

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALLSTATE INSURANCE COMPANY,
Petitioner,

v.

ATOS, LLC,
Patent Owner.

IPR2021-01118
Patent 8,527,140 B2

Before AMANDA F. WIEKER, RICHARD H. MARSCHALL, and
RYAN H. FLAX, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

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

Allstate Insurance Company (“Petitioner”) filed a Petition for *inter partes* review of claims 1–18 (all claims) of U.S. Patent No. 8,527,140 B2 (Ex. 1001, “the ’140 patent”). Paper 1 (“Pet.”). ATOS, LLC (“Patent Owner”) filed a Preliminary Response. Paper 5 (“Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply (Paper 6, “Pet. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 7, “PO Sur-reply”).

Under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a), we have authority to institute an *inter partes* review if “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). After considering the evidence of record, we determine the information presented shows a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one of the challenged claims of the ’140 patent. Accordingly, we institute an *inter partes* review of claims 1–18 of the ’140 patent on all grounds asserted in the Petition.

BACKGROUND

A. Real Parties-In-Interest and Related Matters

Petitioner identifies itself, Esurance Insurance Services, Inc., and Arity, LLC, as real parties-in-interest. Pet. 2. Patent Owner identifies itself as its sole real party-in-interest. Paper 4, 2.¹

¹ In its Mandatory Notices, Patent Owner states that it “is the assignee of” the ’140 patent “based on recorded assignments.” Paper 4, 2. Because this statement appears under the heading “REAL PARTY-IN-INTEREST,” we interpret this statement as a representation that Patent Owner is the sole real party-in-interest. *See id.* We note, however, that an assignee identified in “recorded assignments” may not necessarily identify the current assignee, and identifying an assignee of a patent as a real party-in-interest does not

The parties identify the following proceeding related to the '140 patent: *ATOS, LLC v. Allstate Insurance Company, Esurance Insurance Services, Inc., and Arity, LLC*, No. 1:20-cv-06224 (N.D. Ill.). Pet. 3; Paper 4, 2.

B. Overview of the '140 Patent

The '140 patent relates to a method that detects “the state of a vehicle by a portable device carried by a user and the various actions taken upon the detection of the state.” Ex. 1001, 1:10–12. In the background discussion of related art, the '140 patent describes problems the art attempts to address, such as using a portable device to remember a parking spot or disabling certain user actions on a portable device while a user moves or exceeds a speed limit. *Id.* at 1:14–19, 1:43–46. The '140 patent also describes disadvantages of using GPS alone to address these problems. *See id.* at 1:37–42, 1:46–56.

To address the drawbacks in the related art, the '140 patent employs “an accelerometer in a portable device” to detect “the stopping and starting of a car.” Ex. 1001, 2:11–12. According to the '140 patent, an accelerometer can detect engine vibrations to determine whether an engine remains running or has stopped running, and can also detect vibrations that indicate walking by the user. *Id.* at 2:13–20. In one embodiment, the '140 patent describes combining the state of the vehicle determined using accelerometer information (engine on/off) with GPS location information to determine the location of a stopped car. *Id.* at 2:21–28.

necessarily indicate that all real parties-in-interest are identified. To the extent that other real parties-in-interest exist, Patent Owner must promptly file updated Mandatory Notices identifying such parties.

Figure 1 of the '140 patent is reproduced below.

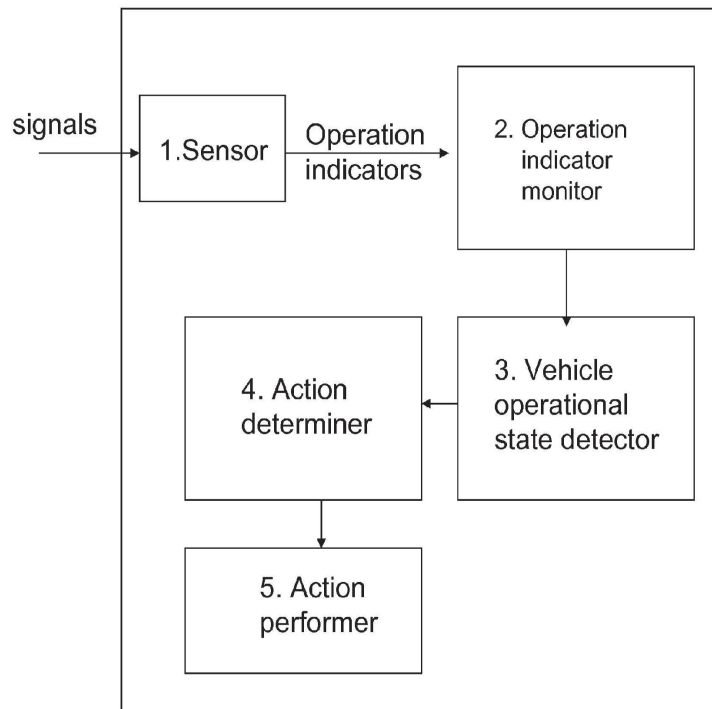


Figure 1: Portable device for taking action based on state of vehicle.

Figure 1 “illustrates the portable device apparatus carried by an individual to determine if certain actions should be performed.” Ex. 1001, 3:45–47. A portion of Figure 1 depicts a sensor receiving “signals” as an input and generating “[o]peration indicators” as an output. *Id.* The '140 patent describes basing a decision to perform an action on “determining the operational state of a vehicle surrounding the portable device,” which in turn involves monitoring “an onboard sensor on the device.” *Id.* at 3:47–50. According to the '140 patent, the sensor receives signals from the environment and converts them to “operation indicators.” *Id.* at 3:50–52. The '140 patent provides an example that employs a vibration sensor, such as an accelerometer, that measures “forces over time (i.e. the signals) and convert[s] them into number of vibrations measured per second (operation indicators).” *Id.* at 3:52–57.

The operation indicators from the sensor “are forwarded to the operation indicator monitor unit (unit 2) which continuously monitors and collects the operation indicators over time.” *Id.* at 4:4–7. The monitor unit then forwards the operation indicators to an “operational state detector unit” that “uses pre-determined criteria which are a set of rules to help determine the operational state of the vehicle.” *Id.* at 4:7–11. The next step described by the ’140 patent involves sending the operational state information to an “[a]ction determiner” to determine whether to take an action and an “[a]ction performer” to perform any action decided upon by the action determiner. *Id.* at 4:32–37, Fig. 1.

C. Challenged Claims

Petitioner challenges claims 1–18 of the ’140 patent. Pet. 3. Claims 1, 3–5, 10, 15, and 18 are independent. Ex. 1001, 10:64–14:34. Claim 1 is illustrative and reproduced below:

1. A method of performing one or more actions on a portable device carried by an individual, comprising:
 - monitoring at least one operation indicator continuously and transparently to the individual, wherein the at least one operation indicator is created by an on-board component of the portable device when the portable device is located inside a vehicle;
 - detecting when the at least one operation indicator meets one or more predetermined criteria;
 - determining one or more operational states of the vehicle based on the one or more predetermined criteria;
 - determining the one or more actions based on the one or more operational states of the vehicle;
 - performing the one or more actions on the portable device;
 - determining the one or more actions based on at least one change in the operational state of the vehicle occurs; and

wherein the at least one change in the operational state comprise at least one of the following: a change from a vehicle is moving state to a vehicle movement is lingering state; a change from a vehicle engine is on state to an engine is off state; a change from a vehicle is moving state to a vehicle is stationary state; a change from a vehicle speed is below a predetermined speed limit state to a vehicle speed is above the predetermined limit; a change from a vehicle is stationary state to a vehicle is moving state; a change from an engine is off state to an engine is on state; and a change from an engine is off state to a vehicle is moving state.

Ex. 1001, 10:64–11:21 (indentations added for readability).

D. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–18 are unpatentable based on the following grounds (Pet. 3–4):

Claims Challenged	35 U.S.C. §	References
1, 5, 10, 13, 15	102 ²	Kim ³
2, 7	103(a)	Kim
2, 11, 14	103(a)	Kim, Barbera ⁴
3, 6, 8, 9, 17	103(a)	Kim, Baker ⁵
4	103(a)	Kim, Browne, ⁶ Baker
12	103(a)	Kim, Rubin ⁷
16	103(a)	Kim, Barbera, Kohli ⁸
18	103(a)	Kim, Mitrovic ⁹

Petitioner also relies on the Declarations of Dr. William R. Michalson and Dr. Hsieh-Yee. *See* Exs. 1003, 1014. At this stage of the proceeding, Patent Owner does not rely on declaration testimony.

² The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103. Because the ’140 patent has an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of 35 U.S.C. §§ 102 and 103. Our decision would not differ based on applying either pre- or post-AIA law.

³ KR 10-0775006, published June 4, 2007 (Ex. 1005, “Kim”).

⁴ US 7,505,784 B2, published March 29, 2007 (Ex. 1007, “Barbera”).

⁵ US 2006/0111835 A1, published May 25, 2006 (Ex. 1009, “Baker”).

⁶ US 7,834,778 B2, published November 16, 2010 (Ex. 1008, “Browne”).

⁷ US 8,065,508 B2, filed November 10, 2008 (Ex. 1006, “Rubin”).

⁸ US 6,236,937 B1, issued May 22, 2001 (Ex. 1016, “Kohli”).

⁹ Mitrovic, D., *Reliable Method for Driving Events Recognition*, IEEE Transactions on Intelligent Transportation Systems, Vol. 6, No. 2 (June 2005) (Ex. 1017, “Mitrovic”).

DISCUSSION

A. Principles of Law

To anticipate a claim under 35 U.S.C. § 102, “a single prior art reference must expressly or inherently disclose each claim limitation.” *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1334 (Fed. Cir. 2008). That “single reference must describe the claimed invention with sufficient precision and detail to establish that the subject matter existed in the prior art.” *Verve, LLC v. Crane Cams, Inc.*, 311 F.3d 1116, 1120 (Fed. Cir. 2002).

A claim is unpatentable under § 103(a) 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 at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *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 subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective indicia of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art at the time of the invention “would have been someone with a bachelor’s or master’s degree in the field of mechanical engineering, electrical engineering, or physics, or with a bachelor’s or master’s degree in a related field, and at least three years of experience in designing or developing portable device systems.” Pet. 4 (citing Ex. 1003 ¶ 52). Patent Owner does not address

Petitioner’s proposal or offer a competing definition of the level of ordinary skill in the art. *See generally* Prelim. Resp.

For purposes of this Decision, we adopt Petitioner’s assessment of the level of ordinary skill in the art as it is consistent with the ’140 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Claim Construction

In this *inter partes* review, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2019). In applying this standard, we generally give claim terms their ordinary and customary meaning as would be understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

Petitioner proposes constructions for “operation indicator” and “on-board component.” Pet. 7–10. Patent Owner disputes Petitioner’s proposed construction for “operation indicator” and proposes its own construction, and argues that we need not construe “on-board component” at all. Prelim. Resp. 8–13. We agree with Patent Owner that we need not construe “on-board component” because, at this time, no issue turns on our construction of that limitation. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (holding that only claim terms in controversy need to be construed, and only to the extent necessary to resolve the controversy (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))). We limit our analysis to the construction of “operation indicator.”

With the exception of claim 18, each independent claim requires the step of “monitoring at least one operation indicator.” *See, e.g.*, Ex. 1001, 10:65–66. Petitioner argues that we should construe “operation indicator” to mean “a sensor measurement determined from signals from the environment.” Pet. 7. Petitioner contends that although the ’140 patent does not provide an express definition of “operation indicator,” it defines the term “through context” when it states that vibration sensors measure forces over time and “convert them into number of vibrations measured per second (operation indicators).” *Id.* (quoting Ex. 1001, 3:51–56 (emphasis removed)). Petitioner also relies on the statement in the ’140 patent that the “sensor receives signals from the environment and converts them into operation indicators.” *Id.* (quoting Ex. 1001, 3:58–61).

Patent Owner argues that we should construe “operation indicator” to mean “information derived by converting sensing device output determined from signals from the environment.” Prelim. Resp. 8. Patent Owner summarizes the differences between the parties’ constructions:

The difference between the parties’ proposed constructions is that Petitioner’s construction would equate the measurements taken by a sensing device with “operation indicators.” By contrast, under Patent Owner’s construction, sensing device measurements are not, standing alone, “operation indicators.” Instead, the output from the sensing device must be *converted* into operation indicators.

Id. According to Patent Owner, “the measurements determined from the sensing device must be converted—i.e., processed in some way—before becoming a meaningful indicator of the car’s operation.” *Id.* at 9. Patent Owner relies on aspects of the specification stressing the conversion of signals, including the statement that the invention “require[s] . . . a sensor that converts sensory signals to operation indicators.” *Id.* (quoting Ex. 1001,

3:67–4:3 (emphasis removed)). Patent Owner also argues that Petitioner improperly relies on a portion of specification stressing the conversion of signals, but then omits the term “converts” from its proposed construction and instead uses the term “determined.” *Id.* at 11.

In its Reply, Petitioner argues that the sensor outputs are “operation indicators” and the sensors transform environmental signals into those operation indicators. Pet. Reply 1–2. According to Petitioner, the specification confirms this interpretation multiple times and never suggests that any further conversion of the sensor output occurs to create operation indicators, as Patent Owner argues. *Id.* at 2–4. Petitioner also notes that both proposed constructions use the word “determined,” undermining Patent Owner’s complaint that Petitioner improperly uses that term in its proposal. *Id.* at 4–5.

In its Sur-reply, Patent Owner again argues that Petitioner omits a crucial “converting” step that must take place after a sensor takes measurements before it produces an operation indicator. PO Sur-reply 1. Patent Owner contends that such a conversion must take place so that the operation indicator can “‘indicate’ something about the ‘operation’ of a vehicle.” *Id.* at 2. Patent Owner further contends that a sensor may contain two components, one to measure signals from the environment and another to convert the output of the first component to an operation indicator, although Patent Owner acknowledges that the specification’s figures do not depict such a structure. *Id.* at 4.

Based on our review of the parties’ arguments and cited evidence, we agree with Petitioner’s proposed construction and disagree with Patent Owner’s contention that “operation indicators” mean something more than the output of a sensor measurement based on signals from the environment.

First, the plain language of the claim does not support Patent Owner's construction. The limitation in question appears in a step requiring "monitoring at least one operation indicator . . . wherein the . . . operation indicator is created by an on-board component," i.e., created by the sensor the specification describes. *See* Ex. 1001, 3:49–52, 10:65–11:2. Nothing in that limitation suggests anything more than "monitoring" the operation indicator created by the on-board component—no extra converting of that output appears in the claim or suggests that mere monitoring of the indicator requires further conversion prior to the monitoring. In addition, to the extent that sensor output such as vibrations per second do not indicate something meaningful enough about the vehicle in Patent Owner's view, later limitations in the claims provide additional information about the operation of the vehicle, suggesting that the "operation indicators" themselves need not contain all of the information as to the vehicle's state. *See* PO Sur-reply 2; Ex. 1001, 11:3–6 (setting forth steps in claim 1 that require detecting when the operation indicator meets predetermined criteria and determining operational states of the vehicle based on that criteria).

The specification also supports Petitioner's construction by equating "operation indicator" with a sensor's output. Ex. 1001, 3:51–56 ("[A] vibration sensor may measure forces over time (i.e. the signals) and convert them into number of vibrations measured per second (operation indicators)."). The only converting the specification describes in the context of operation indicators involves converting signals from the environment, not converting the output of the sensor as Patent Owner argues. *Id.* Patent Owner contends that the specification's description of sensor output in vibrations per second, an operation indicator, may involve some additional converting of sensor output within a two-part sensor, but the specification

does not describe such a two-part sensor or the extra conversion step. *See* PO Sur-reply 3–4; Ex. 1001, 3:45–61, Fig. 1. To the extent that the specification describes conversion of sensor output into something different, it occurs in later steps after the “monitoring” step, and not before the sensor creates operation indicators. *See* Ex. 1001, 4:7–16 (describing operation of state detector unit that determines operational state of a vehicle after receiving operation indicators from monitoring unit). Finally, although the specification describes a sensor measurement converted from environmental signals and Petitioner’s proposal uses the phrase “determined from signals from the environment,” we view the phrases “converted from” and “determined from” as providing no meaningful distinction as applied to the prior art in this case. *See* Pet. 7. Patent Owner uses the same phrase in its own proposal when discussing the sensor’s actions on signals from the environment, and we do not view Petitioner’s use of that phrase in its construction as problematic. *See* Prelim. Resp. 8 (describing a portion of proposed construction as “determined from signals from the environment”). To the extent the parties find the distinction between “converted” and “determined” meaningful, they can address the issue further during the trial.

Based on the foregoing, we construe “operation indicator” to mean “a sensor measurement determined from signals from the environment.”

D. Anticipation of Claims 1, 5, 10, 13, and 15 by Kim

Petitioner contends that claims 1, 5, 10, 13, and 15 are anticipated by Kim. Pet. 3, 15–30. Petitioner relies on the Declaration of Dr. William R. Michalson in support of its showing. *See id.* (citing Ex. 1003). For the reasons discussed below, we find that Petitioner has shown a reasonable likelihood that at least claims 1, 10, and 13 are anticipated by Kim.

1. Overview of Kim

Kim “relates to a terminal device for providing a context aware-based mobile service.” Ex. 1005 code (57) (Abstract). More specifically, Kim discloses a terminal device that includes sensors that output data to a “context awareness unit” that estimates the environment surrounding the user of the terminal device. *Id.* The terminal device then outputs context-appropriate content to the user. *Id.* According to Kim, using its disclosed system, “it is possible to seamlessly provide a mobile service suitable for the user’s current location and context automatically without the user’s intentional selection inside of a vehicle, outdoors or indoors.” *Id.*

In one embodiment, Kim discloses terminal 100 having sensing unit 110 that includes a number sensors, including camera 111, microphone 112, GPS 113, and acceleration sensor 114. Ex. 1005 ¶¶ 38–40. Acceleration sensor 114 detects “the motion state of an object by detecting dynamic forces such as acceleration, vibration, and impact” and can detect engine and vehicle vibrations. *Id.* at ¶¶ 40–41. Kim discloses sending the data from sensing unit 110 to context recognition unit 120, which “estimates an external context or a user’s behavior by comparing the sensor data sensed through the sensor unit 110 with a pattern of reference signals stored therein.” *Id.* at ¶ 42. According to Kim, “the context awareness unit 120 continuously detects a change in the user’s context and detects a change in a service environment, for example, an area such as inside, outdoors, or indoors of the vehicle 200.” *Id.* at ¶ 43. After examining the user’s context, user intention setting unit 130 examines the context and determines the user’s intention based on information previously input and stored by the user, and service creation unit 140 selects an appropriate service based on the context and user intention. *Id.* at ¶¶ 44–45.

2. Discussion of Claim 1

Petitioner argues that Kim discloses every limitation of claim 1, and provides a limitation-by-limitation analysis of claim 1 with specific citations to Kim and declaration support. Pet. 15–25. Patent Owner argues that Kim does not anticipate claim 1 because Kim does not disclose (1) “operation indicators,” (2) “monitoring at least one operation indicator continuously and *transparently* to the individual,” and (3) “determining ... one or more actions based on at least one change in the operational state of the vehicle occurs.” Prelim. Resp. 15–22, 27–30. We address each of Patent Owner’s arguments in turn below.

a. operation indicator

Petitioner relies on its proposed construction of “operation indicator” in arguing that Kim discloses “monitoring at least one operation indicator.” Pet. 16. According to Petitioner, Kim discloses a terminal having “‘sensor unit 110 [that] detects an external context or action using various sensors and outputs the corresponding sensor data’—(i.e., ‘*operation indicator*’)—for example by utilizing ‘an acceleration sensor 114 for instantaneous detection of the motion state of an object by detecting dynamic forces such as acceleration, vibration, and impact.’” *Id.* (citing Ex. 1003 ¶ 91; Ex. 1005, ¶¶ 39–40).

Patent Owner argues that Petitioner fails to establish that Kim discloses the claimed “operation indicators” because Petitioner’s argument “rests on an incorrect claim construction.” Prelim. Resp. 15. Patent Owner relies on its own proposed construction in arguing that Kim fails to disclose operation indicators. *Id.* at 15, 16 (“Under the correct construction, sensing device data is not itself an operation indicator.”), 18 (“[I]n Kim, no conversion is performed on sensor data before it is input to the context

recognition unit to determine whether it ‘meets one or more predetermined criteria.’”).

Based on the current record, Petitioner establishes sufficiently that Kim discloses “monitoring at least one operation indicator.” Patent Owner’s arguments do not undermine Petitioner’s showing because they are based on Patent Owner’s flawed construction of “operation indicator” that we rejected in our discussion above. *See supra* 9–13.

b. monitoring . . . transparently to the individual

Claim 1 requires “monitoring at least one operation indicator continuously and transparently to the individual.” As to the “continuously and transparently to the individual” aspect of the limitation, Petitioner contends that Kim discloses context recognition unit 120 that acquires signals from sensor unit 110 and estimates the context, or operational state of a vehicle, through *continuous* detection of changes in the user’s context. Pet. 16–17 (quoting Ex. 1005 ¶¶ 43, 74). Petitioner also argues that “the ‘terminal’ in Kim monitors information in a way that is not visible to the user, (i.e., ‘transparently to the individual’).” *Id.* at 17 (citing Ex. 1003 ¶ 150; Ex. 1005 ¶ 43).

Patent Owner argues that the ’140 patent discloses several actions that are performed “***transparently*** to the user . . . based on the operational state of the vehicle.” Prelim. Resp. 19 (quoting Ex. 1001, 6:66–7:1). Patent Owner contends that Petitioner’s cited evidence as to the “transparently” limitation does not have “anything to do with transparency.” *Id.* at 20. Patent Owner argues that Kim’s paragraph 43, which describes context awareness unit 120 continuously detecting a change in a user’s context and service environment, “says nothing about transparency.” *Id.* (citing Ex. 1005 ¶ 43). Patent Owner also argues that Petitioner’s declarant merely

states that Kim’s monitoring of information and context “can be performed entirely without user input or observation,” which does not appear in Kim and lacks sufficient explanation. *Id.* at 20–21 (citing Ex. 1003 ¶ 150).

Patent Owner also asserts that although “Kim’s method appears to work automatically,” it “notifies the user,” which “is the opposite of and does not disclose the claimed method, which requires transparency.” *Id.* at 21–22 (citing Ex. 1005 ¶ 102).

Based on the current record, Petitioner establishes sufficiently that Kim discloses “monitoring at least one operation indicator continuously and transparently to the individual.” Petitioner relies on Kim’s disclosure of continuous detection of changes in a user’s context by context recognition unit 120, which assesses the output of sensor unit 110. Ex. 1005 ¶ 43; Pet. 17. Petitioner also relies on its declarant testimony that Kim’s terminal “monitors information in a way that is not visible to the user” and that context recognition unit 120 can monitor signals from sensor unit 110 “without user input or observation.” Ex. 1003 ¶ 150 (citing Ex. 1005 ¶ 74). We do not view this testimony as so conclusory that we should give it no weight, as Patent Owner urges. *See* Prelim. Resp. 21. At a minimum, we view the evidence at this stage as consistent with Petitioner’s declarant testimony that Kim monitors information continuously and automatically, and does not require user input and, therefore, the information need not be viewed by the user in order for the system to operate.

Although neither party proposes a formal construction for “transparently,” Patent Owner does not dispute that Kim’s method discloses continuous monitoring and an automatic method that does not require user input, and the lack of any description of user input as to the “monitoring” step in Kim generally supports Petitioner’s position. *See* Prelim. Resp. 20–

21. Patent Owner points to one instance where Kim notifies terminal 100 when “context awareness server 600 . . . finds special information or an application service,” but Patent Owner does not tie this disclosure to the portions of Kim relevant to “monitoring at least one operation indicator,” i.e., monitoring the output of Kim’s sensor unit 110. *See id.* at 21–22 (citing Ex. 1005 ¶ 102). Instead, the fact that Kim specifically describes when it notifies a user terminal 100 in some situations, and does not do so when discussing monitoring the output of Kim’s sensor unit 110, arguably supports Petitioner’s position. Moreover, Patent Owner does not propose a construction that would support its position that mere notification to a user of certain information, without requiring a user to act or even view the information for the system to operate, falls outside the scope of the “transparently” limitation. The parties may address this issue further during trial, including any proposed constructions of “transparently,” including any evidence that may support their positions.

c. determining . . . actions based on at least one change

Claim 1 requires “determining the one or more actions based on at least one change in the operational state of the vehicle occurs.” Petitioner argues that “[t]he “terminal” of Kim determines changes to a provided service when the context or operational state of the vehicle changes.”

Pet. 22. Petitioner relies on Kim’s description of user intention setting unit 130 defining a user’s intention, which Petitioner equates to determining an action, and Kim’s statement that terminal 100 may “automatically provide a corresponding service according to changes in the service environment,” which Petitioner equates to determining an action based on a change in the operational state of a vehicle. *Id.* (citing Ex. 1003 ¶ 180; Ex. 1005 ¶ 26) (quoting Ex. 1005 ¶ 55 (emphasis removed)). Petitioner also contends that

Kim’s “terminal detects ‘when the driving is stopped and the user comes out of the vehicle,’ (i.e., ‘at least one change in the operational state’), and then in response the terminal determines to change modes, ‘the user intention setting unit 130 enters the outdoor service mode’ (i.e., ‘determining the one or more actions’).” *Id.* at 22–23 (quoting Ex. 1005 ¶ 82).

Patent Owner argues that

to satisfy the “based on at least one change” limitation, the mobile device must be capable of remembering a prior state. It is not enough for the mobile device to detect the current state. It must have the capability of being aware of the vehicle’s state in the past, comparing that state to the present, and if a specific transition took place, taking action based on that change.

Prelim. Resp. 28. Patent Owner contends that Kim merely determines actions based on the current state of the vehicle rather than a specific change in state, and does not have “any memory of any prior status of the vehicle.” *Id.* at 29. Patent Owner also argues that although Kim states that its “context awareness unit 120 continuously detects a change in the user’s context and detects a change in a service environment,” when read in context, Kim merely describes detection of a car’s current status. *Id.* at 29–30 (quoting Ex. 1005 ¶¶ 42–43).

Based on the current record, Petitioner establishes sufficiently that Kim discloses “determining the one or more actions based on at least one change in the operational state of the vehicle occurs.” Petitioner relies on portions of Kim that expressly refer to changing service according to changes in service environment, including when a vehicle stops and a user exits the vehicle. Pet. 22–23 (citing Ex. 1003 ¶ 180; Ex. 1005 ¶¶ 26, 82). Those portions of Kim, as well as the declarant testimony, adequately support Petitioner’s contentions at this stage.

Patent Owner contends that the claimed “change” must be detected in a particular manner by relying on memory of past vehicle states. Prelim. Resp. 28–29. We decline to read in such a requirement into the claims, which do not on their face require any particular manner of “determining . . . actions based on at least one change.” Further, Patent Owner’s assertion that Kim fails to disclose any memory of past vehicle states lacks support, as even the passage Patent Owner quotes refers to a comparison of current sensor data from sensor unit 110 to “previously stored pattern data” in context awareness unit 120. *Id.* at 30 (quoting Ex. 1005 ¶ 42). “Stored” sensor data refers to data stored in memory, and such sensor data would appear to include vehicle state data when terminal 100 resides within a vehicle and the sensors output data reflecting the vehicle’s state. *See, e.g.*, Ex. 1005 ¶ 41 (describing use of sensor 114 to sense vibrations in a vehicle). Kim contains numerous other references to stored data or a comparison of current sensor data to stored pattern data to recognize a particular context around a user. *See, e.g.*, Ex. 1005, 3 (claims 1 and 5), 5 (claims 11 and 13), ¶¶ 19, 26, 64, 74. Accordingly, even if the claims required some sort of memory to compare a current state to past states as Patent Owner contends, Kim arguably discloses that memory.

d. Conclusion as to Claim 1

We have reviewed Petitioner’s argument and evidence for the remaining limitations and determine that Petitioner establishes sufficiently that Kim discloses each of those limitations. Based on the current record, the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that Kim anticipates claim 1.

3. Claims 10 and 13

Petitioner argues that Kim discloses each of the limitations of independent claim 10 and claim 13, which depends from claim 10. Pet. 27–29. Petitioner relies on its analysis of claim 1 for limitations that are the same in claims 1 and 10, and cites to portions of Kim and declarant testimony for its argument as to additional limitations added by claims 10 and 13. *See id.* Patent Owner does not raise any additional arguments as to claims 10 and 13 that were not already addressed above in the context of claim 1. *See Prelim. Resp.* 32.

We have reviewed Petitioner’s argument and evidence for the additional limitations in claims 10 and 13 that were not addressed above in claim 1. Based on the current record, the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that Kim anticipates claims 10 and 13.

4. Claims 5 and 15

Petitioner argues that Kim discloses each of the limitations of independent claims 5 and 15. Pet. 25–26, 29–30. Petitioner relies on its analysis of claim 1 for limitations that are the same in claims 1, 5, and 15, and cites to portions of Kim and declarant testimony for its argument as to additional limitations added by claims 5 and 15. *See id.* Patent Owner raises additional arguments as to both claims 5 and 15 beyond those raised in the context of claim 1. *See Prelim. Resp.* 30–34. For example, as to claim 5 Patent Owner argues that Kim fails to disclose taking an action based on a vehicle’s state *and* an individual’s location. *Id.* at 30–32. As to claim 15, Patent Owner argues that Kim fails to disclose determining an operation state based on predetermined criteria *and* the position of a portable device. *Id.* at 32–34.

Because we already determined that Petitioner establishes a reasonable likelihood that Kim anticipates claims 1, 10, and 13, we institute review of all challenged claims on all grounds set forth in the Petition, which includes Petitioner's challenges to claims 5 and 15 as anticipated by Kim. *See SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120 (“[T]he Board will either institute review on all of the challenged claims and grounds of unpatentability presented in the petition or deny the petition.”). Patent Owner's arguments raise factual issues as to the proper interpretation of Kim that are best addressed after review of a full record developed during trial.

E. Remaining Challenges

Petitioner raises additional obviousness challenges against claims 2–4, 6–9, 11, 12, 14, and 16–18 based on Kim alone or Kim in combination with other art. *See* Pet. 3–4, 31–68. Patent Owner raises a number of arguments against these challenges. *See* Prelim. Resp. 22–26, 35–61. As noted above, because Petitioner made an adequate showing as to anticipation of claims 1, 10, and 13 by Kim, we also institute *inter partes* review based on all of the obviousness challenges presented in the Petition, including these challenges to claims 2–4, 6–9, 11, 12, 14, and 16–18. As to the arguments raised by Patent Owner, we view these contested factual issues as best addressed after further development at trial.

CONCLUSION

After considering the evidence and arguments, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that at least one of the challenged claims of the '140 patent is unpatentable on grounds asserted in the Petition.

This decision does not reflect a final determination on the patentability of the claims. No arguments from the Preliminary Response carry over to trial and any arguments not made in Patent Owner's Response may be considered waived.¹⁰

ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted for claims 1–18 of the '140 patent on the unpatentability grounds asserted in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this decision.

¹⁰ See Consolidated Trial Practice Guide 52 (Nov. 2019) (“Once a trial is instituted, the Board may decline to consider arguments set forth in a preliminary response unless they are raised in the patent owner response.”); *In re NuVasive, Inc.*, 842 F.3d 1376, 1381 (Fed. Cir. 2016) (explaining that the patent owner waived an issue presented in its preliminary response that it failed to renew in its response during trial).

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