

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VIVINT, INC.,
Petitioner,

v.

SB IP HOLDINGS LLC,
Patent Owner.

IPR2022-00812
Patent 8,154,581 B2

Before JAMESON LEE, KARL D. EASTHOM, and JON M. JURGOVAN,
Administrative Patent Judges.

JURGOVAN, *Administrative Patent Judge.*

DECISION
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. *Background*

Vivint, Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–10, 12, and 15–20 (“challenged claims”) of U.S. Patent No. 8,154,581 B2 (Ex. 1001, “the ’581 patent”). Paper 1 (“Pet.”). SB IP Holdings LLC (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). We instituted *inter partes* review under 35 U.S.C. § 314(a). Paper 8 (“Inst. Dec.”).

During the trial, Patent Owner filed a Response (Paper 13, “Resp.”), Petitioner filed a Reply (Paper 20), and Patent Owner filed a Sur-Reply (Paper 22). Petitioner and Patent Owner requested oral argument (Papers 23 and 24). A hearing was conducted on August 10, 2023. Paper 31 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). Having reviewed the complete trial record, we determine that Petitioner has shown, by a preponderance of the evidence, that the challenged claims are unpatentable.

B. *Real Parties in Interest*

Petitioner and Patent Owner identify themselves as real parties in interest. Pet. 1; Paper 4, 1.

C. *Related Proceedings*

Petitioner and Patent Owner each identify the following related litigations involving the ’581 patent:

- *SB IP Holdings LLC v. Vivint Smart Homes, Inc.*, Case No. 4:21-cv-00912 (E.D. Tex.)
- *Vivint, Inc. v. Vivint Smart Home, Inc.*, Case No. 2:21-cv-09472 (C.D. Cal.)

- *SB IP Holdings v. Vivint Smart Home, Inc.*, Case No. 4:20-cv-00886 (E.D. Tex.)

The following *inter partes* review proceedings involve patents related to the '581 patent:

- IPR2022-00810 (U.S. Patent No. 8,139,098 B2)
- IPR2022-00811 (U.S. Patent No. 8,144,184 B2)
- IPR2022-00813 (U.S. Patent No. 8,164,614 B2)
- IPR2022-00814 (U.S. Patent No. 8,144,183 B2)
- IPR2022-01352 (U.S. Patent No. 8,154,581 B2)
- IPR2022-01364 (U.S. Patent No. 8,144,184 B2)
- IPR2022-01365 (U.S. Patent No. 8,164,614 B2)
- IPR2022-01449 (U.S. Patent No. 7,193,644 B2)

Pet. 2; Paper 4, 1; Paper 30, 2–3.

Patent Owner identifies the following related patent applications:

- U.S. Patent Application 17/113,189, filed December 7, 2020
- U.S. Patent Application 14/338,525, filed July 23, 2014

Paper 4, 3.

Patent Owner identifies other indirectly related judicial matters before the federal district courts and the U.S. Court of Appeals for the Federal Circuit. *Id.* at 2.

D. The '581 Patent (Ex. 1001)

The '581 patent is titled “Audio-Visual Communication System for Receiving Person at Entrance.” Ex. 1001, code (54). The '581 patent discloses an “audio-video communication system with a wireless exterior module located proximate an entrance, a computerized controller running a software application, and a remote peripheral device.” *Id.* at code (57).

“The wireless exterior module includes a proximity sensor for detecting a person at the entrance, a video camera for recording an image of the person at the entrance, a microphone for recording the person at the entrance, a speaker for playing audio to the person at the entrance, . . . and a receiver for receiving communications at the wireless exterior module.” *Id.* “The computerized controller is disposed in wireless electronic communication with the wireless exterior module via the transmitter and the receiver of the wireless exterior module.” *Id.* “The remote peripheral device is configured to electronically communicate with the computerized controller for viewing an image from the video camera communicated from the wireless exterior module.” *Id.*

Additional details of the system are shown in Figure 1 below.

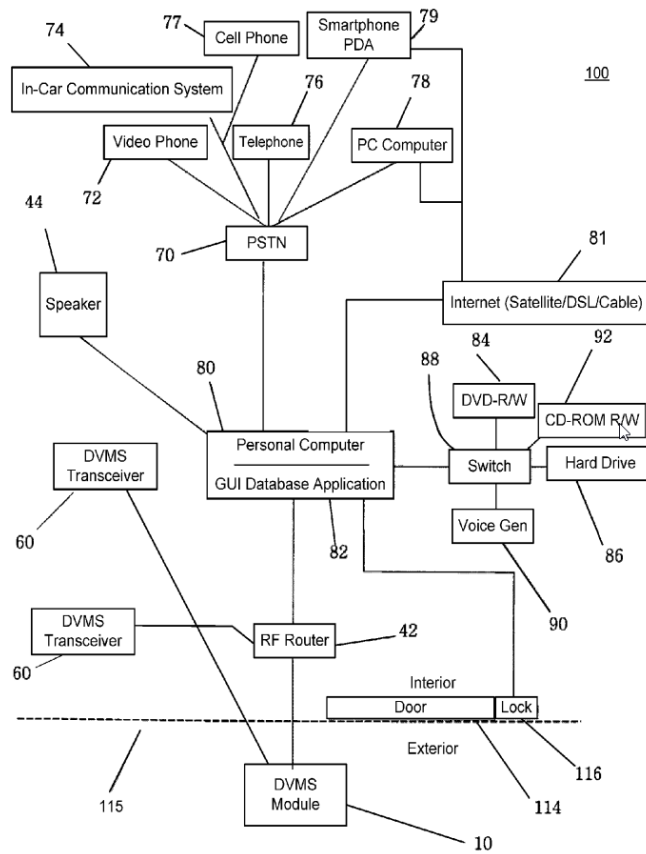


FIG. 1

Specifically, Figure 1 shows system 100 having DVMS¹ module 10 located on the exterior of the home or office proximate to door 114. *Id.* at 7:45–47. Personal computer 80 runs a software application that includes DVMS Database Application 82 and graphic user interfaces (GUIs). *Id.* at 7:28–30. Personal computer 80, in accordance with the software application, controls communication in system 100, coordinates multiple communication devices in system 100, and is used to define responses to prompts and events in system 100. *Id.* at 7:30–34.

System 100 further includes one or more remote peripheral devices. *Id.* at 8:54–55. Such devices generally include video phones 72, in-car communication systems such as the well-known ONSTAR system 74 currently found in GM cars, telephones 76, cell phones 77, personal computers 78, smartphones/personal digital assistants (PDAs) 79, and other similar communication devices. *Id.* at 8:55–60. Each remote peripheral device is configured for electronic communication with personal computer 80 via at least public switching telephone network (“PSTN”) connection 70 or broadband connection 81. *Id.* at 8:60–63.

Figure 2 of the ’581 patent is reproduced below:

¹ The ’581 patent does not define the acronym “DVMS.”

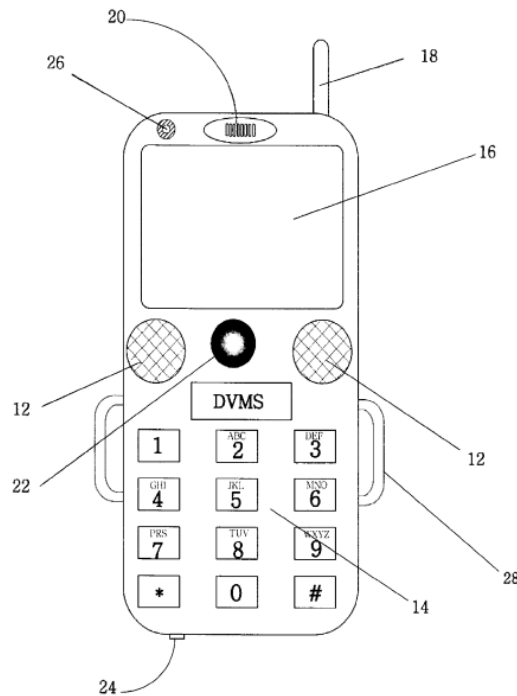


FIG. 2

10

Figure 2 shows DVMS module 10 having video camera 22, speakers 12, proximity sensor 26, microphone 20, LCD display 16, quick connect electrical receptacle 24, and radio frequency receiver/transmitter represented by antenna 18. *Id.* at 7:51–55. Upon detection of movement, proximity sensor 26 activates camera 22, which in turn relays an image or streaming video to personal computer 80 where it is saved in a database in association with a timestamp. *Id.* at 7:55–59.

E. Illustrative Claim

Claim 1 is the only independent claim of the '581 patent, and claims 2–10, 12, and 15–20 depend directly from claim 1, which is reproduced below:

1. An audio-video communication system, comprising:
 - (a) a wireless exterior module located proximate an entrance, said wireless exterior module having a proximity sensor for detecting a person at the entrance, a video camera for recording

an image of the person at the entrance, a microphone for recording sound of the person at the entrance, a speaker for playing audio to the person at the entrance, a transmitter for communicating sounds and images of the person at the entrance, and a receiver for receiving communications at the wireless exterior module;

(b) a computerized controller running a software application and disposed in wireless electronic communication with said wireless exterior module via said transmitter and said receiver of said wireless exterior module, wherein said computerized controller is configured to control recording of communications with said wireless exterior module and playback of such recording, and wherein said software application includes a graphic user interface that enables a user to view images from said video camera communicated from said wireless exterior module; and

(c) a remote peripheral device configured to electronically communicate with said computerized controller for viewing an image from said video camera communicated from said wireless exterior module.

Ex. 1001, 19:36–61.

F. Evidence Relied on by Petitioner

Petitioner relies on the following evidence:²

References		Date	Exhibit
Vaios ³	U.S. Patent No. 6,271,752 B1	Issued August 7, 2001	1003

² The '581 patent issued from Application 11/618,615, filed December 29, 2006. Ex. 1001, codes (21, 22). The '581 patent is a continuation-in-part of Application 10/682,185, filed October 9, 2003, now Patent 7,193,644, and also claims priority to Provisional Application 60/418,384, filed October 15, 2002. *Id.* at codes (60, 63).

³ Petitioner contends that Vaios is prior art under § 102(b).

References		Date	Exhibit
Menard ⁴	International Pat. Pub. No. WO 01/093220 A1	Published Dec. 6, 2001	1004
Naidoo ⁵	U.S. Patent No. 6,658,091 B1	Issued December 2, 2003; filed Feb. 1, 2002	1005
Klein ⁶	U.S. Appl. No. 2004/0080615 A1	Published April 29, 2004; filed August 21, 2003	1006

Pet. 2–3.

Petitioner relies on a Declaration of Dr. Bertrand M. Hochwald.

Ex. 1002. Patent Owner relies on a Declaration of Dr. Robert Ak1.

Ex. 2003. Petitioner also relies on a Reply Declaration of Dr. Hochwald.

Ex. 1051.⁷ The parties further rely on deposition testimony of the Declarants. Ex. 1031 (deposition of Dr. Ak1); Ex. 2009 (deposition of Dr. Hochwald).

G. Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 1–10, 12, and 15–20 of the ’581 patent on the following grounds:

⁴ Petitioner contends that Menard is prior art under at least §§ 102(a) and (b).

⁵ Petitioner contends that Naidoo is prior art under at least § 102(e).

⁶ Petitioner contends that Klein is prior art under at least § 102(e).

⁷ Exhibit 1051 has a cover page that identifies it as “Exhibit 1047.” We will refer to this Reply Declaration of Dr. Hochwald as “Exhibit 1051” as it was electronically filed in the record.

Claim(s) Challenged	35 U.S.C. § ⁸	Reference(s)/Basis
1–7, 9, 10, 15–17, 20	102(b), 103(a)	Vaios
15	103(a)	Vaios, Naidoo
1–10, 12, 15–20	103(a)	Vaios, Menard
15	103(a)	Vaios, Menard, Naidoo
1, 2, 4–10, 12, 16–20	103(a)	Klein, Menard, Vaios
2, 3, 15	103(a)	Klein, Menard, Vaios, Naidoo

Pet. 9, 34, 36, 50, 51, 75.

II. ANALYSIS

In this section, we address Petitioner’s contentions that the challenged claims are unpatentable and Patent Owner’s arguments for patentability.

A. Legal Principles of Obviousness

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious to a person having ordinary skill in the art to which said subject matter pertains. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed

⁸ The Leahy-Smith America Invents Act, Pub. L. No. 112–29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102, 103. Based on the record before us, the ’581 patent has an effective filing date prior to the effective date of the applicable AIA amendments (March 16, 2013). Therefore, we apply the pre-AIA versions of 35 U.S.C. §§ 102, 103.

subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations, including commercial success, long-felt but unsolved needs, failure of others, and unexpected results.⁹ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). “[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d at 988.

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art at the time of the alleged invention “is generally one who has a Bachelor’s degree in computer science, electrical engineering, or a related field, with two years of experience in audio and/or video processing, networked communication systems, sensor systems, and/or remote monitoring systems.” Pet. 8 (citing Ex. 1002 ¶¶ 21–24).

Patent Owner contends that Petitioner’s declarant, Dr. Hochwald, provided “a wholly conclusory opinion that is devoid of any analysis or even explanation for how the expert’s opinion was reached.” Resp. 3. Patent Owner contends that Dr. Hochwald “lists a handful of factors” and “fails to provide any analysis of those factors” such that the Board could determine whether his opinion is based on sufficiently facts or data; is the product of reliable principles and methods; and reliably applied the principles and

⁹ The parties do not introduce any evidence of secondary considerations of nonobviousness.

methods to the facts of the case. *Id.* (citing Ex. 1002 ¶¶ 21–23; F.R.E. 702). Patent Owner contends that Dr. Hochwald’s conclusory opinion should be given no weight. *Id.* In addition, Patent Owner contends that Dr. Hochwald’s opinion is a “black box” such that “each of Petitioner’s grounds lack a reliable prerequisite determination of the level of skill of a [person of ordinary skill in the art] and are flawed as a result.” *Id.*

In Reply, Petitioner contends that its expert, Dr. Hochwald, explained the factors he considered in establishing the proposed level of skill in the art. Reply 1–2 (citing Ex. 1002 ¶¶ 21–24). Specifically, Dr. Hochwald stated that he considered: (1) the types of problems encountered in the art, (2) prior solutions to those problems, (3) rapidity with which innovations are made, (4) sophistication of technology at the time of the invention, and (5) educational levels and experience of persons working in the field and capable of understanding the applicable scientific and engineering principles. Ex. 1002 ¶ 22. The factors considered by Dr. Hochwald align with precedent. *Custom Accessories, Inc. v. Jeffrey-Allan Industries, Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986) (citing *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 697 (Fed. Cir. 1983), cert. denied, 464 U.S. 1043 (1984)). Dr. Hochwald acknowledges that not all such factors may be present in every case, and one or more of them may predominate. *See id.* at 962–63; Ex. 1002 ¶ 22.

In addition, Petitioner contends “the prior art itself often establishes the level of skill in the art at the time of the invention, and the Board routinely relies on the prior art in doing so.” Reply 2. Petitioner contends that the level of skill in the art proposed by Petitioner and adopted by the

Board is directly supported by the prior art teachings. *Id.* (citing Pet. 5; Inst. Dec. 9–10).

Petitioner further argues that Patent Owner’s criticisms are undercut by its own expert’s adoption of a similar if not higher level of skill in the art, and his admission that his opinion would be the same under either proposed level. *Id.* (citing Ex. 2003 ¶ 36; Ex. 1031, 12:6–14:21). Specifically, Patent Owner’s expert, Dr. Akl, states that

a [person of ordinary skill in the art] would have had a Bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and two to four years of experience in the design or development of telecommunication systems, including work in the field of video communication systems, or the equivalent. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education.

Ex. 2003 ¶ 36.

Petitioner contends that “either level of skill could be adopted by the Board as consistent with the teachings of the prior art, and with no discernible effect on the outcome of this proceeding.” Reply 2.

We agree with Petitioner that the two proposed levels of ordinary skill in the art are similar and any differences are immaterial to the outcome of this case. *Id.*; Ex. 1031, 13:4–10; 14:14–21. We apply Patent Owner’s proposal, however, because it includes an upper limit of four years of experience, and also provides that graduate education could substitute for professional experience or significant experience in the field could substitute for formal education in addition to similar qualifications as Petitioner proposes. In addition, we find that Patent Owner’s statement of the level of ordinary skill in the art is consistent with the content of the applied prior art

references. *Okajima v. Bourdeau*, 261 F.3d 1350, 1354–55 (Fed. Cir. 2001) (the applied prior art may reflect an appropriate level of skill).

Accordingly, we apply Patent Owner’s proposal for the level of ordinary skill in the art in this decision.

C. Claim Construction

In this section, we address legal principles of claim construction followed by Petitioner’s and Patent Owner’s contentions and determine to apply the ordinary and customary meaning of the claim language.

1. Legal Principles of Claim Construction

We use the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b). The claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) is applicable.

Claim terms are generally given their ordinary and customary meaning as would be understood by one with ordinary skill in the art in the context of the specification, the prosecution history, other claims, and even extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises, although extrinsic evidence is less significant than the intrinsic record. *Phillips*, 415 F.3d at 1312–17. Usually, the specification is dispositive, and it is the single best guide to the meaning of a disputed term. *Id.* at 1315.

The specification may reveal a special definition given to a claim term by the patentee, or the specification or prosecution history may reveal an

intentional disclaimer or disavowal of claim scope by the inventor. *Id.* at 1316. If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998). The disavowal, if any, can be effectuated by language in the specification or the prosecution history. *Poly-America, L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016).

Only those claim terms “that are in controversy need to be construed, 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); *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

2. Claim Construction Contentions

“Petitioner does not believe particular constructions differing from the ordinary and customary meaning are required for any claim terms at this time.” Pet. 8.

In Response, Patent Owner states

Patent Owner does not take a position as to the necessity for claim construction at this time. Petitioner argues that no claim constructions are required for any term. Petition at 8. However, Petitioner then goes on to improperly construe certain claim terms in order to argue anticipation and obviousness. The Board should disregard any such improper construction, particularly without the required showing of necessity. *See 02 Micro Intern. Ltd v. Beyond Innovation Technology Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008).

Resp. 2.

In Reply, Petitioner states

[Patent Owner] complains that the Petitioner “improperly construe[s] certain claim terms in order to ague anticipation and obviousness,” but fails to identify any such instances. [Resp. 2]. Petitioner believes all grounds and corresponding arguments presented in the Petition are consistent with the plain and ordinary meaning of the relevant claim terms, and is unaware of any terms needing construction.

Reply 1 (second alteration in original).

Patent Owner does not respond to Petitioner in its Sur-Reply.

In sum, Petitioner contends that no claim construction is necessary. Patent Owner argues that it disputes Petitioner’s claim constructions that it allegedly made for its anticipation and obviousness arguments. However, Patent Owner does not identify what those allegedly disputed claim terms are nor what meanings should be ascribed to them.

As no specific controversy over claim language has been identified to us, we decline to construe any claim term and instead will apply the ordinary and customary meaning as understood by a person of ordinary skill in the art in this decision. *See Nidec, Wellman, Vivid Techs., supra.*

D. Priority Date of the ’581 Patent

Petitioner contends that the challenged claims of the ’581 patent are not entitled to their alleged 2002 priority date due to a lack of written description support under § 112 for the challenged claims. Pet. 3–6. Patent Owner argues that Provisional Application No. 60/418,384 (“the ’384 provisional”) filed October 15, 2002 provides written description support for the challenged claims and thereby establishes priority for the ’581 patent. Resp. 8–15.

Klein was filed as U.S. Application No. 10/644,818 on August 21, 2003. Ex. 1006, codes (21, 22). Klein asserts priority to Canada

Application No. 2.399.269 filed August 21, 2002. *Id.* at code (30).

Consequently, the written description issue determines whether Klein is prior art. Reply 6; Sur-Reply 1; Tr. 23:12–14, 27:22–25.

We do not reach the Klein grounds in this decision. Consequently, we need not decide whether the '581 patent has written description support from the '384 provisional or whether Klein is prior art.

E. Petitioner's Expert Testimony

Patent Owner contends that "Petitioner violates 37 C.F.R. § 42.6(a)(3) by citing Dr. Hochwald's declaration, which includes pages of arguments and evidence that are not in the Petition" and asserts that Dr. Hochwald's declaration should be disregarded. Resp. 28. Patent Owner alleges that Petitioner relies almost exclusively on Dr. Hochwald's declaration for why Vaios would be obvious, without analysis in the Petition, in order to avoid the word count limit. *Id.*

Patent Owner points to only one instance in the Petition on page 15 where this violation allegedly occurred. Resp. 28–29. Patent Owner does not indicate, however, what about page 15 of the Petition constitutes the violation that Patent Owner alleges. Petitioner contends that the three separate cites at page 15 to the Dr. Hochwald's declaration track the contentions made in the Petition. Reply 6–7. Petitioner contends that it "cannot ascertain what arguments [Patent Owner] contends have been improperly incorporated, and [Patent Owner's] conclusory assertion having no identifiable examples should be rejected." *Id.* at 7.

Patent Owner has not demonstrated that Petitioner committed the violation it asserts, nor has Patent Owner shown that the circumstances here warrant imposing the severe consequence of disregarding Petitioner's expert's declaration. Attorney argument alone is not evidence that could

support such an assertion. *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017).

F. Alleged Anticipation and Obviousness of Claims 1, 9–12, 15–17, 21 over Vaios

Claim 1 recites “a wireless exterior module . . . having . . . a speaker for playing audio to the person at the entrance.” Ex. 1001, 19:37–38, 19:42–43. Petitioner initially contended that Vaios disclosed all limitations of claim 1, including this “speaker” limitation. Pet. 8–33. However, in its Reply, Petitioner conceded that “Vaios does not expressly disclose cameras having a “speaker,” and thus does not anticipate claim 1.” Reply 9. At the hearing, Petitioner further stated that “we did concede that Grounds 1 and 2 really couldn’t stand because Vaios does not expressly disclose a speaker.” Tr. 5:16–18.

Anticipation requires that a prior art reference disclose all elements of the claim. *Net MoneyIN, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). Similarly, “[a]n obviousness determination generally requires a finding that ‘all claimed limitations are disclosed in the prior art.’” *Univ. of Strathclyde v. Clear-Vu Lighting LLC*, 17 F.4th 155, 160 (citing *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1194 (Fed. Cir. 2014); *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337–38 (Fed. Cir. 2020)). Petitioner concedes that Vaios does not disclose a speaker and that this ground cannot stand. Tr. 5:16–18. Consequently, Petitioner fails to show by a preponderance of the evidence unpatentability under § 102 or § 103 of any of the claims challenged in this ground.

G. Alleged Obviousness of Claim 15 over Vaios and Naidoo

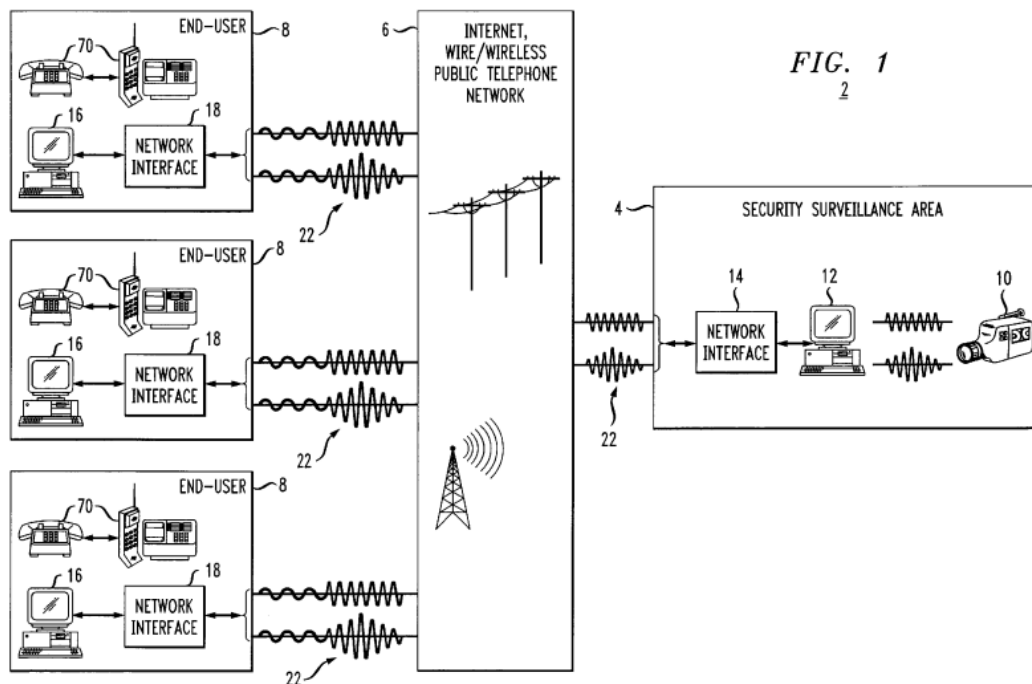
Claim 15 depends from claim 1. As explained for the previous ground, Petitioner concedes that Vaios and Naidoo fail to disclose “a wireless exterior module . . . having . . . a speaker for playing audio to the person at the entrance” as recited in claim 1. Reply 8; Tr. 5:16–18. Consequently, Petitioner fails to show unpatentability of claim 15 by a preponderance of the evidence under this ground.

H. Alleged Obviousness of Claims 1–10, 12, and 15–20 over Vaios and Menard

We now consider Petitioner’s contention that claims 1–10, 12, and 15–20 are unpatentable under § 103 over the combination of Vaios and Menard. Pet. 36–50.

1. Overview of Vaios (Ex. 1003)

Vaios’s multi-access remote system is shown in Figure 1, which is reproduced below.



Vaios's Figure 1 shows multi-access remote system 2 with security surveillance area 4, end user locations 8, and communications network 6 for establishing connection 22 with security surveillance area 4 and end user locations 8. Ex. 1003, 3:14–23.

Security surveillance area 4 comprises local computer system 12 coupled to network interface 14 and to video camera 10 having a motion sensor. *Id.* at 3:24–27.

Local computer system 12 is coupled to camera adapter 116 (Fig. 2) to video camera 10 so that video, sound, and motion sensor data can be transmitted from the camera to the local computer system, and instructions or other data can be transmitted from the local computer system to the video camera. *Id.* at 3:27–32. Local computer system 12 is also coupled to network interface 14 to use communication network 6 to establish connection 22 and communicate with one or more end user locations 8. *Id.* at 3:32–36. Local computer system 12 includes fixed storage means 109, modem 110, operating system software 111, network adapter 112, audio/video coder/decoder 114, application programming interface module 131, and application software 136. *Id.* at 3:37–4:4.

End user locations 8 comprise remote computer systems 16, network interface 18, and one or more optional communicative devices 20 such as a telephone or wireless device. *Id.* at 4:5–14. Remote computer systems 16 each comprise the same software and hardware computer components as local computer system 12. *Id.* at 4:15–17.

2. *Overview of Menard*¹⁰ (Ex. 1004)

Menard teaches a wireless communication and control system for a variety of applications, including building maintenance and control, premises security, and personal safety. Ex. 1004, 1:7–9. The system comprises a security sensor and a wireless transceiver communicating using a network protocol. *Id.* at 4:11–13. The sensor may include a motion sensor, a passive infrared motion detector, pressure sensor, position sensor, proximity sensor, glass breakage sensor, or a video camera. *Id.* at 4:16–18.

Figure 1 of Menard is reproduced below:

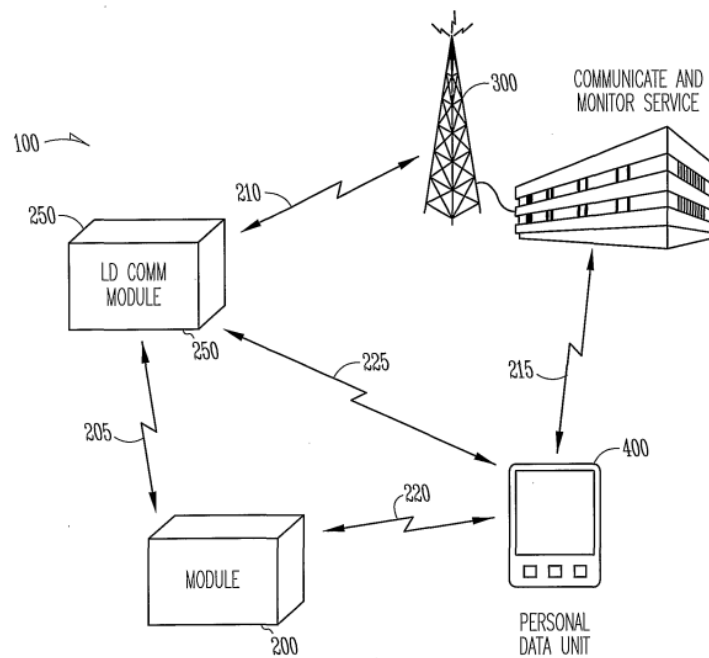


Fig. 1

Figure 1 shows a system 100 that includes “module 200, long distance communication (‘LD comm’) module 250, communication and monitor

¹⁰ Citation to the pages of Menard are made with reference to the actual page numbers of the patent publication, not to the six-digit BATES numbering added by Petitioner to Exhibit 1004.

service facility (‘facility’) 300, and personal data unit (‘PDU’) 400.”¹¹ *Id.* at 12:20–23. Module 200, in response to a sensed or detected condition, generates and wirelessly transmits digital data to LD comm module 250. *Id.* at 12:29–13:4. Additionally, module 200 is also in wireless communication with PDU 400 via link 220. *Id.* at 12:27–28.

LD comm module 250 transmits the received signal to facility 300. *Id.* at 13:8–9. LD comm module 250 is also in communication with PDU 400 via link 225. *Id.* at 13:12–13. After receiving the digital data transmitted by module 200, PDU 400 displays or renders the information in a manner useful to a person carrying PDU 400, and provides an audible signal to the user. *Id.* at 13:17–19.

Figure 7 of Menard is reproduced below:

¹¹ PDU 400 can be a two-way pager (“400A”), a cellular phone (“400B”), or a personal digital assistant (“PDA 400C”). Ex. 1004, 19:9–15.

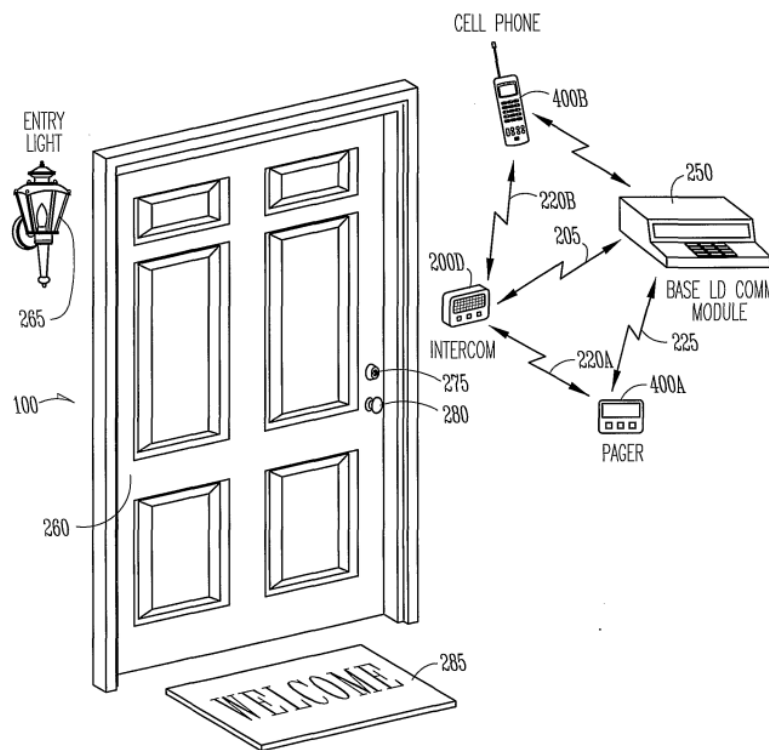


Fig. 7

Figure 7 illustrates an entry door with Menard's system. *Id.* at 10:31–32. Module 200D is mounted on the exterior of the residence and is proximate to entry door 260. *Id.* at 19:32–20:1. Module 200D is in wireless communication with PDU 400B (cellular telephone), PDU 400A (two-way pager), and base 250A that includes LD comm module as well as user operable controls and display to enable programming and operation of system 100. *Id.* at 20:3–8. Menard describes the following:

In operation, a caller at entry door 260 can initiate communication with a user via a PDU. For example, in one embodiment, a caller arriving at locked door 260 can operate module 200D in much the same way as a doorbell, that is, by activating a prominent and conspicuous button. Module 200D then encodes and communicates a digital message for transmission to PDU 400. The digital message may be

communicated directly from module 200 to PDU 400B, for example, either directly (via link 220B), or indirectly, via LD comm module 250A. In one embodiment, the communication to, and from, module 200D involves a BLUETOOTH® channel. In this example, the user receives notification of the presence of the caller by means of PDU 400B. The user, and PDU 400B, may be located inside the residence, in which case a direct connection using link 220B may be possible. Alternatively, the user, and PDU 400B, may be located outside of the residence, in which case, an indirect link, including link 205 coupling the LD comm module 250A may be employed. In either case, the caller is unlikely to perceive the actual location of the user. Furthermore, by way of operating the controls or a numeric keypad on PDU 400B, the user may control the operation of entry light 265 or lock 275 and thereby grant access to the premises for the caller.

Id. at 20:13–31.

Figure 9 of Menard is reproduced below:

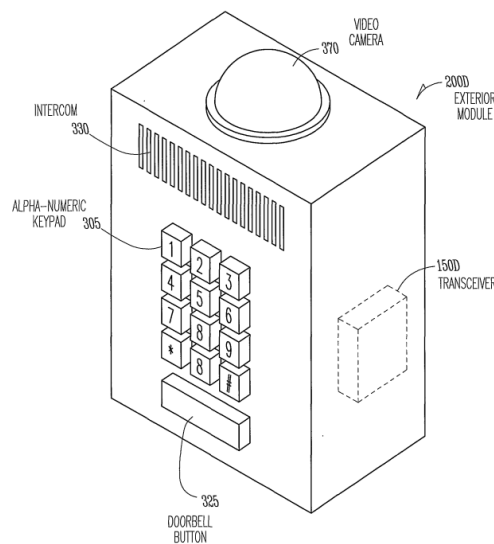


Fig. 9

Figure 9 depict exterior module 300D having video camera 370 and transceiver 150D. *Id.* at 23:15–17. The arrival of the caller is detected by video camera 370. *Id.* at 21:13–14. In response to actuation of the button,

or detection by camera 370, exterior module 200D transmits a wireless signal. *Id.* at 21:14–15.

Figure 10 of Menard is reproduced below:

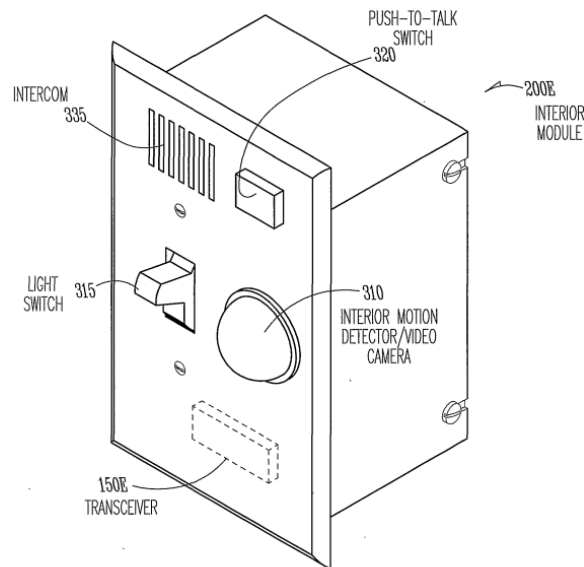


Fig. 10

Figure 10 depicts interior module 200E having intercom 335, push-to-talk (“PTT”) switch 320, interior motion detector/video camera 310, transceiver 150E and light switch 315. *Id.* at 22:29–31.

3. *Motivation to Combine*

a) *Petitioner’s Contentions*

Petitioner contends that it was obvious to use Menard’s exterior module 200D in Vaios’s system. Pet. 38 (citing Ex. 1002 ¶¶ 212–216). Specifically, Petitioner contends that it would have been obvious “to substitute Menard’s exterior module 200D for Vaios’ video camera 10,” and that this “substitution would have yielded predictable results with a reasonable expectation of success given that the devices both perform similar function using similar components and communication protocols.” *Id.* at 38–39 (citing KSR, 550 U.S. at 416).

Petitioner further contends that it was obvious to combine any of Menard’s “wireless exterior” features—including its proximity sensor, video camera, microphone, speaker, transmitter, and/or receiver—with Vaios’s video camera 10. *Id.* at 39 (citing Ex. 1002 ¶¶ 213–214). According to Petitioner, combining the components/features of Menard’s wireless exterior module 200D with Vaios’s camera 10 would have been done in a known manner with reasonable expectation of success. *Id.* Petitioner contends that the “combination would have been easily implemented using standard engineering techniques at the time, including incorporation of hardware and/or software components and standard communication protocols at the time that would not have required significant or unpredictable changes in interfaces, complexity, cost, or methodology.” *Id.* (citing Ex. 1002 ¶ 214).

Petitioner further contends that the proposed substitution or combination offered advantages such as “providing a single device that collects audio and video data at an entrance, communicates wirelessly with other network components, and enables two-way communication with a remote individual, thereby creating a more user-friendly, convenient, and easily installed monitoring system.” *Id.* at 40 (citing Ex. 1002 ¶¶ 215–216).

Petitioner contends that claims are obvious where “a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention and that there would have been a reasonable expectation of success.” *Id.* (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)). Petitioner contends the combination of Vaios and Menard renders the claims obvious. *Id.* (citing Ex. 1002 ¶¶ 204–217).

b) Patent Owner's Contentions

Patent Owner contends that Petitioner has not met its burden to demonstrate that a person of ordinary skill in the art would have been motivated to combine the teachings of Vaios and Menard with a reasonable expectation of success. Resp. 50–52.

Patent Owner contends Petitioner proposed two ways of combining Vaios and Menard to meet the “wireless exterior module” limitation of claim 1: (1) “substituting Menard’s exterior module 200D for Vaios’ video camera 10” or (2) “combine any of the ‘wireless exterior’ features, ‘proximity sensor,’ ‘video camera,’ ‘microphone,’ ‘speaker,’ ‘transmitter,’ and/or ‘receiver’ of Menard with Vaios’ video camera 10.” *Id.* at 51 (citing Pet. 38–39; Ex. 1002 ¶¶ 212–216). Patent Owner states that its expert, Dr. Akl, does not believe that either proposed combination would have been obvious to a person of ordinary skill in the art. *Id.* (citing Ex. 2003 ¶ 105).

Patent Owner also contends that Petitioner’s expert, Dr. Hochwald, admitted that he did not analyze (1) the costs of incorporating Menard’s exterior module 200D with Vaios’s architecture (Ex. 2009, 156:21–158:14), (2) any engineering hurdles (*id.* at 159:3–22), and (3) unpredictable potential results from substituting Menard’s exterior module 200D with Vaios’s video camera 10 (*id.* at 162:6). Resp. 51. Patent Owner contends that Dr. Akl states that Dr. Hochwald’s assumptions were flawed for not considering these factors. *Id.* at 51–52 (citing Ex. 2003 ¶ 107).

Patent Owner further contends that Dr. Hochwald was unable to described any hardware or software changes that would be needed to integrate features of Menard’s exterior module 200D into Vaios’s video camera 10, which Dr. Akl contends would be necessary in order to accomplish a working combination. *Id.* at 52 (citing Ex. 2009,

167:4–168:10; Ex. 2003 ¶ 109)). Patent Owner contends that this problem is compounded by Dr. Hochwald’s admission that is “[v]ery hard for me to put myself back exactly at that time” *Id.* (citing Ex. 2009, 139:4–11) (alteration in original).

For these reasons, Dr. Akl states

it would not have been obvious to a person of ordinary skill [as of the priority date of the ’581 patent] to combine Vaios and Menard by either (i) substituting Menard’s exterior module 200D for Vaios’s video camera 100 or (ii) incorporating various features from Menard’s exterior module 200D with Vaio’s video camera 100.

Id. (citing Ex. 2003 ¶ 112).

c) Discussion of Reasons to Combine

Petitioner proposes to combine Vaios and Menard in two ways:

(1) substituting Menard’s exterior module 200D for Vaios’s video camera 100; and (2) combining one or more elements of Menard’s exterior module 200D into Vaios’s video camera 100 according to known methods yielding predictable results. Pet. 38–39. A simple substitution of one known element for another, that involves no more than the predictable use of prior art elements according to their established functions, is a recognized rationale for combining prior art references. *See KSR*, 550 U.S. at 416–417. That is the case with respect to Menard’s exterior module 200D and Vaios’s video camera 100.

Dr. Hochwald stated that the technologies involved in the combination of Vaios and Menard were known in the art. Ex. 1002 ¶¶ 113, 191, 230, 242, 245, 262 (wired and wireless communications and networks); ¶¶ 162, 227, 230, 234, 243 (cell phones); ¶¶ 166, 228, 239, 240, 243 (video phones); ¶¶ 183, 185, 292, 293 (biometrics including fingerprint processing and facial

recognition); ¶ 212 (motion sensors); ¶¶ 257, 271 (keypad/lock); ¶ 320 (proximity sensor, video camera, speaker, microphone, receiver, transmitter). Patent Owner does not dispute that these technologies were known.

Furthermore, Dr. Hochwald's testimony establishes that it was within the level of ordinary skill in the art to combine and use these technologies. Specifically, he stated that the "combination would have been easily implemented using standard engineering techniques at the time, including incorporation of hardware and/or software components and standard communication protocols at the time that would not have required significant or unpredictable changes in interfaces, complexity, cost, or methodology." *Id.* ¶ 214. Thus, there is evidence in the record to support that Petitioner's proposed combinations would have been predictable based on what was known in the art, and that one of ordinary skill in the art would have had a reasonable expectation of success in arriving at combinations corresponding to the claims of the '581 patent.

Patent Owner criticizes Dr. Hochwald for alleged failure to address issues of cost, engineering hurdles, and unpredictable results resulting from the combination. Resp. 51–52 (citing Ex. 2003 ¶ 107); Sur-Reply 7–14. However, Dr. Hochwald did address these issues, stating that

a person of ordinary skill in the art would . . . find it *simple* to modify the teachings of Vaios to incorporate the teachings of Menard, without requiring significant or unpredictable changes in the interfaces, complexity, cost or methodology and would have had a high expectation that the combination would have succeeded.

Ex. 1002 ¶ 213. Patent Owner and its expert, Dr. Akl, seem to be arguing that Dr. Hochwald should have specified and addressed every conceivable

cost, engineering hurdle, unpredictable result, and hardware and software change. Resp. 51–52. But the point of Dr. Hochwald’s statement was that it would be “simple” to combine Vaios and Menard, and that these considerations were not obstacles given the level of skill in the art. Ex. 1002 ¶ 213. As to Patent Owner’s argument that Dr. Hochwald had difficulty recollecting the state of the art at the time of the ’581 patent (Resp. 52), standing alone, this does not prove that he was unable to do it. Thus, Patent Owner’s arguments do not undermine Petitioner’s proposed reasons to combine Vaios and Menard.

Similarities in prior art references may provide support for their combination. *Wyers v. Master Lock Co.*, 616 F.3d.1231, 1241 (Fed. Cir. 2010). Dr. Hochwald noted that the similarities of Vaios’s and Menard’s technologies would have suggested their combination. Ex. 1002 ¶ 212. Both are directed to security systems that use video cameras and motion sensors. *Id.* We agree with Dr. Hochwald that the similarities of Vaios and Menard would have prompted one of ordinary skill in the art to consider them together and combine them for the purposes advanced in the Petition.

A reason to combine may be found in the prior art references themselves. *Dystar*, 464 F.3d at 1365. Vaios describes “a need for an inexpensive multi-access remote system that enables individuals to access remotely a security surveillance or other video system area and appropriately monitor and operate this area as desired.” Ex. 1003, 1:60–63. In addition, Vaios states “there is a need to contact the system users at specific times, such as when an alarm triggers, to provide surveillance access when needed, rather than monitoring the area full time.” *Id.* at 1:63–67. Vaios also describes a need to eliminate “expensive cables” and a similar “desire [for] a

surveillance system that is accessible from any location, not only those that have cabling.” *Id.* at 1:57–59. Menard describes as its objectives, and thus the related problems that it solves, to enable portable, modular, bidirectional communication between a wide variety of devices and that satisfies the demand for security systems and automated building controls. Ex. 1004, 1:26–27. Menard also states that “what is needed in the art is a system enabling both safety and convenience features in an affordable, modular, arrangement that is easy to install and manage.” *Id.* at 1:29–31. Thus, Vaios and Menard are directed to improvements in security systems, which further supports the Petition’s combination resulting in employing Menard’s wireless modular teachings (which includes a video camera) for a security system, in Vaios’s similar security system, which employs a video camera, generally teaches wireless communications, and describes a desire for eliminating cabling.

A reason to combine prior art references may be found when the combination produces an advantage. *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1003–04 (Fed. Cir. 2016) (references teaching the advantages of a technique shows there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue). Dr. Hochwald noted the combination would provide advantages such as enabling a user to communicate both audibly and visually with a visitor “to better ascertain the nature of a visitor’s presence and determine in real-time how to deal with the visitor.” Ex. 1002 ¶ 214 (citing Ex. 1003, 2:10–15; Ex. 1004, 5:30–33, 21:13–15). Dr. Hochwald also states that a person of ordinary skill in the art would have recognized the advantages of packaging Vaios’s and Menard’s technologies into a single device that communicates wirelessly with other

devices of the monitoring system to reduce installation costs and increase convenience. *Id.* ¶ 215. Dr. Hochwald further explains that a wireless network would be more cost-effective when retrofitting into an existing structure as opposed to new construction. *Id.* ¶ 216. He further explained that the choice of network to be used would be influenced by the physical size of the area to be monitored, and that Menard’s Bluetooth wireless network “would readily apply to the network interfaces contemplated in Vaios if the distances involved permitted it.” *Id.* In other words, Dr. Hochwald indicated several advantages that would result from combining Vaios and Menard under certain circumstances, providing ample reasons to combine the references.

Patent Owner also argues that “Vaios teaches away from these combinations because it teaches that it would be very difficult to transmit uncompressed video files wirelessly given the ‘bandwidth limitations.’” Resp. 50 (citing Ex. 2003 ¶¶ 76, 99; Ex. 1003, 2:34–41). A reference teaches away if it “criticizes, discredit, or otherwise discourages” investigation into the invention claimed. *General Elec. Co. v. Raytheon Tech. Corp.*, 983 F.3d 1334, 1345 (Fed. Cir. 2020) (citing *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056 (Fed. Cir. 2018); *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009)).

Contrary to Patent Owner’s assertion, the cited part of Vaios does not teach that “it would be very difficult to transmit uncompressed video files wirelessly given the ‘bandwidth limitations.’” Ex. 1003, 2:34–41. What this Vaios excerpt is stating is that to avoid difficulties associated with bandwidth limitations, it is desirable to compress, transmit, and download the entire image file to the remote computer before the remote user

subsequently plays it. *Id.* This does not “criticize, discredit or discourage” wireless communications, or say it would be “very difficult” to use them. In fact, network 6 connecting security surveillance area 4 to end-user locations 8 is described as “Wire/Wireless” meaning the transmission could be compressed wireless communications. Ex. 1003, Fig. 1. We address this issue further in Section II.H.4.b.

d) Conclusion on Motivation to Combine

Petitioner has shown by a preponderance of the evidence that one of ordinary skill in the art would have had reasons to combine Vaios and Menard with a reasonable expectation of success in arriving at the claims of the '581 patent.

4. Independent Claim 1

a) Preamble

Claim 1 begins with this preamble: “An audio-video communication system, comprising.” Ex. 1001, 19:36. Petitioner asserts that Vaios discloses such a system. Pet. 36, 9–10 (citing Ex. 1003, code (57), 9:2–4, 9:32–34; Ex. 1002 ¶¶ 97–103). Specifically, Petitioner notes that Vaios discloses “a multi-access remote system having a security surveillance area [and] a plurality of end user locations.” *Id.* at 9 (citing Ex. 1003, code (57)). Petitioner states that Vaios further explains that the security surveillance area comprises local computer system 12, camera 10 with a motion sensor, and network interface 6, and that when the motion sensor detects an obstruction the camera starts recording and the local computer system notifies a remote individual. *Id.* at 10 (citing Ex. 1003, code (57)). Petitioner further notes that, in addition to video, the system also communicates audio, stating “the remote individual can operate the camera

and retrieve additional video [and] sound.” *Id.* (citing Ex. 1003, 9:2–4, 9:32–34) (alteration in original).

We agree with Petitioner that Vaios teaches the preamble of claim 1. Consequently, it is unnecessary to reach the question of whether the preamble is limiting. *See, e.g., Catalina Marketing Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801 (Fed. Cir. 2002) (whether a preamble is limiting depends on various factors).

b) Limitation (a): “Wireless Exterior Module”

Claim 1 of the ’581 patent recites limitation (a) as follows:

(a) a wireless exterior module located proximate an entrance, said wireless exterior module having a proximity sensor for detecting a person at the entrance, a video camera for recording an image of the person at the entrance, a microphone for recording sound of the person at the entrance, a speaker for playing audio to the person at the entrance, a transmitter for communicating sounds and images of the person at the entrance, and a receiver for receiving communications at the wireless exterior module.

Ex. 1001, 19:37–46. Petitioner contends that Vaios teaches this limitation. Pet. 36–40, 11–15. Specifically, Petitioner contends that Vaios discloses a “video camera 10” coupled to “local computer system 12” so that “video, sound, and motion sensor data can be transmitted from the camera to the local computer system.” *Id.* at 11 (citing Ex. 1003, 3:24–30, Fig. 1). Petitioner further notes that Vaios discloses that “a monitoring site can be created to control viewing of . . . a house entrance” and that its cameras provide a “door view.” *Id.* at 12 (citing Ex. 1003, 7:62–8:4, 9:49–53) (alteration in original). Petitioner further notes that Vaios discloses that “remotely controllable cameras can be positioned at any location or scenic lookout.” *Id.* at 12–13 (quoting Ex. 1003, 9:59–61 (emphasis omitted);

citing Ex. 1002 ¶¶ 106–110). From these excerpts, Petitioner contends that Vaios’s “video camera 10” is an exterior module located proximate an entrance. *Id.*

Petitioner further contends that video camera 10 is also a “wireless” module as demonstrated by Vaios’s teaching that video camera 10 and local computer system 12 may communicate via a wireless connection. *Id.* at 13 (citing Ex. 1002 ¶¶ 111–112). Petitioner contends Vaios’s Figure 1 shows a squiggly line graphic for the connection between video camera 10 and local computer system 12 which is identical to connection 22 for communication types known to be wireless (e.g., LAN, WAN, Internet, satellite). *Id.* (citing Ex. 1003, 3:19–23, 4:30–65). Petitioner contends that a person of ordinary skill in the art would have understood that the connections between video camera 10 and local computer system 12 in Vaios’s Figure 1 included similar wireless connections as for connection 22, confirming that video camera 10 comprises a “wireless device.” *Id.* at 14 (citing Ex. 1002 ¶ 112). Alternatively, Petitioner contends that it was obvious for camera 10 to be a “wireless device” communicatively coupled to a “local computer system 12” because Vaios describes various wireless connections which were well-known and interchangeable with wired connections. *Id.* at 14 (citing Ex. 1002 ¶¶ 112–115).

Petitioner contends that video camera 10 includes “a video camera for recording an image of the person at the entrance” and a “microphone for recording sounds of the person at the entrance.” Pet. 15. Petitioner points to Vaios’s disclosure that “when the motion sensor detects an obstruction the camera starts recording” and that “video, sound, and motion sensor data can be transmitted from the camera to the local computer system.” *Id.* (citing

Ex. 1003, code (57), 3:24–30, 2:12–17; Ex. 1002 ¶ 116). Petitioner further contends that video camera 10 would include a camera to record images and a microphone to record such sound, or alternatively use of a microphone for this purpose would have been obvious. *Id.* (citing Ex. 1002 ¶ 116).

Petitioner further contends that Vaios’s video camera 10 includes “a proximity sensor for detecting a person at the entrance” as claimed. *Id.* (citing Ex. 1002 ¶ 105). Specifically, Petitioner contends that Vaios’s video camera 10 has a motion sensor and that motion sensor data can be transmitted from the camera to the local computer system. *Id.* at 15–16 (citing Ex. 1003, 3:14–30). Petitioner contends that, when the motion sensor detects an obstruction, the camera starts recording. *Id.* at 16 (citing Ex. 1003, code (57), 8:42–49). Petitioner contends that, when monitoring an entrance, the motion sensor would detect a person at the entrance upon the person’s approach. *Id.* (citing Ex. 1002 ¶ 105). Petitioner contends that the ’581 patent indicates that a “proximity sensor” includes motion sensing devices, e.g., “proximity sensor 26 activates the camera 22 upon detection of movement.” *Id.* (citing Ex. 1001, 7:55–56, 15:22; Ex. 1002 ¶ 105). Petitioner contends that Vaios’s motion sensor thus satisfies the “proximity sensor” limitation.

Petitioner further contends that Vaios’s video camera 10 includes “a transmitter for communicating sounds and images of the person at the entrance” and “a receiver for receiving communications at the wireless exterior module.” Pet. 16 (citing Ex. 1003, ¶ 117). Specifically, Petitioner contends that Vaios discloses “video, sound, and motion sensor data can be transmitted from the camera to the local computer system” and “instructions or other data can be transmitted from the local computer system to the

camera.” *Id.* (citing Ex. 1003, 2:12–17, 3:27–36) (emphasis omitted). Petitioner states that to transmit video and sound data and receive instructions or other data, video camera 10 would include a transmitter and a receiver, as claimed, or alternatively such components would have been obvious given their widespread use for such purposes at the time of the alleged invention. *Id.* (citing Ex. 1002 ¶ 117). Petitioner contends Vaios discloses or renders obvious the “transmitter” and “receiver” limitations.

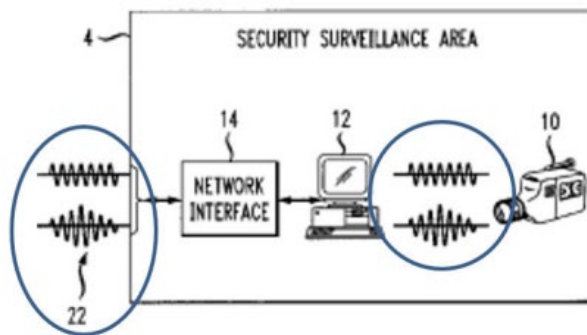
Alternatively, Petitioner relies on Menard to teach the “wireless exterior module.” Pet. 36–40. Petitioner contends that it was obvious in view of Menard for Vaios’s video camera 10 to include the claimed components and features. *Id.* at 36 (citing Ex. 1002 ¶¶ 201–202, 205–217). Specifically, Petitioner states that, in the context of a “system and method for detecting and monitoring” (Ex. 1004, code (57)), Menard discloses a wireless exterior module (e.g., “exterior module 200D”) located proximate an entrance (e.g., “entry door 260”) and including a video camera (e.g., “video camera 370”), a proximity sensor (e.g., “proximity detector” such as “video camera 370”), a microphone (e.g., “intercom 330”), a speaker (e.g., “intercom 330”), a transmitter (e.g., “transceiver 150”), and a receiver (e.g., “transceiver 150”). *Id.* at 36–40 (citing Ex. 1002 ¶¶ 206–217; Ex. 1004, 5:31–6:1, 6:14–15, 13:27–29, 19:30–20:6, 20:20–22, 21:6–7, 21:11–15, 22:17–23, claim 25, Figs. 7, 8).

Patent Owner argues that “Vaios does not disclose a ‘wireless exterior module’ because the connection between video camera 10 and local computer 12 is not wireless in Vaios.” Resp. 44 (citing Ex. 2003 ¶¶ 62–79). Specifically, Patent Owner and its expert, Dr. Akl, argue that Vaios’s so-called “squiggly lines” represent modulated signals, not wireless which they

contend would be represented by “a radiating wave form symbol or a lightning bolt.” Ex. 2003 ¶ 67. Patent Owner also argues that Vaios’s camera adapter is a specialized cable to download video and images from the camera to the local computer. *Id.* at ¶ 75. Patent Owner further argues that the local computer, not the video camera, compresses the file to transmit it to a remote user, and that bandwidth limitations would prevent wireless transmission from the video camera to the local computer if the data is not compressed until it reaches the local computer. *Id.* at ¶ 76.

In its Reply, Petitioner contends that a person of ordinary skill in the art would recognize that the connection between Vaios’ camera and local computer could be wireless because Vaios’s Figure 1 uses the same symbol to depict the connection between the camera and local computer as the “connection 22” between other components of Vaios’s system described as wireless. Reply 10 (citing Pet. 13–15; Ex. 1002 ¶¶ 111–112; Ex. 1003, 2:26–33, 3:19–23, 4:5–14, 4:30–65, Fig. 1).

To explain its argument, Petitioner provides the annotated figure shown below:



Ex. 1002 ¶ 111. Petitioner’s figure above, which is part of Vaios’s Figure 1, shows that the same symbol (circled in blue) is used for connection 22 as

that between video camera 10 and local computer system 12. Connection 22 couples to network 6, which can be wireless. Ex. 1003, Fig. 1.

We agree with Petitioner that this symbol implies that the connection between video camera 10 and local computer system 12 may be the same as connection 22 which connects to a network that may be wireless. Vaios thus at least suggests that the connection between video camera 10 and local computer system 12 may be wireless. In the obviousness analysis, one may consider “the inferences and creative steps a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 401.

Vaios states that the “local computer system is electronically connected via camera adapter to the video camera so that video, sound, and motion sensor data can be transmitted from the camera to the local computer system.” Ex. 1003, 2:12–15. Patent Owner contends that the camera adapter has a specialized cable, and is thus a *wired* connection. Resp. 32; Ex. 2003 ¶ 75. Dr. Hochwald, however, indicates that the ’384 provisional to which the ’581 patent claims priority similarly mentions an “adapter card” associated with *wireless* communications. Ex. 1051 ¶¶ 44–45. We agree with Dr. Hochwald that Vaios’s use of the term “camera adapter” is agnostic to whether the connection is wired or wireless. And Vaios does not mention a specialized cable associated with the camera adapter. Nor is there any statement requiring the connection between the camera and local computer system to be wired.

Patent Owner argues that Vaios teaches that transmitting wirelessly without compression was undesirable because of bandwidth limitations of wireless communications. Resp. 37–38 (citing Ex. 2003 ¶¶ 76, 78). Because Vaios’s local computer system 12 performs compression (Ex. 1003,

2:34–40), Patent Owner posits that the connection between the local computer system and the video camera 10 must be wired. Resp. 50 (citing Ex. 2003 ¶¶ 76, 99).

In Reply, Petitioner notes that there were other ways of addressing low-bandwidth connections at the time, including lowering video quality. Reply 12 (citing Ex. 1051 ¶ 55; Ex. 1003, 9:21–26). Petitioner further notes that the '581 patent does not mention compression as necessary for wireless communications. *Id.* (citing Ex. 1051 ¶ 58). And Patent Owner's expert, Dr. Akl, stated that he did not know whether compression was required to wirelessly transfer video files at the time of the '581 patent. Ex. 1031, 60:21–61:4.

Furthermore, the part of Vaios that Patent Owner cites to as supporting its argument states as follows:

The local computer system first captures a predetermined length of video, compresses the file, and transmits it to the remote user who *subsequently* plays the downloaded image in high-quality. This method avoids video stream difficulties associated with bandwidth limitations because *the entire image is downloaded to the remote computer before viewing*.

Ex. 1003, 2:34–40. This statement seems to be discussing the connection between the local computer system and the remote computer, not the connection between the video camera and local computer system. And its meaning seems to be that because the video file is pushed over a low-bandwidth connection in advance of viewing, it is already there in its entirety when the remote user seeks to view it.

In any case, Petitioner notes that compression technologies were well known at the time of the '581 patent, and would have been recognized to be options available for use in the combination of Vaios and Menard. Ex. 1051

¶¶ 56–58 (JPEG, MPEG were known standards). We agree with Petitioner that compression standards were well-known at the time.

Patent Owner contends that Menard also does not disclose a “wireless exterior module” because Menard’s exterior module 200D wirelessly communicates with base 250A using Bluetooth technology, which, according to Patent Owner, was incapable of transmitting video.

Resp. 44–48 (citing Pet. 37–38; Ex. 1002 ¶¶ 207–208, 212; Ex. 2003 ¶¶ 85, 87–89, 91, 93, 94; Ex. 2007, 139; Ex. 2008, 2; Ex. 2009, 37:17–20, 38:11–18). Dr. Hochwald disagrees, stating that a video camera having an embedded Bluetooth wireless transceiver was described in the art as early as 2001. Ex. 1051 ¶ 32 (citing Ex. 1038; Ex. 1050, 1–2, 7). Although Patent Owner argues that Bluetooth is primarily used for audio streaming (Resp. 47–48 (citing Ex. 2003 ¶89; Ex. 2008, 2)), this does not necessarily preclude its use for video and two-way audio. Dr. Hochwald states that standards like 802.11 and Bluetooth are “mostly agnostic” to the type of digital data that can be transmitted. Ex. 1051 ¶ 31. Although Patent Owner may be correct that Bluetooth was not optimal for transmitting video and two-way audio, the best option is not required for obviousness, only a suitable option. *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 800 (citing *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–98 (Fed. Cir. 2014)).

Furthermore, in addition to Bluetooth, Menard mentions the possibility of using IEEE 802.15 WPAN, IEEE 802.11 WiFi, numerous cellular standards (e.g., PCS, CDMA, TDMA, GSM), and others. Ex. 1004, 15:24–16:12, 34:23. And there is no dispute that wireless video cameras were known at the time of the ’581 patent, and were used for security surveillance. *See, e.g.*, Ex. 1051 ¶¶ 33–34, 40; Ex. 1039 (U.S. Patent No.

6,970,183 B1 “Monroe”); Ex. 1040 (U.S. Patent No. 6,535,243 B1 “Tullis”); Ex. 1045 (AXCESS wireless streaming video camera for defense and security).

In any case, Menard states unequivocally that “exterior module 200D [] capture[s] an image using exterior video camera 370 and transmit[s] said image to PDU 400” and that “[t]he graphical image may include . . . *real-time video images*.” Ex. 1004, 21:19–26. Moreover, Menard’s Figures 7 and 9 show connections between exterior module 200D including video camera 370 and other components using the lightning bolts that Patent Owner contends represent wireless connections. Ex. 2003 ¶ 67.

Petitioner has shown that Vaios in combination with Menard discloses the “wireless exterior module” of limitation (a). Patent Owner’s arguments do not undermine Petitioner’s showing.

c) Limitation (b): “Computerized Controller”

Claim 1 of the ’581 patent recites limitation (b) as follows:

(b) a computerized controller running a software application and disposed in wireless electronic communication with said wireless exterior module via said transmitter and said receiver of said wireless exterior module, wherein said computerized controller is configured to control recording of communications with said wireless exterior module and playback of such recording, and wherein said software application includes a graphic user interface that enables a user to view images from said video camera communicated from said wireless exterior module.

Ex. 1001, 19:47–57. Petitioner contends that Vaios discloses a computerized controller, namely, local computer system 12, in communication with video camera 10. Pet. 17 (citing Ex. 1003, 3:24–36, Fig. 1; Ex. 1002 ¶¶ 119–127). Petitioner contends that Vaios discloses that

local computer system 12 communicates with video camera 10 via a transmitter and receiver, or alternatively, it was obvious to include such a transmitter and receiver with video camera 10 to facilitate such communications. *Id.* at 17–18 (citing Ex. 1003, 3:27–32).

Petitioner contends that Vaios’s local computer system 12 comprises a “computerized controller” that runs a “software application.” *Id.* at 18 (citing Ex. 1002 ¶¶ 120–124). Petitioner notes that Vaios states “local computer system 12 includes various components, among them . . . are fixed storage means 109, and operating system software 111 to provide basic resource allocation and computational mechanisms.” *Id.* (citing Ex. 1003, 3:27–41). Petitioner states that Vaios’s claim 1 refers to local control system as a “controller module.” *Id.* (citing Ex. 1003, claim 1). Petitioner further contends that Vaios states that the “local computer system . . . comprises application software 136 to handle customized tasks unique to each embodiment of the multi-access system, and browser software 138 for display control and management” and also uses a “Windows operating system,” “Winsock (software) components 118–124,” “API components 126–132,” and “browser software 138.” *Id.* (citing Ex. 1003, 3:27–41, 3:51–4:4). Petitioner further contends that, as previously discussed, Vaios further discloses that video camera 10 is a “wireless exterior module” in wireless communication with local computer system 12. Pet. 18 (citing *id.* at 12–15). Petitioner contends that Vaios thus teaches the first part of limitation (b) of claim 1. *Id.* (citing Ex. 1002 ¶¶ 119–127).

Petitioner further states that limitation (b) of claim 1 recites in part that “said computerized controller is configured to control recording of communications with said wireless exterior module and playback of such

recording.” Pet. 19. Petitioner contends that Vaios’s local computer system 12 controls recordings of communications (e.g., recordings of video and audio) with video cameras 10 and playback of such recordings. *Id.* at 19 (citing Ex. 1002 ¶¶ 128–142). Petitioner notes that Vaios states that “[u]sing an end user location . . . , the remote individual can logon to the local computer system via the communications network and obtain additional information, control the video camera remotely, or view video images.” *Id.* (citing Ex. 1003, code (57)). Petitioner further notes that Vaios states “[a]ccess to the security surveillance area, control of the video camera, and viewing of the video data is accomplished advantageously over the Internet with application specific browser software, plugins, APIs, and other protocols.” *Id.* In addition, Petitioner notes that Vaios states “local computer system . . . captures a predetermined length of video, compresses the file, and transmits it to the remote user who subsequently plays the downloaded image in high-quality.” *Id.* (citing Ex. 1003, 2:35–38). Petitioner further notes that Vaios discloses that the “remote individual can . . . logon with the surveillance system so that he or she may communicate with the local computer system Employing the browser software . . . , the remote individual can operate the camera and retrieve additional video, sound, or other data via connection 22.” *Id.* (citing Ex. 1003, 8:65–9:5). Petitioner contends that the “media observed by the remote individual thus includes recordings of video and audio made using camera 10 and communicated with local computer system 12.” *Id.* at 19–20 (citing Ex. 1002 ¶¶ 129–133).

Petitioner contends that the “application specific browser software, plugins, APIs, and other protocols” are provided by local computer system

12. *Id.* at 20 (citing Ex. 1002 ¶¶ 131–141). Petitioner contends that local computer system 12 includes an “interface layer 102 [that] comprises high-level end-user software, such as browser and application software” and “acts as a display interface for the remote user.” *Id.* (citing Ex. 1003, 5:32–33, 6:35–40). Petitioner contends that the video data and associated sound are presented on the devices of end user locations 8 via a graphical user interface provided by the software of local computer system 12, which further enables control of recording playback. *Id.* (citing Ex. 1002 ¶ 135). Petitioner further contends that the user interface is enabled by the browser and software applications, which are components of the interface layer 102 of Vaios’s local computer system 12. *Id.* (citing Ex. 1003, 6:35–40, 7:39–43, Fig. 2). Petitioner contends that Vaios’s local computer system 12 controls recordings of communications (e.g., recordings of video and audio) with the video cameras and playback of such recordings. *Id.* (citing Ex. 1002 ¶¶ 128–141).

Limitation (b) of claim 1 further recites “said software application includes a graphic user interface that enables a user to view images from said video camera communicated from said wireless exterior module.” Petitioner contends that Vaios discloses this limitation. *Id.* at 20–23 (citing Ex. 1002 ¶¶ 135–142). Specifically, Petitioner contends that video data is provided from video camera 10 to local computer system 12, which further provides the video data to one or more user devices (e.g., the remote computer system or communicative devices) at end user locations 8. Pet. 21 (citing *id.* at 17–19). Petitioner notes that Vaios states that “the remote individual can . . . logon with the surveillance system so that he or she may communicate with the local computer system for additional information. *Id.*

Petitioner contends that, “[e]mploying the browser software . . . , the remote individual can operate the camera and retrieve additional video, sound, or other data.” *Id.* (citing Ex. 1003, 8:65–9:5) (emphasis omitted). Petitioner further notes that Vaios states that “a snapshot of video data or other informative content may be attached to the notification [sent to the communicative devices].” *Id.* (citing Ex. 1003, 8:63–64).

Petitioner contends that the video data is presented on the devices of end user locations 8 via a graphic user interface provided by the software of local computer system 12. *Id.* (citing Ex. 1002 ¶¶ 135–141). Petitioner contends that this user interface is presented across the Internet via “browser and application software.” *Id.* (citing Ex. 1003, 7:39–43). Petitioner contends the browser and application software are components of interface layer 102 of local computer system 112. *Id.* (citing Ex. 1003, 6:35–40, Fig. 2). Petitioner contends that Vaios’s Figure 3 depicts an example of a graphical user interface provided via “application specific Internet browser 200.” *Id.*

Petitioner further notes that Vaios states the following with respect to the user interface:

an application specific Internet browser 200 (FIG. 3) [serves] as a controller module for visual interface communication between the end-user locations and the surveillance area. [B]rowser 200 can incorporate application specific functions such as video display, and remote operation of video camera 10. FIG. 3 shows the display screen of browser 200 [which comprises] a video display area 232. Video display area 232 is a portion of the browser display screen where all video images and recordings are visibly displayed to the end user.

Id. at 22–23 (citing Ex. 1003, 7:40–59). Petitioner notes that Vaios’s Figure 3 shows that the graphical user interface includes graphical

icons with which a user may interact. *Id.* at 23 (citing Ex. 1002 ¶¶ 138–141).

Petitioner further states that Vaios’s claims demonstrate that remote individuals access video data using a graphical user interface presented by the device at the end user location, e.g., “said controller module . . . comprises a browser software for interfacing said controller module with an end-user at said end-user location, said browser software further providing, said user interface.” *Id.* (citing Ex. 1003, claim 10). Accordingly, Petitioner contends that the combination of Vaios and Menard teaches limitation (b) of claim 1.

Turning to Patent Owner’s arguments, for the same reasons stated for limitation (a) of claim 1, Patent Owner contends that Vaios and Menard do not teach “a computerized controller running a software application and disposed in *wireless electronic communication* with said wireless exterior module via said transmitter and said receiver of said wireless exterior module.” Resp. 38 (citing Ex. 2003 ¶ 80), 48–49 (citing Ex. 2003 ¶ 101).

As we explained with respect to limitation (a) of claim 1 (Sect. II.H.4.b), Petitioner has shown that the combination of Vaios and Menard discloses this feature.

d) Limitation (c): “Remote Peripheral Device”

Limitation (c) of claim 1 recites

(c) a remote peripheral device configured to electronically communicate with said computerized controller for viewing an image from said video camera communicated from said wireless exterior module.

Ex. 1001, 19:58–61. Petitioner contends that Vaios discloses a remote peripheral device (e.g., “remote computer system 16” and/or

“communicative devices 20” associated with “end user location 8”) configured to electronically communicate with the computerized controller (e.g., “local computer system 12”) for viewing an image from video camera 10. Pet. 23 (citing Ex. 1003, code (57), 2:26–33, 4:5–20, 8:55–9:9; Ex. 1002 ¶¶ 143–145).

Petitioner further explains that Vaios’s system includes a “plurality of end user locations 8” that include a “remote computer system 16” and/or “one or more communicative devices 20” such as “a telephone, beeper, fax, e-mail, or wireless device.” Pet. 23–24 (citing Ex. 1003, code (57), 4:5–20). Petitioner further notes that Vaios discloses “[u]sing an end user location, having a remote computer system, a network interface, and one or more communication devices, the remote individual can logon to the local computer system via the communications network and obtain additional information, control the video camera remotely, or view video images.” *Id.* at 24 (citing Ex. 1003, code (57)) (emphases omitted). The video images are received by local computer system 12 from video camera 10. *Id.* (citing Ex. 1003, 3:24–30). Petitioner states that the combination of Vaios and Menard thus renders obvious all elements of claim 1. *Id.* at 41.

e) Conclusion for Claim 1

Petitioner has shown by a preponderance of the evidence that the combination of Vaios and Menard teaches or suggests the preamble and limitations (a) to (c) of claim 1 notwithstanding Patent Owner’s arguments to the contrary. Consequently, claim 1 is unpatentable as obvious under § 103 over the combination of Vaios and Menard.

5. Dependent Claim 2–10, 12 and 15–20

Claim 2 depends from claim 1 and recites

a second wireless exterior module located proximate an entrance, said second wireless exterior module having a proximity sensor for detecting a person at the entrance, a video camera for recording an image of the person at the entrance, a microphone for recording sound of the person at the entrance, a speaker for playing audio to the person at the entrance, a transmitter for communicating sounds and images of the person at the entrance, and a receiver for receiving communications at the wireless exterior module, wherein said computerized controller running said software application is further disposed in electronic communication with said second wireless exterior module via said transmitter and said receiver of said second wireless exterior module.

Ex. 1001, 19:63–20:9. Petitioner contends that Vaios discloses that its system may include “multiple cameras or multiple surveillance areas as well.” Pet. 25 (citing Ex. 1003, 9:23–33), 41 (citing *id.* at 24–27, 29–33; Ex. 1002 ¶ 224). Petitioner also states that Vaios’s system contemplates using multiple distinct “video cameras 10: including their respective components. Pet. 25 (citing *id.* at 11–17; Ex. 1002 ¶¶ 147–148). Petitioner further contends that claim 2 duplicates known parts of claim 1 with no new or unexpected results. *Id.* *In re Harza*, 274 F.2d 669, 671 (CCPA 1960) (duplication of parts has no patentable significance unless a new and unexpected result is produced).

Claim 3 depends from claim 1 and recites “wherein said remote peripheral device is configured to remotely actuate said camera of said wireless exterior module.” Ex. 1001, 20:10–13. Petitioner contends that Vaios remotely actuates its video cameras with remote peripheral devices. Pet. 26 (citing Ex. 1003, code (57) (“[u]sing an end user location, having a remote computer system, a network interface, and one or more communications devices, the remote individual can...control the video

camera remotely.”); 8:1–18 (control icons can be used to remotely actuate cameras by moving or rotating the camera).

Claim 4 depends from claim 1 and recites “said graphic user interface enables a user to view streaming video with said remote peripheral device.” Ex. 1001, 20:14–16. Petitioner contends that video data is presented on devices of the end user locations 8 via a graphic user interface provided by the local computer system 12. Pet. 26–27 (citing *id.* at 21–23; Ex. 1002 ¶¶ 135–141; Ex. 1003, 7:39–43, 6:35–40, claim 10, Figs. 2, 3). Vaio states that the graphical user interface includes “standard video controls” including “play icon 220” allowing the user to view video. Ex. 1003, 8:8–12.

Claim 5 depends from claim 1 and recites “said remote peripheral device comprises a cell phone.” Ex. 1001, 20:17–19. Petitioner contends that Vaio’s “end user locations 8” include “communicative devices 20” such as “a telephone, beeper, fax, e-mail, or wireless device.” Pet. 27 (citing Ex. 1003, 4:5–20). Petitioner contends that cell phones were well-known wireless devices at the time and could be used to observe audio and video data, or alternatively, that it would have been obvious to use cell phones in this manner. *Id.* at 27–28 (citing Ex. 1002 ¶¶ 162–164, 227–235; Ex. 1004, 1:26–28, 19:9–20; Ex. 1003, 6:54–57).

Petitioner further contends that Menard discloses an “exterior module 200D” that sends video data from its “video camera 370” to “PDU 400.” Pet. 41 (citing Ex. 1004, 21:1–25). Petitioner quotes Menard as stating “[i]n response to actuation of the [doorbell] button, or detection by camera 370, exterior module 200D transmits a wireless signal [to] PDU400.” *Id.* (citing Ex. 1004, 21:14–17). Petitioner further quotes Menard as stating “images captured using camera 370 can be transmitted to . . . PDU 400.” *Id.* (citing

Ex. 1004, 22:19). Petitioner states that Menard discloses that “PDU 400” includes a “cellular telephone.” *Id.* (citing Ex. 1004, 19:14, 20:3–4). Petitioner further contends it was obvious for Vaio’s remote peripheral devices to include a “cellular phone” as taught in Menard. *Id.* at 41–42 (citing Ex. 1002 ¶¶ 226–236; Ex. 1004, 1:26–28, 19:9–20; Ex. 1003, 6:54–57).

Claim 6 depends from claim 1 and recites “said remote peripheral device comprises a video phone.” Ex. 1001, 20:20–22. Petitioner contends that Vaio teaches or renders obvious claim 6. Pet. 42 (citing *id.* at 28–29). Specifically, Petitioner contends that Vaio’s “end user locations 8” include “communicative devices 20” such as “a telephone, beeper, fax, e-mail, or wireless device.” *Id.* at 28 (citing Ex. 1003, 4:5–20). Petitioner further states that Vaio discloses “video phone calls.” *Id.* (citing Ex. 1003, 9:54–56). Petitioner contends a person of ordinary skill in the art would have understood Vaio to teach using a “video phone” as a “remote peripheral device,” satisfying this limitation. *Id.* (citing Ex. 1002 ¶ 166). Alternatively, Petitioner contends that it was obvious to use a “video phone” in this manner given Vaio’s teachings and the state of the art. *Id.* at 28–29 (citing Ex. 1002 ¶¶ 165–168, 239–246; Ex. 1004, 1:26–28, 19:9–20; Ex. 1003, 6:54–57).

Petitioner contends Menard similarly discloses transmission of video data to “cellular telephones.” Pet. 42 (citing *id.* at 41–42). According to Petitioner, this video data includes “real-time video images.” *Id.* (citing Ex. 1004, 21:25–26). Petitioner contends that a person of ordinary skill in the art would have understood Menard to teach the use of a “video phone” for receiving the “real-time video images” because Menard teaches that

users may monitor video images via cellular telephone. *Id.* (citing Ex. 1002 ¶ 238). Petitioner also contends this feature was obvious over the combination of Vaios and Menard. *Id.* at 42–43 (citing Ex. 1003, 6:54–57, 9:54–56; Ex. 1002 ¶¶ 237–247; Ex. 1004, 1:26–28, 19:9–20).

Claim 7 depends from claim 1 and recites “said remote peripheral device comprises a computer.” Ex. 1001, 20:23–24. Petitioner contends that Vaios’s “end user locations 8” include “remote computer system 16” is a computer, thus satisfying claim 7. Pet. 29 (citing Ex. 1003, 4:5–6; Ex. 1002 ¶¶ 169–171).

Claim 8 depends from claim 1 and recites “said remote peripheral device comprises a personal digital assistant.” Ex. 1001, 20:25–27. Petitioner contends that Vaios’s “end user locations 8” include “communicative devices 20” such as “a telephone, beeper, fax, e-mail, or wireless device.” Pet. 43–44 (citing *id.* at 23–24; Ex. 1003, 4:4–20). Petitioner contends Menard discloses transmission of video data to “PDUs 400.” *Id.* at 44 (citing Ex. 1004, 19:15–16). Petitioner contends “PDUs 400” include a “personal data (or digital) assistant . . . commonly referred to as a PDA.” *Id.* (citing Ex. 1004, 19:15–16). Petitioner contends it was obvious to use Menard’s PDA in Vaios’s system to view video from video cameras 10 for the same reasons discussed above for using a cellular telephone in such a manner. *Id.* (citing Ex. 1002 ¶¶ 248–253; Ex. 1004, 1:26–28, 19:9–20; Ex. 1003, 6:54–57).

Claim 9 depends from claim 1 and recites “the entrance comprises an entrance of a business.” Ex. 1001, 20:28–29. Petitioner contends that Vaios’s cameras are positioned to monitor an entrance of a building, including a building of a business. Pet. 29 (citing Ex. 1003, 1:20–32).

Petitioner states that Vaios discussed the shortcomings of traditional surveillance systems in the context of “small business” which Vaios’s system is intended to address. *Id.* at 29–30 (citing Ex. 1003, 1:49–2:9). Petitioner contends that a person of ordinary skill in the art would recognize Vaios’s cameras 10 to have been positioned proximate a business entrance to monitor the business. *Id.* at 30 (citing Ex. 1002 ¶¶ 173–174). Petitioner asserts “it was obvious to position the cameras of Vaios at any location for a building for which remote video monitoring was desired, particularly entrances, given their function for entering and departing buildings.” *Id.* (citing Ex. 1003, 9:50–61; Ex. 1002 ¶¶ 172–176).

Claim 10 depends from claim 1 and recites “the entrance comprises an entrance of a residence.” Ex. 1001, 20:30–31. According to Petitioner, Vaios indicates that the “monitoring site can be created to control viewing” of “a house entrance.” Pet. 30 (citing Ex. 1003, 9:51–53). Petitioner contends that “Vaios teaches that its video cameras may be positioned to monitor an entrance of a residence, satisfying the limitations of claim 10.” *Id.* at 30–31 (citing Ex. 1002 ¶¶ 177–180). Petitioner further contends that it was obvious to position cameras 10 to monitor a desired location, such as a residence address. Pet. 31 (citing *id.* at 12–13).

Claim 12 depends from claim 1 and recites “said wireless exterior module includes a keypad comprising a touch screen or a keyboard.” Ex. 1001, 20:35–37. Petitioner contends that Menard discloses that “exterior module 200D” includes an “exterior keypad 305.” Pet. 45 (citing Ex. 1004, 21:5). Petitioner contends that keypad 305 may be alphanumeric for receiving coded information. For example, authorized callers can enter a predetermined code sequence to cause deadbolt lock 275 to engage or

disengage. *Id.* (citing Ex. 1004, 22:6–10). Petitioner thus contends Menard’s exterior module 200D includes a keypad comprising a keyboard. *Id.* (citing Ex. 1002 ¶¶ 255–256). Petitioner also contends that it was obvious to include Menard’s keypad in Vaios’s system to enable authorized callers to enter a code to actuate a lock associated with an entrance. Pet. 45–46 (citing *id.* at 36–40; Ex. 1002 ¶¶ 254–259).

Claim 15 depends from claim 1 and recites “said computerized controller includes an image recognition module for identifying at least one of faces, eyes, and fingerprints.” Ex. 1001, 20:45–48. Petitioner states that Vaios discloses “monitoring devices that record data other than video, such as . . . fingerprints.” Pet. 31 (citing Ex. 1003, 9:34–35). Petitioner contends that, given that the data (e.g., video, sound, sensor, etc.) from such monitoring devices is transmitted from Vaios’s video camera 10 to local computer system 12, local computer system 12 would also receive the fingerprint data from such an alternative monitoring device and would identify the fingerprints using an image recognition module, satisfying claim 15. *Id.* (citing Ex. 1003, 3:27–30; Ex. 1002 ¶ 182). Alternatively, Petitioner contends that “it was obvious for local computer system 12 to perform these tasks, given its similar processing of video, sound, and motion sensor data received from camera 10, and given the security and convenience benefits associated with biometric authentication.” *Id.* (citing Ex. 1002 ¶¶ 181–186).

Claim 16 depends from claim 1 and recites “said computerized controller is disposed in electronic communication with a public switching telephone network (PSTN).” Ex. 1001, 20:49–52. Petitioner contends that Vaios discloses a computerized controller (“local computer system 12”) configured for communication with peripheral devices (e.g., devices of “end

user locations 8”). Pet. 32 (citing *id.* at 23–24). Petitioner contends that “[c]ommunication of data from local computer system 12 to the devices of end user locations 8 is conducted via a “connection 22” across “communications network 6.”” *Id.* (citing Ex. 1003, 3:20–23, Fig. 1). Petitioner states that Vaio discloses that communications network 6 can include a “public telephone network.” *Id.* (citing Ex. 1003, 4:30–35, 4:47–57, 3:20–23, Fig. 1). Petitioner contends that a person of ordinary skill in the art would have recognized that this network is a “public switch[ed] telephone network.” *Id.* (citing Ex. 1002 ¶¶ 188–190). Alternatively, Petitioner contends that it was obvious to a person of ordinary skill in the art that Vaio’s network was a PSTN. *Id.* (citing Ex. 1002 ¶¶ 187–192).

Claim 17 depends from claim 1 and recites “said computerized controller is disposed in electronic communication with the Internet.” Ex. 1001, 20:53–55. Petitioner contends that Vaio discloses a computerized controller (“local computer system 12”) configured for communication with peripheral devices (“remote computer system” and/or “communicative devices” of “end user locations 8”). Pet. 32–33 (citing *id.* at 23–24). Petitioner contends that “[c]ommunication of data from local computer system 12 to end user locations 8 is conducted via a “connection 22” across “communications network 6.”” *Id.* at 33 (citing Ex. 1003, 3:20–23, Fig. 1). Petitioner states that Vaio’s “[c]ommunications network 6 includes the Internet,” thus satisfying claim 17. *Id.* (citing Ex. 1003, 4:30–38, 4:61–65, code (57); Ex. 1002 ¶¶ 193–196).

Claim 18 depends from claim 1 and recites “an electronically actuated lock that is configured to be unlocked by said computerized controller.” Ex. 1001, 20:56–58. Petitioner contends that Menard discloses that “a user

at a remote location can enter a command at PDU 400 to cause deadbolt 275 to engage or disengage,” and “[b]y way of operating the controls or a numeric keypad on PDU 400B, the user may control the operation of . . . lock 275 and thereby grant access to the premises for the caller.” Pet. 47 (citing Ex. 1004, 21:26–27, 20:28–31). Petitioner contends “[i]t was obvious to similarly include an electronically actuated lock in Vaios to allow for a user to remotely unlock and grant access to a secure building via the entrance monitored by the video camera 10.” *Id.* at 47–48 (citing Ex. 1002 ¶¶ 264–272).

Claim 19 depends from claim 1 and recites “a voice recognition system.” Ex. 1001, 20:59–60. Petitioner contends that Menard discloses a “voice recognition system that enables voice control of operation of door opener 1000, or other actuators,” and that “[v]oice recognition programming 31000 may include software programming for recognizing and executing instructions commensurate with a voice recognition system.” Pet. 48 (citing Ex. 1004, 42:8–10, 44:3–6). Petitioner further contends that “[i]t was obvious to include a voice recognition system in Vaios to allow for voice control of an actuator at a monitored entrance, such as a lock, camera, security system, etc.” *Id.* at 48–49 (citing Ex. 1004, 44:3–10, 44:8–10; Ex. 1002 ¶¶ 273–277).

Claim 20 depends from claim 1 and recites “a transceiver [that] includes said transmitter for communicating sounds and images of the person at the entrance and said receiver for receiving communications at the wireless exterior module.” Ex. 1001, 20:61–65. Petitioner contends that Vaios’s “video camera 10” includes “a transmitter for communicating sounds and images of the person at the entrance” and a “receiver for

receiving communications at the wireless exterior module.” Pet. 50 (citing *id.* at 16–17). Petitioner also contends that, similarly, Menard’s “modules 200” have a “transceiver 150,” which include “a receiver and a transmitter to enable wireless communication.” *Id.* (citing *id.* at 38; Ex. 1004, 21:15, 13:27–29). Petitioner contends “[i]t was obvious to substitute Menard’s wireless exterior module (and components) for Vaios’ camera 10 and/or to modify Vaios’ camera 10 to include a wireless transceiver as taught in Menard.” *Id.* (citing *id.* at 38–40; Ex. 1002, ¶ 282). Petitioner contends that Vaios in combination with Menard renders obvious claim 20. *Id.* at 50 (citing Ex. 1003, ¶¶ 278–283).

We have reviewed Petitioner’s contentions concerning claims 2–10, 12, and 15–20. Patent Owner does not dispute Petitioner’s contentions with respect to these claims. *See* Resp; Sur-Reply. We determine that Petitioner has shown by a preponderance of evidence that dependent claims 2–10, 12, and 15–20 are unpatentable as obvious under § 103 over the combination of Vaios and Menard.

I. Alleged Obviousness of Claim 15 over Vaios, Menard, and Naidoo

We now consider Petitioner’s contention that claim 15 is unpatentable as obvious under § 103 over the combination of Vaios, Menard, and Naidoo. Pet. 50–51.

1. Overview of Naidoo (Ex. 1005)

Naidoo discloses a method for remote monitoring of a premises. Ex. 1005, code (57). Figure 1 of Naidoo is reproduced below:

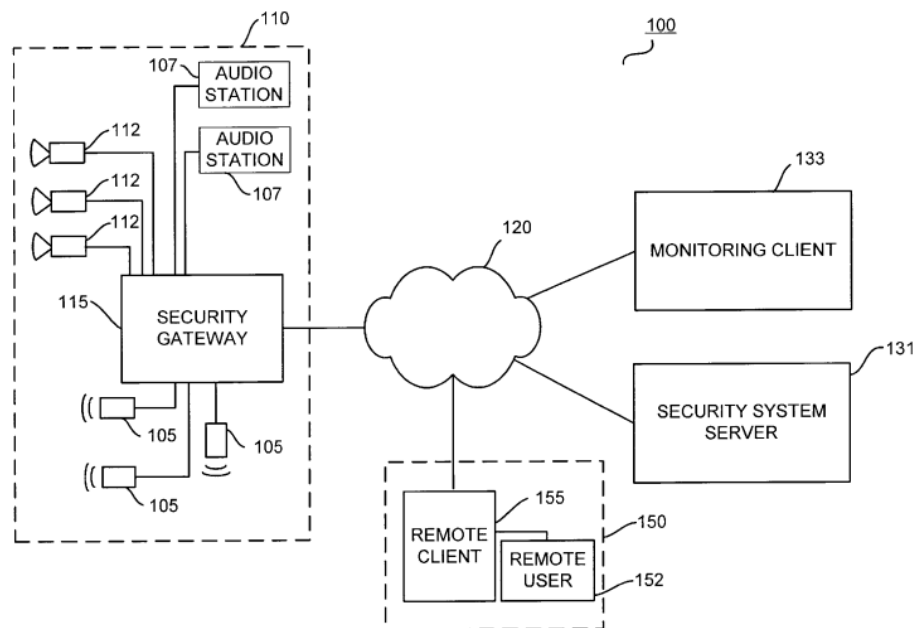


FIG. 1

FIG. 1 depicts a block diagram of security system 100 that comprises security gateway 115, which is typically located at premises 110. *Id.* at 6:20–24. Security system 100 further comprises monitoring client 133 operatively coupled to security gateway 115 through network 120. *Id.* at 6:25–27. Security system 100 further comprises security system server 131 operatively coupled to security gateway 115 through network 120. *Id.* at 6:27–30.

Security gateway 115 detects and relays alarm conditions at premises 110 and captures information relating to such alarm conditions. *Id.* at 6:50–52. Upon triggering of an alarm, security gateway 115 sends cached, stored, and live information from pre-event, pre-alarm, and post-alarm segments to security system server 131 for verification and response. *Id.* at 6:52–56. Security gateway 115 is operatively coupled to security sensors 105, audio stations 107, and video cameras 112 which are located at premises 110

(indoors as well as outdoors). *Id.* at 6:59–65. Video cameras 112 and audio stations 107 capture video data and audio data, respectively, from premises 110. *Id.* at 7:32–34. Audio stations 107 may include microphones and speakers and are capable of providing two-way communication as well as emitting a signal for alerting occupants of the premises that communication is occurring. *Id.* at 7:36–40. Naidoo states: “The present invention provides the advantage of using the security system as a platform for two-way audio and video communication.” *Id.* at 4:23–25. Naidoo further states that the system could recognize a remote user’s facial features, signature, voice or fingerprint. *Id.* at 10:10–15.

2. *Motivation to Combine*

We previously addressed the motivation to combine Vaios and Menard and concluded there were several reasons why one of ordinary skill in the art would have made the combination with a reasonable expectation of success. *See* Set. II.H.3. We now consider Petitioner’s contention that one of ordinary skill in the art also would have combined Vaios and Naidoo. Pet. 34–35.

Petitioner contends that “[i]t was obvious to implement the biometric authentication features (and corresponding software module) of Naidoo with Vaios’s local computer system 12.” *Id.* at 34 (citing Ex. 1002 ¶¶ 288–294). Petitioner contends that such a modification would have simply involved the combination of known elements (i.e., the biometric authentication/image recognition module of Naidoo with the monitoring system of Vaios) or alternatively a simple substitution of biometric-based authentication for password-based authentication. *Id.* at 34–35. Petitioner contends that the modifications would have been performed according to known methods to

yield predictable results since biometric authentication modules merely utilize software programming. *Id.* at 35 (citing Ex. 1005, 10:5–11, 18:61–19:3, 15:46–51, 16:22–25). Petitioner contends that “Vaio includes all necessary components for implementing the image recognition module of Naidoo into its system, and thus a [person of ordinary skill in the art] would have found such a combination would yield a successful and predictable manner of recognizing an individual’s facial features and/or fingerprints and implementing corresponding actions. *Id.* (citing Ex. 1002 ¶ 290).

Petitioner also contends “the combination provided advantages that would have motivated a [person of ordinary skill in the art] such as increased security and ability to permit access using electronic identification means, without requiring remote verification by security personnel” and that persons of ordinary skill in the art “generally understood such biometric authentication techniques to be more secure than many other techniques (including password-based authentication[]).” *Id.* (citing Ex. 1002 ¶¶ 291–292). Accordingly, Petitioner contends that one of ordinary skill in the art would have combined Naidoo with Vaio for these reasons. *Id.* (citing Ex. 1002 ¶¶ 285–295).

Patent Owner does not argue against the combination of Naidoo with Vaio and Menard. *See Resp.; Sur-Reply.*

After review of the evidence, we determine that Petitioner has shown by a preponderance of the evidence that a person of ordinary skill in the art would have combined Vaio, Menard, and Naidoo with a reasonable expectation of success.

3. *Claim 15*

Claim 15 was discussed previously and recites that the “computerized controller includes an image recognition module for identifying at least one of faces, eyes, and fingerprints.” Ex. 1001, 20:45–48. Petitioner contends that “Naidoo discloses a software module (e.g., ‘media handler 415’ of security system server 131) that performs authentication of a remote user with biometrics including ‘facial features, signature, voice or fingerprint.’” Pet. 50 (citing *id.* at 34; Ex. 1005, 10:5–11, 18:61–19:3; Ex. 1002 ¶¶ 284–295). Petitioner contends it would have been obvious to implement such biometric authentication features (and corresponding software module) of Naidoo with Vaios’s local computer system 12 for the reasons explained. *Id.* at 34–35. Petitioner contends the combination of Vaios, Naidoo, and Menard renders claim 15 obvious for similar reasons. *Id.* at 51 (citing Ex. 1002 ¶¶ 285–295).

Patent Owner relies on its arguments for claim 1 and does not present any separate arguments for claim 15. *See* Resp.; Sur-Reply.

Reviewing the evidence, Petitioner has shown by a preponderance of the evidence that claim 15 would have been obvious over the combination of Vaios, Naidoo, and Menard.

J. Alleged Obviousness of Claims 1, 2, 4–10, 12, and 16–20 over Klein, Menard, and Vaios

As discussed in Section II.H, *supra*, we have decided that these claims are unpatentable. Consequently, we do not reach this challenge ground.

K. Alleged Obviousness of Claims 2, 3, and 15 over Klein, Menard, Vaios, and Naidoo

As we decided previously that these claims are unpatentable in Section II.H and II.I, *supra*, we do not reach this challenge ground.

III. CONCLUSION

We determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–10, 12, and 15–20 of the '581 patent are unpatentable notwithstanding Patent Owner's arguments.

IV. ORDER

For the foregoing reasons, it is

ORDERED that Petitioner establishes by a preponderance of the evidence that challenged claims 1–10, 12, and 15–20 of the '581 patent are unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.¹²

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not shown Unpatentable
1–7, 9, 10, 15– 17, 20	102(b), 103(a)	Vaios		1–7, 9, 10, 15–17, 20
15	103(a)	Vaios, Naidoo		15

¹² Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

1-10, 12, 15-20	103(a)	Vaios, Menard	1-10, 12, 15- 20	
15	103(a)	Vaios, Menard, Naidoo	15	
1, 2, 4- 10, 12, 16-20	103(a)	Klein, Menard, Vaios		
2, 3, 15	103(a)	Klein, Menard, Vaios, Naidoo		
Overall Outcome			1-10, 12, 15- 20	

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