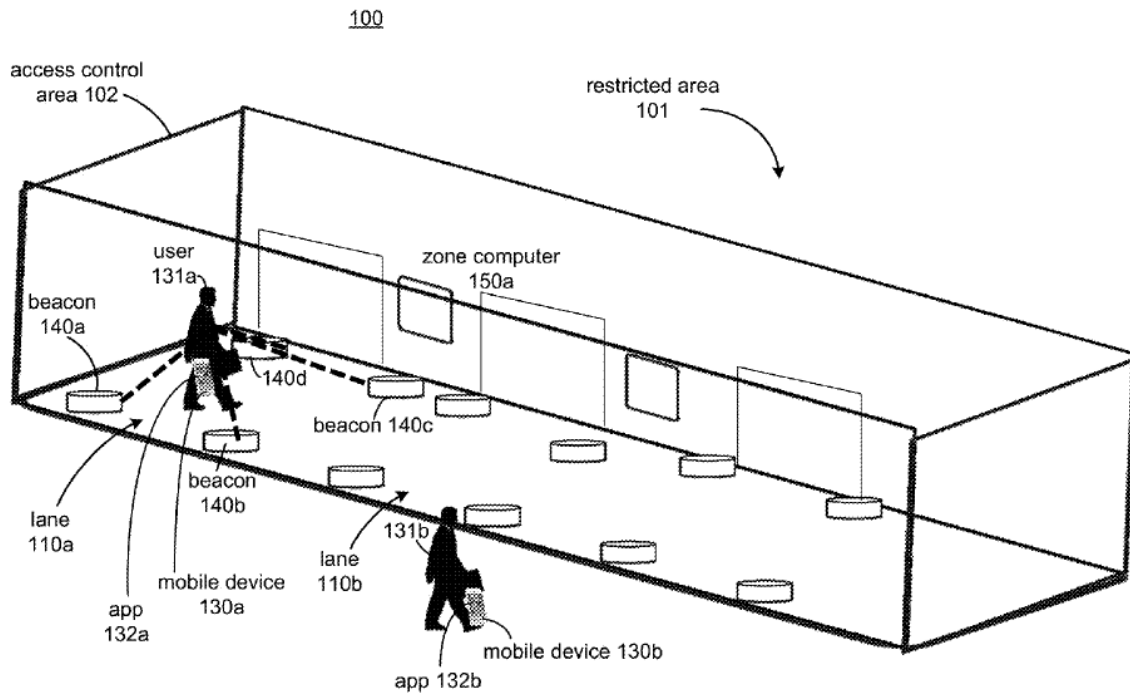


FIG. 1

Figure 1 shows access control system 100 used for restricted area 101 at access control area 102. *Id.* ¶ 20.

Access control area 102 may include sub-locations. *Id.* For example, access control area 102 may have multiple lanes 110 in which validation occurs. *Id.* Figure 1 shows lanes 110 may include lanes 110a and 110b.

System 100 includes mobile devices 130, beacons 140, and zone computers 110. *Id.* ¶ 22. “[M]obile devices 130 may include mobile devices 130a and 130b shown for users 131a and 131b respectively to gain entry to the restricted area 101.” *Id.* Additionally,

mobile devices 130 may be any computer that a user may carry and that can run applications including the access control applications 132. Examples of the mobile devices 130 include mobile phones, tablets, wearable computers, such as GOOGLE glass or smart devices embedded into clothing, a smart watch, fitness tracker, or wireless enabled shoes, or some other type of mobile computer.

Id. ¶ 24.

“Beacons 140 are hardware that can broadcast beacon signals.” *Id.*

¶ 23. For instance, “beacons 140 may be Bluetooth, Bluetooth Low Energy, or near-field communication beacons, or Wi-Fi.” *Id.*

“[Z]one computers 150 validate the users 131 through their mobile devices 130.” *Id.* ¶ 25. For instance, a zone computer may serve to communicate with a mobile device to accept a fare payment. *Id.*

Raina provides a detailed discussion of system 100’s operation in connection with Figure 5, which is reproduced below.

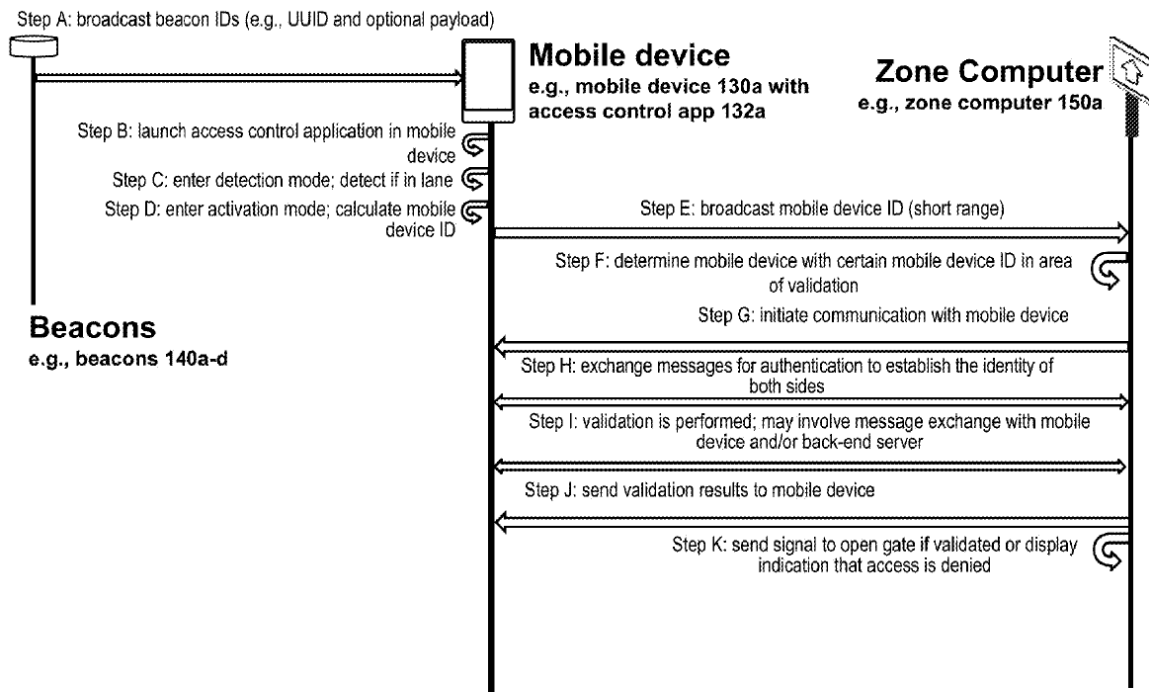


FIG. 5

Figure 5 shows details of a method that the access control system performs.

Id. ¶¶ 9–10.

The method begins with “beacons 140a-d periodically broadcast[ing] their unique IDs” and mobile device 130a receiving the broadcasts in step A. *Id.* ¶ 46. Then, in step B, if mobile device 130a’s access control application

132a is not running already, and if mobile device 130a recognizes the received unique IDs, access control application 132a launches. *Id.* In step C, detection mode is used to determine whether mobile device 130a is in a lane. *Id.* If so, in step D, information from the beacons is used in activation mode to calculate a unique ID or IDs. *Id.*

In step E, “a message with the unique ID or IDs may be broadcasted or sent to a local Zone computer, e.g., Zone computer 150a, at step E. For example, a mobile device unique ID, which includes the calculated unique ID or IDs, is broadcasted by the mobile device 130a.” *Id.*

In step F, “zone computer 150a receives the broadcasted message with the mobile device unique ID from the mobile device 130a assuming it is within range.” *Id.* ¶ 47. Also, “zone computer 150a validates that the broadcasted message contains the unique ID or IDs related to the sub-location and determines whether the mobile device 130a is within the area of validation of the zone computer 150a.” *Id.*

In step G, if mobile device 130a is within the area of validation, “zone computer 150a initiates communication with the mobile device 130a using the unique ID or IDs as a reference.” *Id.* ¶ 48. For instance, zone computer 150a may send mobile device 130a an acknowledgement message apprising mobile device 130a that zone computer 150a is prepared to commence validation. *Id.*

Step H involves mutual authentication. *Id.* ¶ 49. Raina explains that “[t]he mobile device 130a and the Zone computer 150a may exchange messages for authentication to establish identities of both sides. The mutual authentication might result in a generation of a key or set of keys that are

then used for further encryption, decryption, enciphering, deciphering, etc.”
Id.

Following authentication, in step I, “zone computer 150a determines whether the mobile device 130a or its user 131a is validated. Validation may include exchanging messages with a backend server not shown and/or the mobile device 130a to get the information needed to perform validation.”

Id. ¶ 50. Raina adds that

validation may vary depending on whether information for validation is stored locally or stored in a backend server. For example, for a “stored value” system, information for validation is stored locally on the mobile device in a secure manner. For example, information, such as user profile, balance amount, passes and concession information are stored securely on the mobile device. In a “credential systems, the information is stored on a backend server (e.g., the cloud), and the mobile device only stores credentials, such as user account number, and the information is retrieved from the backend server in real time for completing validation or enforcement of transactions.

Id. ¶ 52.

After step I, “validation results are returned to the mobile device 130a” in step J. *Id.* ¶ 50. Then, in step K, if user 131a is validated, zone computer 150a transmits a signal to open the gate for lane 110a. *Id.*

b) Discussion

In asserting obviousness of claim 11 over Raina, Yuen, and Hulusi, Petitioner relies on Raina as a primary reference, while “rel[ying] on Yuen to provide the recited form factor and Hulusi to disclose the recited antennas.” Pet. 58–59. Petitioner argues that a person of ordinary skill in the art would have been motivated to modify Raina’s teachings with those of Yuen and Hulusi. *Id.* at 19–21, 61–62, 64–66.

Patent Owner alleges, among other things, deficiencies in Petitioner’s arguments regarding limitation 11[e]. Prelim. Resp. 28–30. In particular, Patent Owner disputes whether Petitioner addresses persuasively limitation 11[e]’s requirement that “the memory stores . . . [a] private identifier[] *unique to the portable wireless device.*” Ex. 1001, 41:49–50 (emphasis added); Prelim. Resp. 28–30. We turn now to a detailed discussion of that issue.

(1) Petitioner’s Arguments

Petitioner argues that Raina’s “‘information for validation’ is the private identifier as claimed.” Pet. 70. Petitioner explains that “[t]his information can include information such as ‘user profile, balance amount, passes and concession information.” *Id.* Regarding limitation 11[e]’s requirement that the private identifier is “unique to the portable wireless device,” Petitioner argues that

[a person of ordinary skill in the art] would recognize that because the information for validation is used to grant access and deduct a fare from a specific user’s account, and because the information is used to “establish[] the identity” of the mobile device (Ex-1008 at ¶[0054], the information must uniquely identify the device. Ex-1012 at ¶155. Accordingly, this information for validation is a “private identifier” unique to mobile device 130. *Id.*

Pet. 71.

(2) Patent Owner’s Arguments

Patent Owner argues that Raina’s validation information is not “unique to the portable device,” as required by limitation 11[e]. Prelim. Resp. 28–30. Instead, Patent Owner argues, “the information and credentials disclosed in Raina are associated with the user — *e.g.*, user profile, user account number, user ID — rather than the portable device.”

Id. at 29. Patent Owner contends that “Raina distinguishes the user from the mobile device.” *Id.* Citing Raina’s disclosure of many different types of computers that “mobile devices 130 may be,” Patent Owner argues that a given user would often have more than one such device. *Id.* at 30. Patent Owner asserts that “[e]ach device would store the *user’s* profile or account information as credentials, and thus all of the user’s devices would have the same user identifier.” *Id.* Patent Owner also argues that, in many instances, information used for access “is not unique and does not constitute an identifier.” *Id.* Patent Owner explains that, “[f]or example, many users to an event may have the same concession information, rendering it nonunique.” *Id.*

(3) *Analysis*

Petitioner does not address sufficiently limitation 11[e]’s requirement for a “private . . . identifier[] *unique to the portable wireless device.*” Ex. 1001, 41:49–50 (emphasis added). To the extent Petitioner shows sufficiently that Raina teaches a private identifier, Petitioner does not show sufficiently that this private identifier is unique to the portable device. After asserting that Raina’s “‘information for validation’ is the private identifier as claimed” (Pet. 70), Petitioner advances two reasons that this information “must uniquely identify the device” (*id.* at 71).

First, Petitioner argues that “the information for validation is used to grant access and deduct a fare from a specific user’s account.” *Id.* At most, this argument might show that the validation information is unique to the user whose account must be charged. It does not show that the information for validation must uniquely identify the portable device, or even be uniquely stored on the portable device. Petitioner does not allege, much less

show, that Raina teaches limiting storage of a user's information for validation to one portable device. As Patent Owner notes, Raina discloses that

mobile devices 130 may be any computer that a user may carry and that can run applications including the access control applications 132. Examples of the mobile devices 130 include mobile phones, tablets, wearable computers, such as GOOGLE glass or smart devices embedded into clothing, a smart watch, fitness tracker, or wireless enabled shoes, or some other type of mobile computer.

Ex. 1008 ¶ 24. In view of Raina's disclosure of many portable devices the user may employ, Petitioner's argument about validating a specific *user* does not show that the information for validation uniquely identifies the portable *device*.

The second reason Petitioner contends "the information must uniquely identify the device" is "because the information is used to 'establish[] the identity' of the mobile device." Pet. 71. This argument Petitioner partially quotes and partially interprets Raina's disclosure in paragraph 54, which states that

[t]he information related to user's account may be stored inside a secure storage area inside the mobile device (like a secure element, a secure element micro secure digital card, a universal integrated circuit card, a secure area within the application processor, etc.). This may involve an additional authentication performed between the zone computer and the secure storage, establishing the identity of both sides, resulting which the information is shared by the secure storage with the zone computer via the validator mobile application.

Ex. 1008 ¶ 54.

Petitioner does not show persuasively that Raina discloses its information for validation "is used to 'establish[] the identity' of the mobile

device.” Pet. 71. Instead, Raina discloses “an additional authentication performed between the zone computer and the secure storage, establishing the identity of both sides.” Ex. 1008 ¶ 54. This indicates that the “additional authentication,” not information for validation, “establish[es] the identity of both sides.”

To the extent Petitioner believes that the “additional authentication” uses information for validation when establishing identity, Petitioner does not provide a persuasive basis for such a position. Indeed, Raina discloses that “authentication” and “validation” refer to different processes, and Petitioner acknowledges this. For example, Petitioner explains that

[a]fter the broadcasted “unique ID” of the mobile device is used to perform the authentication Steps C-E depicted in Figure 5, Raina discloses a validation Step I, in which “information for validation” is transmitted from local storage on the mobile device to the zone computer over an encrypted link for validation.

Pet. 70. Given that “authentication” differs from “validation,” there is no apparent reason for Petitioner to believe that the “additional authentication” discussed in Raina’s paragraph 54 would use “information for validation.” Although paragraph 54 does not indicate what information is used in the “additional authentication,” Petitioner does not provide a persuasive reason that it would include “information for validation.”

In sum, neither of Petitioner’s two reasons support its contention that the alleged private identifier of Raina, the “information for validation,” “must uniquely identify the device.” Accordingly, Petitioner does not demonstrate a reasonable likelihood of prevailing on Ground 4.

III. CONCLUSION

For the foregoing reasons, we determine that the information presented in the record does not establish there is a reasonable likelihood

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that Petitioner would prevail with respect to at least one challenged claim of the patent '514 patent. Accordingly, we do not institute an *inter partes* review of claim 11.

IV. ORDER

For the reasons given, it is:

ORDERED that the Petition is denied; and

FURTHER ORDERED that no *inter partes* review is instituted.

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