

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DECURTIS LLC
Petitioner,

v.

CARNIVAL CORPORATION,
Patent Owner.

IPR2021-00782
Patent 10,045,184 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 claims 1–20 of U.S. Patent No. 10,045,184 B2 (Ex. 1001, “the ’184 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 ’184 patent is involved in *DeCurtis LLC v. Carnival Corp*, Case No. 1:20-cv-22945-RNS (S.D. Fla.). Pet. 2–3; Paper 5, 2. Petitioner indicates that two additional patents (US 10,049,516 and US 10,157,514) are the subject of petitions for *inter partes* review proceedings. Pet. 3.

C. THE ’184 PATENT

The ’184 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 ’184 patent discloses details in connection with Figure 1A, which is reproduced below.

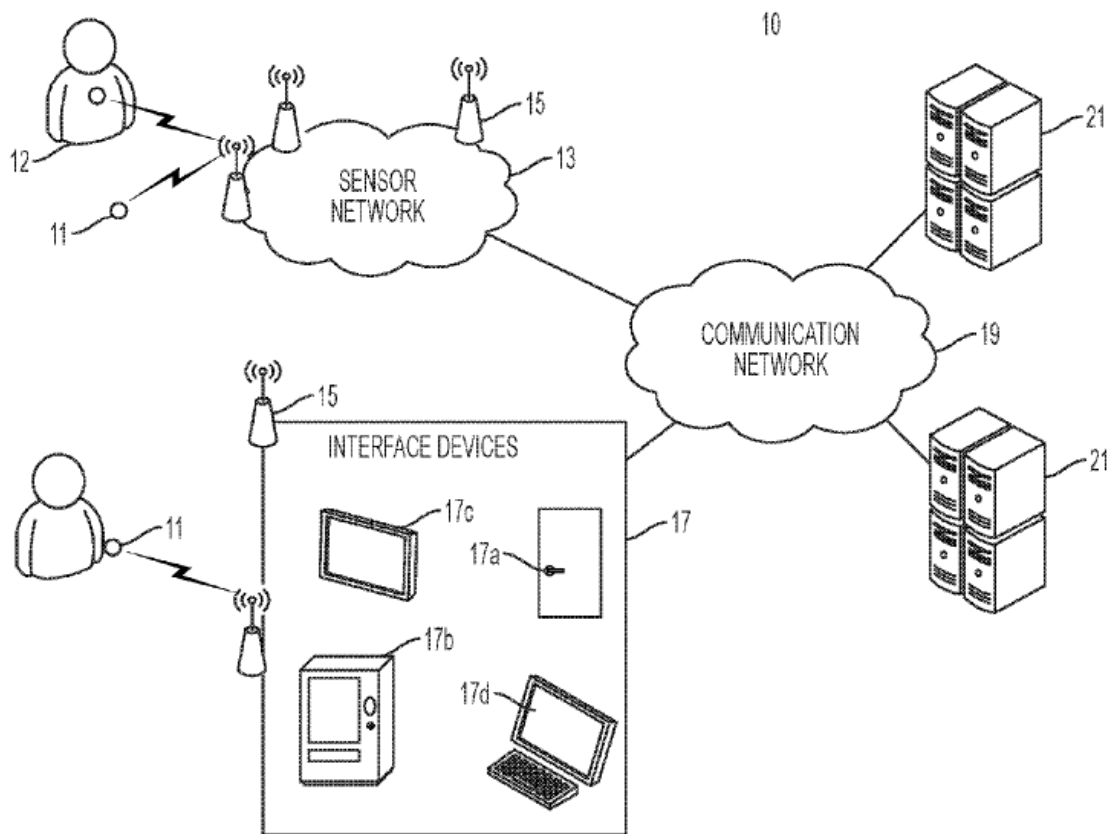


FIG. 1A

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 ’184 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 '184 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.

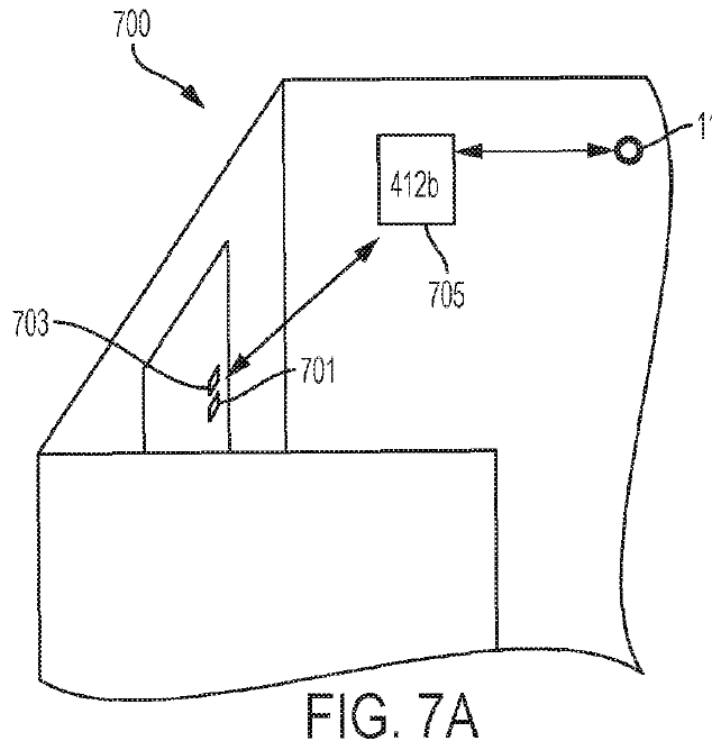


Figure 7A shows “an automated door lock assembly 700 that provides the functionality of the door lock 17a to automatically unlock a door based on an interaction with the guest’s medallion.” *Id.*

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

Of the challenged claims, claims 1, 7, 11, and 19 are independent. Each of claims 2–6, 8–10, 12–18, and 20 depends, directly or indirectly, from one of claims 1, 7, 11, and 19. Claim 1 is illustrative and is reproduced below with bracketed identifying labels added.¹

1. [1pre] A guest engagement system comprising:
 - [1[a]] a plurality of portable guest devices provided to users of the guest engagement system to be carried by the users, each guest device including a wireless communication antenna and operative to emit a periodic beacon signal broadcasting a unique identifier of the guest device using Bluetooth low energy (BLE) communications;
 - [1[b]] a sensor network comprising a plurality of sensors each mounted at a different known location and operative to detect the periodic beacon signals including the unique identifiers emitted using BLE communications by portable guest devices of the plurality of portable guest devices that are proximate to the sensor;
 - [1[c]] a communication network connecting each of the plurality of sensors of the sensor network; and
 - [1[d]] a central server communicatively connected to each of the plurality of sensors of the sensor network via the communication network, and storing a log associating each unique identifier of a portable guest device detected using BLE communications by a sensor of the sensor network with the known location of the sensor and a timestamp,

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

- [1[e]] wherein the plurality of sensors of the sensor network comprises a plurality of access panels each configured to control an associated electronically controlled door lock,
- [1[f]] each access panel is operative to detect the periodic beacon signals including the unique identifiers emitted using BLE communications by guest devices that are proximate thereto, and to selectively unlock the associated electronically controlled door lock based on the unique identifier of the detected periodic beacons, and
- [1[g]] each access panel comprises: a radio configured for wireless communication with a door lock communication module electrically connected to an electronically controlled locking mechanism of the associated electronically controlled door lock;
- [1[h]] a first transceiver configured for wireless BLE communication with the guest devices to identify users seeking to activate the electronically controlled locking mechanism; and
- [1[i]] a second transceiver configured for communication with the central server storing identifiers of users authorized to activate the electronically controlled locking mechanism.

Ex. 1001, 40:17–62.

E. ASSERTED GROUNDS OF UNPATENTABILITY

Petitioner challenges the patentability of claim 1–20 of the '184 patent on the following grounds (Pet. 5):

Claim(s) Challenged	35 U.S.C. §	References
1–8, 10	103 ²	Barry ³ , Trani ⁴ , Elfström ⁵
9	103	Barry, Trani, Elfström, and Brulé ⁶
11–15	103	Soleimani ⁷ , Berg ⁸
16	103	Soleimani, Berg, and Trani
17, 18	103	Soleimani, Berg, and Barry
19, 20	103	Soleimani, Berg, Brulé

In support of its unpatentability contentions, Petitioner also relies on the Declaration of Kevin Almeroth, Ph.D. Ex. 1002.

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 '184 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 Application Publication 2016/0308859 A1 (published Oct. 20, 2016) (“Barry,” Ex. 1004).

⁴ U.S. Patent Application Publication 2016/0284147 A1 (published Sep. 29, 2016) (“Trani,” Ex. 1005).

⁵ U.S. Patent 8,730,004 B2 (issued May 20, 2014) (“Elfström,” Ex. 1006).

⁶ U.S. Patent Application Publication 2015/0178532 A1 (Published June 25, 2015) (“Brulé,” Ex. 1007).

⁷ U.S. Patent 9,483,887 B1 (issued Nov. 1, 2016) (“Soleimani,” Ex. 1008).

⁸ International Patent Application WO 2016/177668 A1 (published November 10, 2016) (“Berg,” Ex. 1009).

II. ANALYSIS

A. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner contends that

[a] person of ordinary skill in the art (“POSITA”) for the ’184 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. 1002 ¶¶ 42–43). 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 ’184 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 BARRY, TRANI, AND ELFSTRÖM

1. *Overview of Barry*

Barry discloses “a multi-factor multi-biometric electronic access control reader environment.” Ex. 1004 ¶ 38. Barry shows this in Figure 1, which is reproduced below.

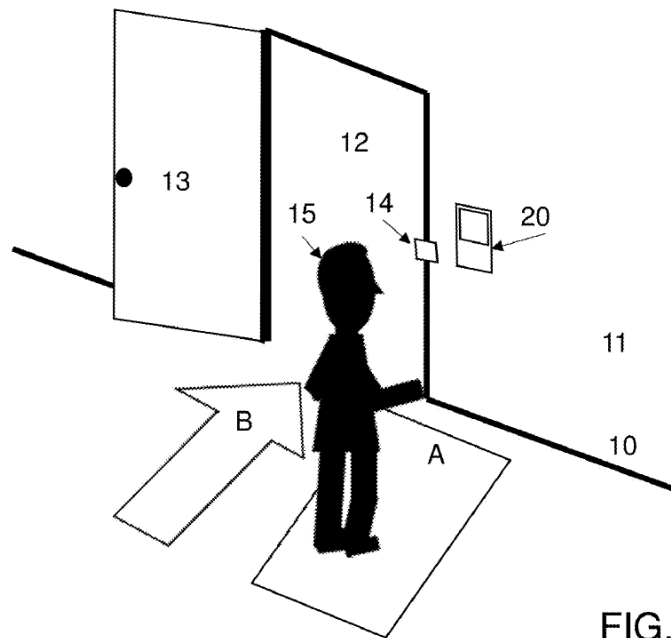


FIG. 1

Figure 1 shows wall 10 with opening 12 and associated door 13, as well as locking mechanism 14 and device 20. *Id.*

Device 20 is mounted flush on wall 10 beside door opening 12. *Id.*
Person 15 “may momentarily present themselves before device 20.” *Id.*

¶ 39. Then,

device 20 may authenticate the identity of the person 15, something possessed by the person (16), and/or something known by the person. Accordingly, if device 20 approves access of person 15 through the door opening 12, then the device 20 can communicate with the locking mechanism 14 to unlock or otherwise enable passage of person 15 through door opening 12 along a path designated by the arrowed line B.

Id. Device 20 may be “a multi-factor, multi-biometric (MFMB) electronic access control (EAC) reader.” *Id.* ¶ 43. To ensure passage of only authenticated individuals, device 20 may “verify[] that users either convey a valid biometric signal such as a face scan . . . or voice scan . . . , possess a valid credential, know something such as a valid Personal Identification Number (PIN) . . . , or some combination thereof.” *Id.*

2. Discussion

In asserting obviousness of claims 1–8 and 10 over Barry, Trani, and Elfström, Petitioner “relies on Barry as a base reference, combined with Trani for its disclosure of the portable BLE ‘beacon’ feature, and Elfström for its disclosure of the claimed antennas, transceivers, and a list of user identifiers stored on a central ‘reservation server.’” Pet. 16–17. Petitioner argues that it would have been obvious to modify Barry’s teachings with those of Trani and Elfström. *Id.* at 17–18, 20–23, 30, 32–34, 36–38, 41, 43, 45.

Patent Owner argues, among other things, that Petitioner’s showings regarding claim limitations 1[d] and 7[d] are deficient. Prelim. Resp. 26–28. Limitations 1[d] and 7[d] recite

a central server communicatively connected to each of the plurality of sensors of the sensor network via the communication network, and storing a log associating each unique identifier of a portable guest device detected using BLE communications by a sensor of the sensor network with the known location of the sensor and a timestamp.

Ex. 1001, 40:32–38, 41:45–51. Patent Owner argues that Petitioner presents deficient arguments regarding the claim language “storing a log associating each unique identifier of a portable guest device detected using BLE communications by a sensor of the sensor network with the known location

of the sensor and a timestamp.” Prelim. Resp. 26–28. We turn now to a detailed discussion of that issue.

a) Petitioner’s Arguments

Addressing limitation 1[d], Petitioner states that “Barry discloses this element.” Pet. 25. Petitioner first addresses limitation 1[d]’s requirement for “a central server communicatively connected to each of the plurality of sensors of the sensor network via the communication network.” *Id.*

Regarding this requirement, Petitioner argues that “Barry discloses a cloud server connected to multiple door sensors.” *Id.*

Petitioner then address limitation 1[d]’s requirement for “storing a log associating each unique identifier of a portable guest device detected using BLE communications by a sensor of the sensor network with the known location of the sensor and a timestamp.” *Id.* at 25–26. Addressing this requirement, Petitioner first asserts that “Barry’s central server stores a log with detected identifiers and timestamps. Barry at [0046] (each attempt is logged, including ‘authentication event data’); [0053] (access panel can ‘report access event data to a remote host’); [0198-99] (event log sent to server). Identifiers may be associated with location and timestamp.” *Id.* In support of this argument, Petitioner cites Dr. Almeroth’s testimony that

Barry’s central server logs detected identifiers and timestamps. Barry at [0046] (“The device 20 may create access event data for each access attempt. For example, authentication event data, access control operational data and alarm notifications may be sent to a cloud based system or a local PACS controller working in tandem with the device.”); [0053] (access panel can “report access event data to a remote host”); [0198-99] (“Creates an event log. Sends access event data and authentication event data to a remote, preferably cloud based, archive host via internet connection.”). Guest device identifiers may be associated with the sensor location and a timestamp to disambiguate access

attempts from the same user. *Id.* at [0175] (“[A]ccess control event data and biometric event data 180 may include at least one of the data that uniquely identifies the access attempt such as door number, location, time of day and timing of key intra-access events....”). A [person of ordinary skill in the art] would have understood that Barry’s server stores a claimed “log associating each unique identifier...with the known location of the sensor and a timestamp.”

Ex. 1002 ¶ 97. Petitioner also argues that a person of ordinary skill in the art would have recognized Barry’s central server either stores a log received from an access panel, or the central server itself compiles and stores a log. Pet. 26.

Petitioner cites the foregoing arguments to address limitation 7[d], stating that “Barry discloses [limitation 7[d]] for the reasons in Section X.C.5 above.”

b) Patent Owner’s Arguments

Patent Owner argues that Petitioner does not demonstrate that Barry expressly or inherently discloses limitations 1[d] and 7[d]. Prelim. Resp. 26–28. Patent Owner notes that “Petitioner only points to paragraph [0175] of Barry as allegedly disclosing that ‘[i]dentifiers may be associated with location and timestamp.’” *Id.* at 27. Patent Owner then argues that

Barry discloses that “access control event data and biometric event data 180 may include at least one of the data that uniquely identifies the access attempt...” Barry ¶ [0175]. The enumerated list of such data, however, does not include a “unique identifier of a portable guest device” as required by claim 1.

Id. Patent Owner adds that

even assuming *arguendo* that Barry discloses logging a device identifier, there is *no* disclosure of the log associating the device identifier with both (1) the known location of the sensor and (2) and timestamp. Barry’s disclosure of a laundry list of possible event data types, ‘one or more’ of which may be included, does

not disclose either expressly or inherently (necessarily) a log associating each of the three elements.

Id. at 27–28.

c) *Analysis*

Petitioner does not support sufficiently its position that Barry discloses limitation 1[d]’s and limitation 7[d]’s requirement for “storing a log *associating each unique identifier of a portable guest device* detected using BLE communications by a sensor of the sensor network *with the known location of the sensor and a timestamp.*” Ex. 1001, 40:34–38, 41:45–51 (emphasis added). Regarding the requirement for associating the identifier, the location, and the timestamp, the only thing the Petition says is “[i]dentifiers may be associated with location and timestamp.” Pet. 26. The only disclosure Petitioner cites for this argument is Barry’s paragraph 175. *Id.*

Paragraph 175 does not disclose expressly that “[i]dentifiers may be associated with location and timestamp.” Paragraph 175 discloses that

[r]eferring to FIG. 7, access control event data and biometric event data 180 may include at least one of the data that uniquely identifies the access attempt such as door number, location, time of day and timing of key intra-access events, solutions to all factor tests submitted, measure of how accurately users were characterized, the measure of how accurately users could be distinguished amongst themselves, a characterization of the temporal variations in the users' characterizations, the prevailing ambient environmental conditions proximate to the controlled portal, a raw data image (either two or three dimensional) of the user attempting access, a synthesized image (either two or three dimensional) of the user attempting access, and multi-biometric comparison results.

Ex. 1004 ¶ 175. Neither this long list of different kinds of data, nor any other part of paragraph 175, discloses an “identifier” or “identifiers,” much

less a “unique identifier of a portable guest device,” as recited in limitation 1[d]. Moreover, paragraph 175 does not disclose “associating” the three specific data recited in the claim.

To the extent Petitioner’s argument that “Barry discloses” limitation 1[d] means Barry inherently discloses limitation 1[d], Petitioner also does not support that position. Establishing inherent disclosure of a limitation requires showing that the limitation necessarily results from the prior art disclosure. *Continental Can Co. v. Monsanto Co. v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991) (“Inherency, however, may not be established by probabilities or possibilities.”). Petitioner does not allege or demonstrate that a “unique identifier of a portable guest device” necessarily results from the disclosure of Soleimani’s paragraph 175, much less that such an identifier is necessarily associated with location and a timestamp. As noted above, the Petition states that “[i]dentifiers *may* be associated with location and timestamp.” (Pet. 26 (emphasis added)).

Because Petitioner does not support its position that “Barry discloses” limitations 1[d] and 7[d] and does not argue that limitations 1[d] and limitation 7[d] would have been obvious, Petitioner does not demonstrate a reasonable likelihood of prevailing on Ground 1.

D. GROUND 2 – ALLEGED OBVIOUSNESS OVER BARRY, TRANI, ELFSTRÖM, AND BRULÉ

Building from Ground 1, Ground 2 cites Brulé to address certain recitations added by claim 9, which depends from claim 7. Pet. 48–50. The arguments presented in Ground 2 do not cure the deficiencies, discussed above in Section II.C.2.c, of Petitioner’s challenge of independent claim 7 in Ground 1. Accordingly, Petitioner does not demonstrate a reasonable likelihood of prevailing on Ground 2.

E. GROUND 3 – ALLEGED OBVIOUSNESS OVER SOLEIMANI AND BERG

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. 1008, 1:7–10. Figure 2 of Soleimani is reproduced below.

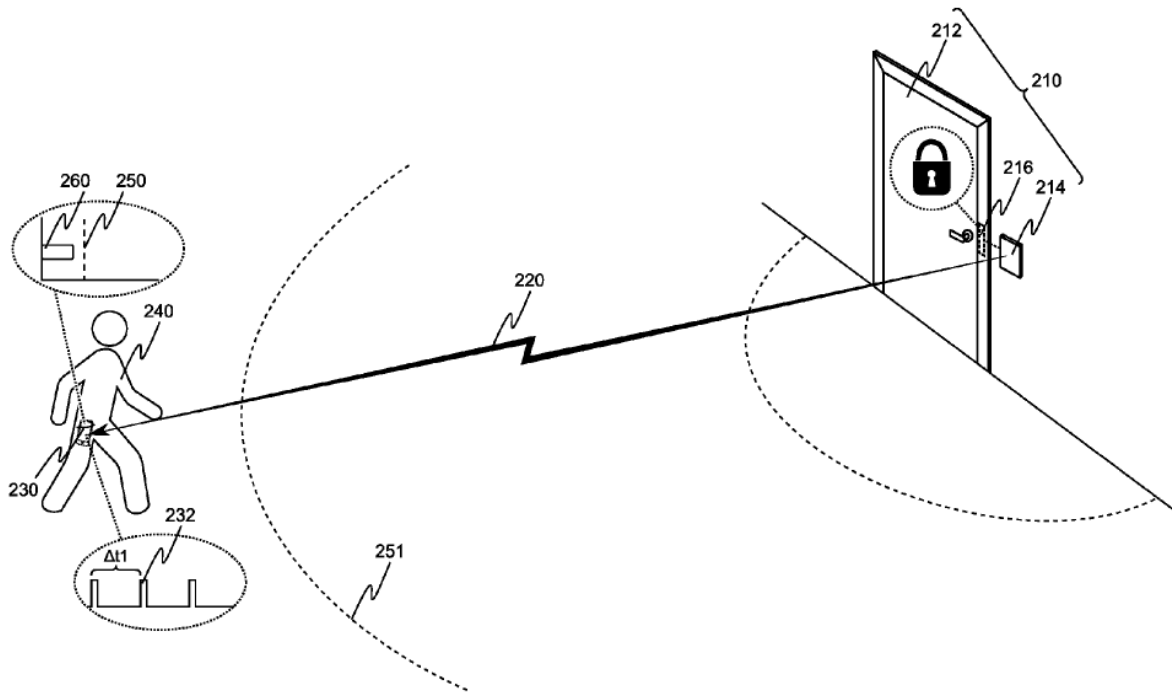


FIG. 2

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.

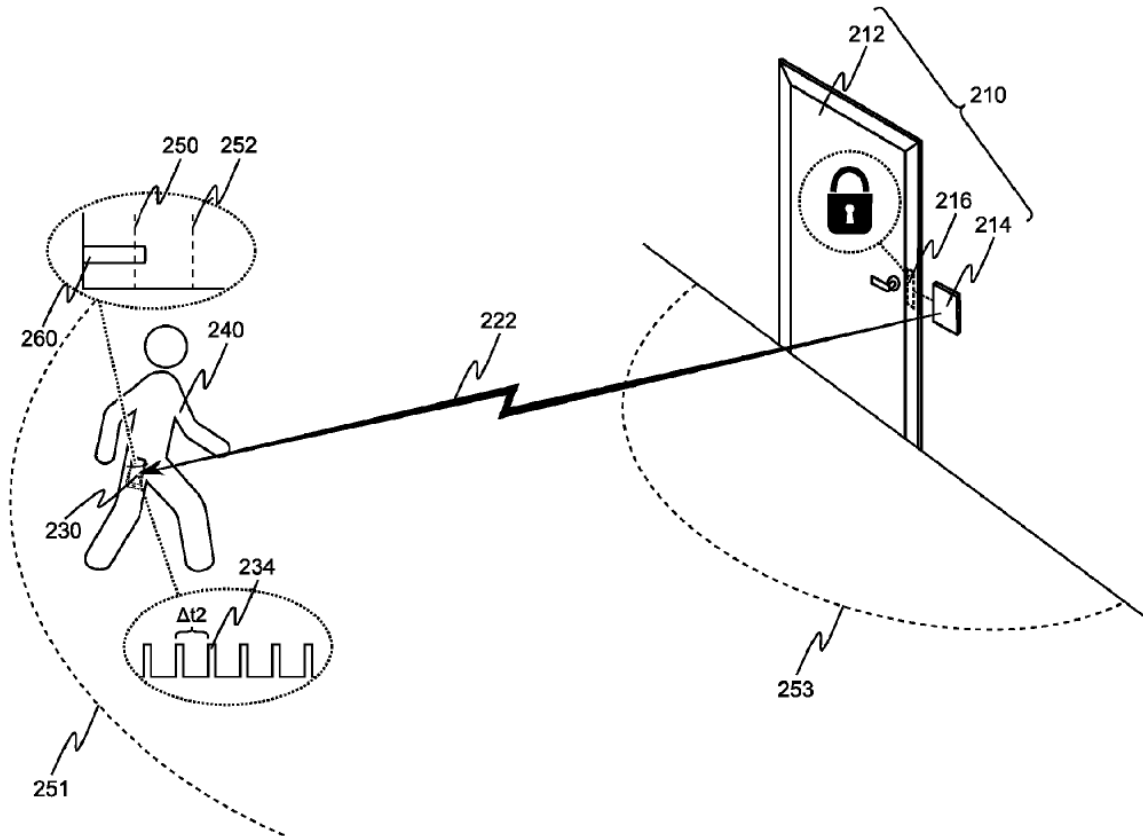


FIG. 3

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.

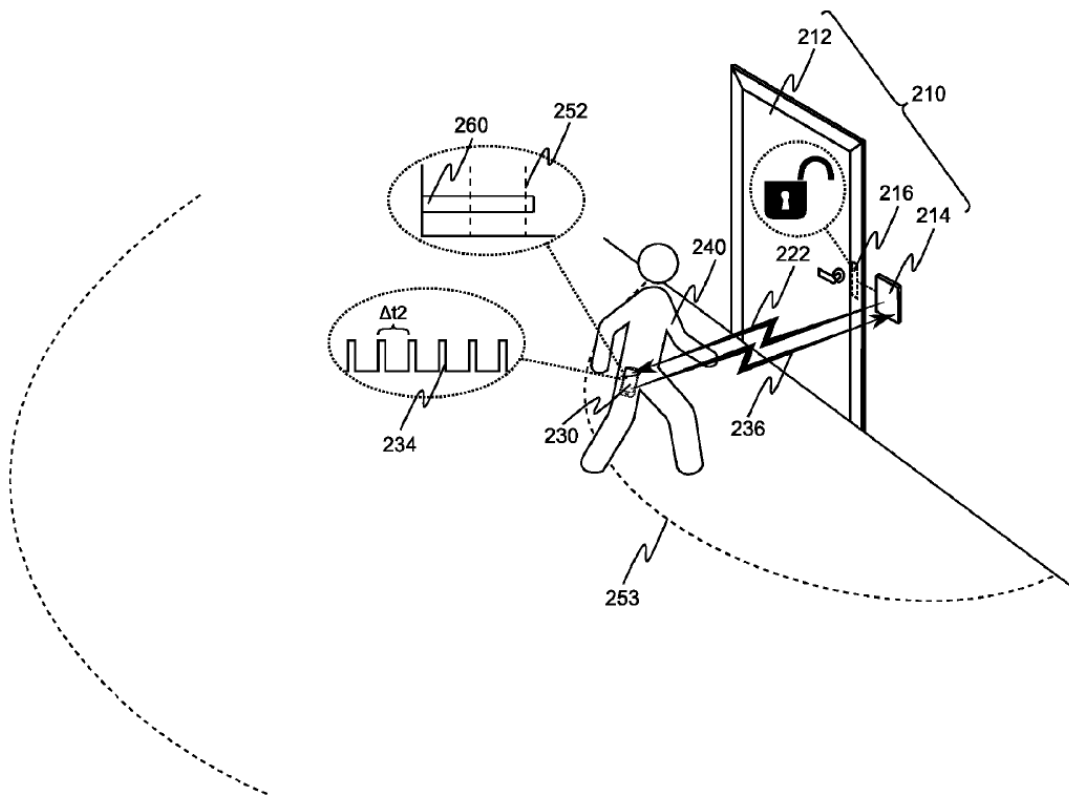


FIG. 4

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 17:60–18:7.⁹

⁹ 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 claims 11–15 over Soleimani and Berg, Petitioner “uses Soleimani as a base reference,” adding that “Berg teaches dual antennas.” Pet. 50. Petitioner argues that a person of ordinary skill in the art would have been motivated to modify Soleimani’s teachings with Berg’s. *Id.* at 50–52, 54–56, 58–59.

Patent Owner alleges, among other things, deficiencies in Petitioner’s arguments regarding limitation 11[f]. Prelim. Resp. 28–30. We turn now to a detailed discussion of this issue.

a) *Limitation 11[f]*

Limitation 11[f] recites “each sensor of the sensor network is operative to transmit a command to a guest device in its communication range to cause the guest device to change operating mode between the first and second operating modes.” Ex. 1001, 42:64–67. In this limitation, “the first and second operating modes” refers back to limitation 11[e], which recites

wherein each guest device is configured to selectively operate according to first and second operating modes, each guest device engaging in bi-directional communication using the first wireless communication antenna configured for BLE communications in the first operating mode and engaging in a beacon mode periodically broadcasting a beacon signal using the first wireless communication antenna configured for BLE communications in the second operating mode.

Id. at 42:55–63.

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 indicates that Soleimani's "wireless mobile device" constitutes the "guest engagement device" recited in limitation 11[f]. *See* Pet. 52 (equating Soleimani's "wireless mobile devices" with limitation 11[a]'s "plurality of portable guest devices.>").

Petitioner contends that Soleimani's disclosed "indication of . . . proximity" (Ex. 1008, 10:56–60) constitutes "the 'command' recited by claim 11." Pet. 65. Specifically, Petitioner argues that

[a]n access control device may transmit a "received signal strength indication" (RSSI) in its periodic beacon. Soleimani at 7:47-50. If the RSSI signal exceeds a threshold, the portable device may respond, by "provid[ing] an indication of its proximity." *Id.* at 10:56-60. When the roles of the devices are reversed, a [person of ordinary skill in the art] would recognize that the access control device would become responsible for receiving the RSSI information in the beacon, and providing the portable device with the indication of proximity. This indication of proximity, which triggers the portable device to switch modes and begin operating bi-directionally, is therefore the "command" recited by claim 11. *Compare* '184 patent at 22:21-30. For example, access devices in Soleimani's system could operate in the BLE scanning/central role, and then transmit an indication of proximity based on RSSI, which would consequently trigger the guest device to switch from a beacon to a bi-directional mode. Almeroth ¶ 199.

Pet. 65.

(2) *Patent Owner's Arguments*

Patent Owner argues that Soleimani's "indication of . . . proximity" does not constitute the "command" required by limitation 11[f]. Prelim. Resp. 28–30. Patent Owner asserts that "Soleimani does not disclose that 'the indication of proximity' causes any device to change operating modes." *Id.* at 28. Patent Owner notes that Soleimani discloses the "indication of . . .

proximity” at column 10, lines 56–63, which does not say anything about triggering functionality. *Id.* at 28–29. Additionally, Patent Owner argues that Soleimani does not even disclose switching any device to a bi-directional operating mode under the conditions associated with the “indication of . . . proximity.” *Id.* at 29. Patent Owner explains that the “indication of . . . proximity” occurs when RSSI 260 meets or exceeds first signal strength threshold. Under that condition, Soleimani discloses performing various actions, but “[n]one of these actions corresponds to transmitting a command to cause a device to change operating mode between the first and second operating modes as required by the claims,” Patent Owner argues. *Id.*

Patent Owner also asserts that “Petitioner provides no evidence that the ‘*indication of proximity*’ is a *command*.” *Id.* Patent Owner argues that, unable to cite a disclosure of a “command” in Soleimani, Petitioner “attempts to paper over this deficiency through a comparison to part of the ’184 Patent’s disclosure.” *Id.* Explaining that the portion of the ’184 patent cited by Petitioner expressly discloses a “command,” Patent Owner contends that the comparison does not support Petitioner’s position. *Id.* at 29–30.

(3) *Analysis*

Petitioner does not address persuasively limitation 11[f]. Petitioner fails to support sufficiently its assertion that Soleimani’s “indication of proximity . . . triggers the portable device to switch modes and begin operating bi-directionally.” Pet. 65. For example, Petitioner does not provide a persuasive basis for asserting that Soleimani’s “indication of proximity” triggers any device to switch to a bi-directional communication mode. In the section addressing limitation 11[f], the Petition cites only two

portions of Soleimani: column 7, lines 47–50 and column 10, lines 56–60. *Id.* The first cited portion says “[w]ireless mobile device 230 may also be configured to obtain a received signal strength indicator (RSSI) 260 for the detected RF advertisement.” Ex. 1008, 7:47–50. The second cited portion says “[i]n response to RSSI 260 being equal to or greater than first signal strength threshold 250, 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. Facially, these statements do not disclose Soleimani’s “indication of . . . proximity” triggers a device to switch to a bi-directional communication mode.

And Petitioner does not otherwise show that a person of ordinary skill in the art would have understood that Soleimani’s “indication of . . . proximity” would trigger a device to switch to a bi-directional communication mode. Consistent with Patent Owner’s argument, Petitioner does not cite any disclosure in Soleimani of a switch to a bi-directional communication mode merely because of the “indication of . . . proximity” or the associated condition that RSSI 260 equals or exceeds first signal strength threshold 250. *See* Prelim. Resp. 28–29. Indeed, Petitioner does not show that Soleimani’s mobile device 230 does not operate in a bi-directional communication mode continuously, including before and after providing the “indication of its proximity.”

Aside from those deficiencies, the Petition fails to reconcile persuasively its reliance on different embodiments of Soleimani. Petitioner explains that “Soleimani expressly teaches that while some of its embodiments describe RF communication unit 210 operating in a BLE GAP broadcaster/peripheral role with wireless mobile device 230 operating in the

BLE GAP scanning/central or common role, those roles may be reversed.”

Pet. 57–58. Soleimani’s disclosure of reversing the roles constitutes an “alternative embodiment,” as Petitioner notes in a related petition. IPR2021-00783, Paper 1, 33. Petitioner argues that

[w]hen the roles of devices are reversed, a [person of ordinary skill in the art] would recognize that the access control device would become responsible for receiving the RSSI information in the beacon, and providing the portable device with the indication of proximity. This indication of proximity, which triggers the portable device to switch modes and begin operating bi-directionally, is therefore the “command” recited by claim 11.

Pet. 65.

But Petitioner cites no portion of Soleimani disclosing that, in the reversed roles embodiment, the portable device would switch to a bi-directional communication mode. Instead, when arguing that Soleimani discloses the portable device switching to a bi-directional communication mode, Petitioner cites Soleimani’s disclosure of the unreversed embodiment. Pet. 61–63. Petitioner argues that “[a person of ordinary skill in the art] would recognize that when Soleimani references the transmission of message 236 for validation, in addition to other messages being exchanged, it is describing a well-known, bi-directional request/response authentication process.” *Id.* at 62–63. To the extent Petitioner is correct that this disclosure of the unreversed embodiment means mobile device 230 switches to a bi-directional communication mode, Soleimani’s reversed embodiment would reverse the roles of wireless mobile device 230 and RF communication unit 214. Ex. 1008, 17:60–64. Thus, rather than having wireless mobile device 230 switching to a bi-directional communication mode, Soleimani’s reversed-roles embodiment would involve RF communication unit 214

switching to a bi-directional communication mode. Petitioner does not provide a persuasive reason that a person of ordinary skill in the art would have deviated from Soleimani's disclosure by having (1) mobile device 230 switch to a bi-directional communication mode (as allegedly happens in the unreversed embodiment) and (2) RF communication unit 214 send an "indication of . . . proximity" (as allegedly happens in the reversed-roles embodiment).

Because Petitioner does not address persuasively limitation 11[f], Petitioner does not demonstrate a reasonable likelihood of prevailing on Ground 3.

F. GROUND 4 – ALLEGED OBVIOUSNESS OVER SOLEIMANI, BERG, AND TRANI

Building from Ground 3, Ground 4 cites "Trani for the sensor types required by claim 16." Pet. 69. The arguments presented in Ground 4 do not cure the deficiencies, discussed above in Section II.E.2.a, of Petitioner's challenge of independent claim 11 in Ground 3. Accordingly, Petitioner does not demonstrate a reasonable likelihood of prevailing on Ground 4.

G. GROUND 5 – ALLEGED OBVIOUSNESS OVER SOLEIMANI, BERG, AND BARRY

Building from Ground 3, Ground 5 cites "Barry for the additional limitations of claims 17 and 18 relating to 'sensor network peripherals.'" Pet. 70. The arguments presented in Ground 5 do not cure the deficiencies, discussed above in Section II.E.2.a, of Petitioner's challenge of independent claim 11 in Ground 3. Accordingly, Petitioner does not demonstrate a reasonable likelihood of prevailing on Ground 5.

H. GROUND 6 – ALLEGED OBVIOUSNESS OVER SOLEIMANI, BERG,
AND BRULÉ

In asserting obviousness of claims 19 and 20 over Soleimani, Berg, and Brulé, Petitioner “relies on Soleimani and Berg as base references and further relies on Brule for additional teachings of vending terminals and payment transactions.” Pet. 74. Petitioner argues that a person of ordinary skill in the art would have had motivation to combine the references’ teachings. *Id.* at 50–52, 54–56, 58–59, 75–78.

Patent argues that Petitioner does not show sufficiently that a person of ordinary skill in the art would have combined the references’ teachings. Patent Owner first argues that Petitioner has not demonstrated a motivation to combine Berg with Soleimani. Prelim. Resp. 31–33. Patent Owner then argues that Petitioner has not demonstrated a motivation to modify Soleimani with the teachings of Brulé. *Id.* at 34. With respect to this issue, weighing the parties’ arguments, we see some merit in Petitioner’s arguments that a person of ordinary skill in the art would have been motivated to combine the teachings of Soleimani, Berg, and Brulé. We do not further address the merits of Petitioner’s challenge to claim 19. As explained below in Section III, given that Petitioner fails to show a reasonable likelihood of prevailing with respect to nearly all of the challenged claims, we exercise our discretion not to institute *inter partes* review.

Patent Owner also argues that Petitioner does not address persuasively claim 20’s requirement that “each sensor of the sensor network is operative to transmit a command to a guest device in its communication range to cause the guest device to change operating mode between the first and second operating modes.” Prelim. Resp. 28–30. This limitation is identical to

limitation 11[f], which is discussed above in Section II.E.2.a. Accordingly, Petitioner addresses the “command” recited in claim 20 by referring back to its arguments that Soleimani discloses limitation 11[f]. Pet. 78. As discussed in Section II.E.2.a.(3), Petitioner’s arguments regarding limitation 11[f] are unavailing. For the same reasons, Petitioner does not demonstrate that Soleimani discloses the “command” recited in claim 20. Consequently, Petitioner does not demonstrate a reasonable likelihood of prevailing on its challenge of claim 20.

III. CONCLUSION

As explained above in Sections II.C–H, Petitioner fails to demonstrate a reasonable likelihood of prevailing on its challenge of claims 1–18 and 20. Given this, we determine that it would not be an efficient use of Board resources to institute an *inter partes* review. *See Chevron Oronite Co. v. Infineum USA L.P.*, IPR2018-00923, Paper 9 at 10–11 (PTAB Nov. 7, 2018) (informative); *see also Deeper, UAB v. Vexilar, Inc.*, IPR2018-01310, Paper 7 at 41–43 (PTAB Jan. 24, 2019) (informative). Accordingly, we exercise discretion under 35 U.S.C. § 314(a) to decline to institute *inter partes* review.

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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Patent 10,045,184 B2

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