

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

LOGANTREE, LP,
Patent Owner.

IPR2022-00040
Patent 6,059,576 C1

Before PATRICK R. SCANLON, MITCHELL G. WEATHERLY, and
JAMES A. WORTH, *Administrative Patent Judges*.

SCANLON, *Administrative Patent Judge*.

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

I. INTRODUCTION

Apple Inc. (“Petitioner”) filed a Petition (Paper 3, “Pet.”) requesting an *inter partes* review of claims 1–5, 8–11, 20, 25, 30–32, 36, 39–42, 45–51, 61–65, 144, and 147 of U.S. Patent No. 6,059,576 C1 (Ex. 1001, “the ’576 patent”). LoganTree, LP (“Patent Owner”) did not file a Preliminary Response.

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2020). To institute an *inter partes* review, we must determine that the information presented in the Petition shows “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). For the reasons set forth below, we determine that the information presented in the Petition establishes a reasonable likelihood that Petitioner will prevail with respect to at least one challenged claim. Accordingly, we institute an *inter partes* review of claims 1–5, 8–11, 20, 25, 30–32, 36, 39–42, 45–51, 61–65, 144, and 147 based on the grounds set forth in the Petition.

II. BACKGROUND

A. Real Parties in Interest

Petitioner identifies itself as the real party in interest. Pet. 94. Patent Owner identifies itself as the real party in interest. Paper 8, 1.

B. Related Matters

The parties identify the following proceedings as related matters involving the ’576 patent: *LoganTree LP v. Apple, Inc.*, Case No. 6:21-cv-

00397 (W.D. Tex.);¹ *LoganTree LP v. LG Electronics, Inc.*, Case No. 4:21-cv-00332 (E.D. Tex.); *LoganTree LP v. Huawei Technologies USA Inc.*, Case No. 4:21-cv-00119 (E.D. Tex.); and *LoganTree LP v. Fossil Group*, Case No. 1:21-cv-00385 (D. Del.). Pet. 94 (citing Exs. 1031–1037); Paper 8, 2.

In addition, Petitioner states that it has filed another petition for *inter partes* review of the '576 patent, IPR2022-00037. Pet. 94–95. Petitioner states that two other *inter partes* review proceedings challenging the '576 patent (IPR2017-00256 and IPR2017-00258) terminated after the filing of a petition but before any decision on institution, and final written decisions were entered in two more *inter partes* review proceedings challenging the '576 patent (IPR2018-00564 and IPR2018-00565). *Id.* at 95. Patent Owner also identifies these proceedings. Paper 8, 3.

C. The '576 Patent²

The '576 patent is titled “Training and Safety Device, System and Method to Aid in Proper Movement During Physical Activity” and relates to “the field of electronic training and safety devices used to monitor human physical activity.” Ex. 1001, code (54), 1:6–7. More specifically, the '576 patent discloses a method that detects, measures, records, and/or analyzes the time, date, and other data associated with movement of the

¹ This proceeding was transferred from the Western District of Texas to the Northern District of California on May 16, 2022, and is now styled *LoganTree LP v. Apple, Inc.*, Case No. 5:22-cv-02892 (N.D. Cal.). Paper 6, 2.

² An ex parte reexamination certificate issued on March 17, 2015, with all claims either amended from their original form or newly added during reexamination. Ex. 1001, code (45) C1, cols. 1–12 C1.

device and produces meaningful feedback regarding the measured movement. *See id.* at 1:8–11.

The '576 patent discloses that certain prior art devices recorded the number of times that a predetermined angle was exceeded but were not convenient to operate and served to report rather than analyze the information. *See id.* at 1:45–54. The '576 patent discloses that it is also important to measure angular velocity to monitor and analyze improper movement. *Id.* at 1:55–67.

The '576 patent discloses an electronic device that tracks and monitors an individual's motion through the use of a movement sensor capable of measuring data associated with the wearer's movement. *Id.* at 2:10–13. The device of the '576 patent also employs a user-programmable microprocessor, which receives, interprets, stores and responds to the movement data based on customizable operation parameters; a clock connected to the microprocessor; memory for storing the movement and analysis data; a power source; a port for downloading the data from the device to other computation or storage devices contained within the system; and various input and output components. *Id.* at 2:13–21.

Figure 4 of the '576 patent is a block diagram of the movement measuring device (*id.* at 3:11–12):

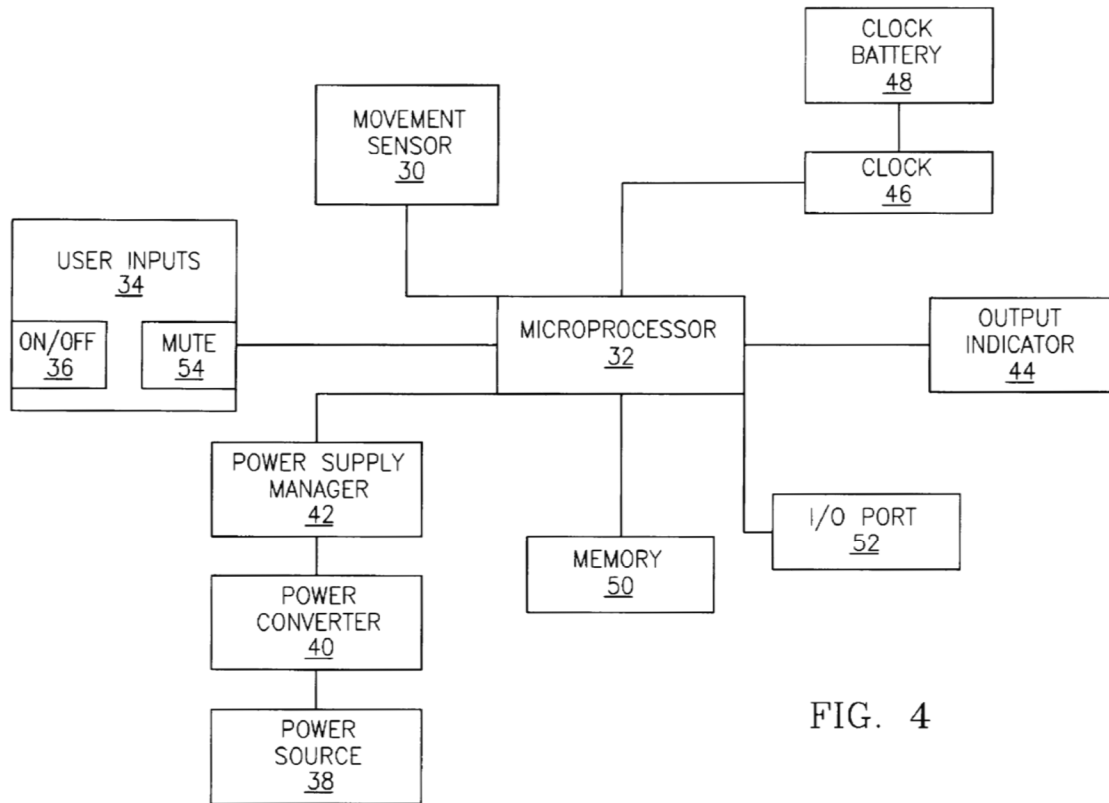


FIG. 4

Figure 4 depicts a block diagram of the components of the device.

The self-contained device can be worn at various positions along the torso or appendages being monitored depending on the specific physical task being performed. *Id.* at 2:21–24. The device also monitors the speed of the movements made while the device is being worn. *Id.* at 2:24–25. When a pre-programmed event is recognized, the device records the time and date of the event while providing feedback to the wearer via visual, audible and/or tactile warnings. *Id.* at 2:25–29. Periodically, data from the device may be downloaded into an associated computer program, which analyzes the data. *Id.* at 2:29–31. The program can then format various reports to aid in recognizing and correcting trends in incorrect physical movement. *Id.* at 2:31–33.

D. Challenged Claims

As noted above, Petitioner challenges claims 1–5, 8–11, 20, 25, 30–32, 36, 39–42, 45–51, 61–65, 144, and 147. Of these claims, claims 1 and 20 are independent. Claim 1, as amended in the reexamination proceeding, is illustrative of the subject matter and reads as follows:

1. A portable, self-contained device for monitoring movement of body parts during physical activity, said device comprising:
 - a movement sensor capable of measuring data associated with unrestrained movement in any direction and generating signals indicative of said movement;
 - a power source;
 - a microprocessor connected to said movement sensor and to said power source, said microprocessor capable of receiving, interpreting, storing and responding to said movement data based on user-defined operational parameters, detecting a first user-defined event based on the movement data and at least one of the user-defined operational parameters regarding the movement data, and storing first event information related to the detected first user-defined event along with first time stamp information reflecting a time at which the movement data causing the first user-defined event occurred;
 - at least one user input connected to said microprocessor for controlling the operation of said device;
 - a real-time clock connected to said microprocessor;
 - memory for storing said movement data; and
 - an output indicator connected to said microprocessor for signaling the occurrence of user-defined events;
- wherein said movement sensor measures the angle and velocity of said movement.

Ex. 1001, 1:25–50 C1 (emphasis omitted).

E. Asserted Grounds of Unpatentability

Petitioner contends that the challenged claims would have been unpatentable on the following grounds:³

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–5, 8–11, 20, 25, 30, 36, 39–42, 45–47, 61–65, 144, 147	103(a)	Allum, ⁴ Raymond, ⁵ Conlan ⁶
31, 32	103(a)	Allum, Raymond, Conlan, de Remer ⁷
64, 65	103(a)	Allum, Raymond, Conlan, Gaudet ⁸
20, 25	103(a)	Gesink, ⁹ Raymond

Pet. 1–2. Petitioner supports its challenge with the Declaration of Dr. Thomas W. Kenny (Ex. 1003).

III. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner contends that a person having ordinary skill in the art would have had a Bachelor of Science degree in an academic discipline emphasizing the design of electrical, computer, or software technologies, in combination with training or at least one to two years of related work experience with capture and processing of data or information, including but not limited to physical activity monitoring technologies. Alternatively, the person could have also had a Master of Science degree in a

³ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103. Because the ’576 patent has an effective filing date before the effective date of the applicable AIA amendments, we apply the pre-AIA version of 35 U.S.C. § 103.

⁴ US 5,919,149, issued July 6, 1999 (Ex. 1008).

⁵ US 5,778,882, issued July 14, 1998 (Ex. 1009).

⁶ US 5,573,013, issued Nov. 12, 1996 (Ex. 1010).

⁷ US 5,412,801, issued May 2, 1995 (Ex. 1013).

⁸ US 6,018,705, issued Jan. 25, 2000 (Ex. 1012).

⁹ US 5,803,740, issued Sept. 8, 1998 (Ex. 1014).

relevant academic discipline with less than a year of related work experience in the same discipline.

Pet. 2–3 (citing Ex. 1003 ¶¶ 22–23).

Based on our review of the record before us, we determine that Petitioner’s stated level of ordinary skill in the art is reasonable because it appears consistent with the evidence of record, including the asserted prior art. Accordingly, for the purposes of this Decision, we adopt Petitioner’s definition.

B. Claim Construction

In *inter partes* reviews, the Board interprets claim language using the district-court-type standard, as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b) (2021). Under that 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, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

Petitioner proposes a claim construction for the term “movement sensor.” Pet. 5–6. On the present record, we do not discern a need to construe explicitly any claim language because doing so would have no effect on our analyses below of Petitioner’s asserted grounds and will not assist in resolving the present controversy between the parties. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms that . . . are in controversy, and only

to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

The parties are hereby given notice that claim construction, in general, is an issue to be addressed at trial and claim constructions expressly or implicitly addressed in this Decision are preliminary in nature. Claim construction will be determined at the close of all the evidence and after any hearing. The parties are expected to assert all of their claim construction arguments and evidence in the Petition, Patent Owner’s Response, Petitioner’s Reply, Patent Owner’s Sur-reply, or otherwise during trial, as permitted by our rules.

C. Board Discretion

Petitioner argues that the Board should not exercise its discretion to deny institution under Sections 314(a) and 325(d). Pet. 87–94. In addition, Petitioner filed a paper ranking the two petitions it filed challenging the ’576 patent and explaining the material differences between the petitions. Paper 2. Patent Owner did not file a Preliminary Response, and, accordingly, we do not address Petitioner’s arguments on these issues.

D. Asserted Obviousness Based on Allum, Raymond, and Conlan

Petitioner asserts that claims 1–5, 8–11, 20, 25, 30, 36, 39–42, 45–47, 61–65, 144, and 147 of the ’576 patent are unpatentable under 35 U.S.C. § 103(a) based on Allum, Raymond, and Conlan. Pet. 6–63. Petitioner relies on the declaration of Dr. Thomas W. Kenny. Ex. 1003. We first summarize the references and then address Petitioner’s contentions. We emphasize that the following determinations regarding the sufficiency of the Petition are preliminary in nature at this stage of the proceeding.

1. Allum

Allum relates to “providing non-invasive testing of the postural sway of a human subject,” and more particularly to the “direct measurement of body position using displacement or motion transducers or other sensing devices attached to the body.” Ex. 1008, 1:11–16. We reproduce Figure 1 below.

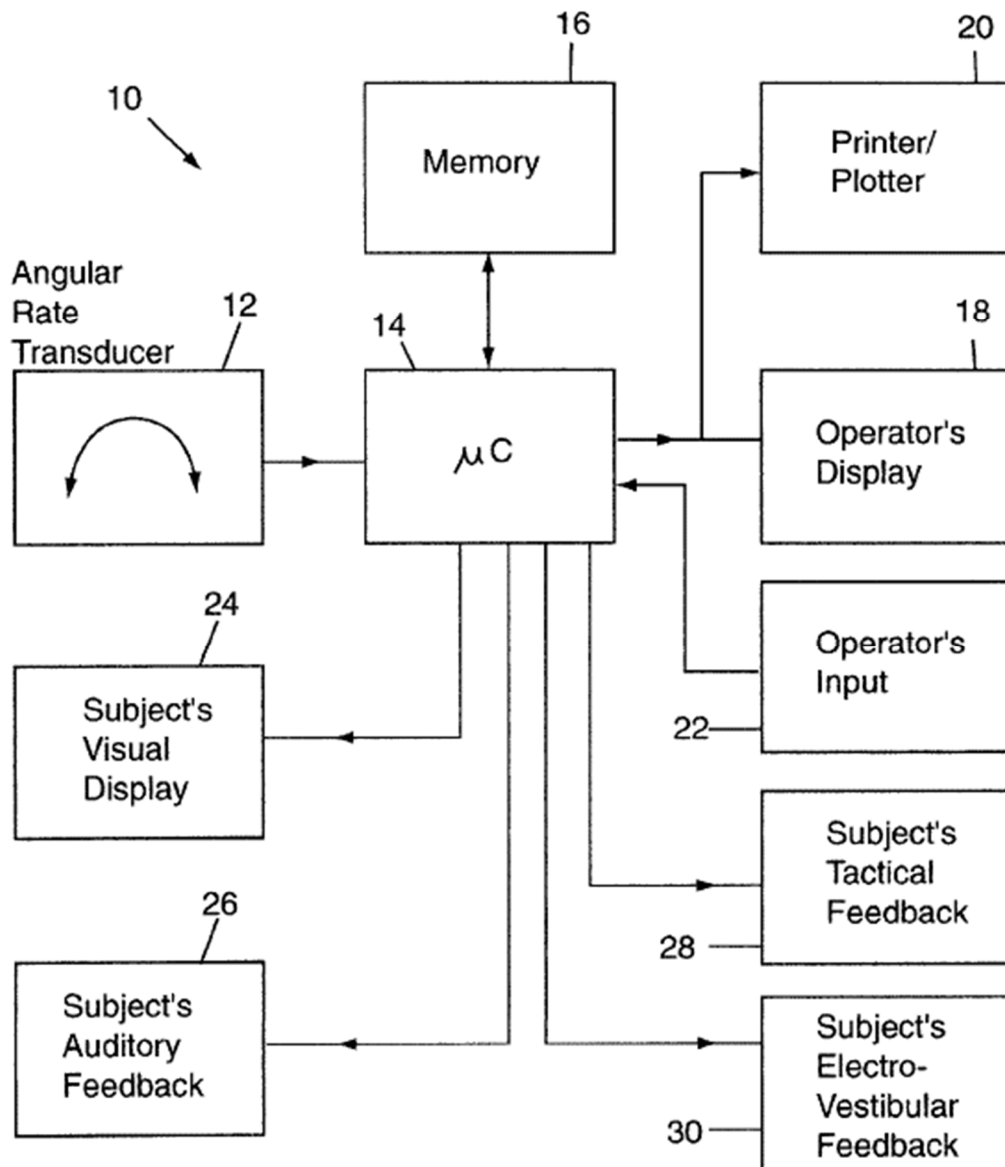


Fig. 1

Figure 1 is a block diagram of an angular position and velocity based body sway diagnosis and rehabilitation system. *Id.* at 6:29–31. The system includes body sway sensors 12 that are attached to a subject and provide body sway signals to system processor 14, which derives body sway angle and angular velocity from the signals. *Id.* at 6:67–7:3. The system further includes memory 16, operator’s display unit 18, and operator’s input device 22. *Id.* at 7:8–13. Visual, auditory, tactile, and electro-vestibular feedback systems 24, 26, 28, 30 provide feedback on body sway angle and angular velocity information. *Id.* at 7:49–61.

Body sway sensors 12 can be attached to the chest of the subject to register the roll, or side-to-side, and pitch, or forward and backward, motion of the subject’s upper body. *Id.* at 8:29–32. A third sensor may be used to capture the yaw or turning motion of the subject. *Id.* at 8:48–51.

Allum discloses providing a warning if the subject’s angular sway has approached within a certain percentage of the angular cone of stability. *Id.* at 14:7–11. The “cone of stability” is defined as “the maximum leaning position of the upper body, i.e[.], the trunk, that a subject can achieve standing for two seconds, without falling, while attempting to keep his body as straight as possible.” *Id.* at 11:2–6.

2. Raymond

Raymond discloses health tracking system 100 having central database 102 connected to health trackers 104. Ex. 1009, 4:62–64. Each health tracker 104 includes multi-parametric physiological monitor 108 and data logger 106. *Id.* at 4:65–67. Monitor 108 includes a variety of sensors that detect a parameter and output signals to hardware 144. *Id.* at 6:19–26. The sensors include accelerometer 134 for detecting motion and inclination

of the patient's body. *Id.* at 6:41–42. Monitor 108 also includes batteries 129. *Id.* at 6:15–18.

3. *Conlan*

Conlan relates to an apparatus and methods for monitoring activity of the human body, and more particularly, methods by which the occurrence and length of certain types of body movements (which form activity phenomenon) can be selectively observed and quantified. Ex. 1007, 1:7–12. Conlan describes a problem with prior art devices, i.e., that saturation of memory occurred when the volume of data being monitored exceeded capacity, and states that this problem was aggravated because prior activity monitors were not selectively configurable to collect data only for a particular activity. *Id.* at 1:60–67.

Conlan discloses an activity monitor worn on the skin and preferably on a user's non-dominant wrist. *Id.* at 2:44–55. In a preferred embodiment, activity monitor 10 includes a pair of user-input pushbuttons 22, 23. *Id.* at 6:39–40. The user can depress one of the pushbuttons upon the occurrence of dizziness or pain so that the occurrence is recorded in the internal memory of the monitor. *Id.* at 6:43–46.

4. *Independent Claim 1*

a) “*A portable, self-contained device for monitoring movement of body parts during physical activity, said device comprising:*”

Petitioner contends that Allum discloses a portable, self-contained device that is attached to a subject's body and includes sensors that provide body sway signals indicative of the subject's body movement. Pet. 24–25 (citing Ex. 1008, code (57), 6:67–7:7, 8:8–12, 16:17–19, Fig. 2; Ex. 1003 ¶ 110). At this stage of the proceeding, and without determining whether the preamble is limiting, we are persuaded that Petitioner has made an adequate

showing that Allum discloses a portable, self-contained device for monitoring movement of body parts during physical activity.

b) *“a movement sensor capable of measuring data associated with unrestrained movement in any direction and generating signals indicative of said movement”*

Petitioner asserts that Allum discloses a movement sensor in the form of various body sway sensors, including angular velocity transducers, that measure the body sway angle and body sway angular velocity of the subject. Pet. 25 (citing Ex. 1008, 6:8–11, 7:3–7, 8: 66–9:1). Petitioner further asserts that Allum’s sensors “include (i) a first sensor to measure ‘side-to-side’ or ‘roll’ motion about a first axis, (ii) a second sensor to measure ‘backward and forward’ or ‘pitch’ motion about a second axis, and (iii) a third sensor to measure ‘turning’ or ‘yaw’ motion about a third axis” that are capable of measuring data associated with unrestrained movement along three orthogonal axes (i.e., in any direction). *Id.* at 25–26 (citing Ex. 1008, 4:40–45, 6:8–11, 8:27–39, 8:48–51; Ex. 1003 ¶ 111).

We are persuaded on this record that Petitioner has made an adequate showing that Allum discloses the claimed movement sensor. In particular, Allum discloses that its body sway sensors “provide body sway signals indicative of . . . upper body motion of a subject to the system processor” (Ex. 1008, 7:5–7) and “do not interfere with subject movement” (*id.* at 4:40–42).

c) *“a power source”*

Petitioner does not assert that Allum expressly discloses a power source, but contends that it would have been obvious to one of ordinary skill in the art Allum’s measuring device would have included a power source. Pet. 16, 26 (citing Ex. 1003 ¶¶ 68, 112). Alternatively, Petitioner argues that

Raymond discloses using small, light batteries to power its monitoring system and it would have been obvious to one of ordinary skill in the art to incorporate Raymond's power supply into Allum's measuring device because the modification "would have merely involved combining prior art elements according to known methods to yield predictable results." *Id.* at 15–16, 26–27 (citing Ex. 1003 ¶ 67; Ex. 1009, 5:7–11, 6:15–18, 9:38–46, Fig. 2). More specifically, Petitioner argues that one of ordinary skill in the art would have made the proposed modification "to include a power supply to Allum's measuring device and support unobtrusive, low-power monitoring operation modes in Allum." *Id.* at 16 (citing Ex. 1003 ¶ 68; Ex. 1009, 5:7–11, 6:15–18, 9:38–46). According to Petitioner, "[i]ncorporating Raymond's batteries in Allum would have been predictable and foreseeable because electronic components need power to operate, and Allum's monitoring systems would have benefitted from low-power operation modes to provide 'power saving strategies [that] are a key element to allowing the physiological monitor[ing].'" *Id.* (quoting Ex. 1009, 9:38–46) (second and third alterations in original).

At this stage of the proceeding, we are persuaded that Petitioner's rationale and evidence are sufficient to show that a person of ordinary skill in the art would have modified Allum to include batteries as taught by Raymond. Furthermore, we are persuaded on this record by Petitioner's contention that these batteries are a power source.

d) "a microprocessor connected to said movement sensor and to said power source"

Petitioner asserts that Allum discloses a microprocessor-based system processor that is connected to and receives signals from the sensors. Pet. 27–28 (citing Ex. 1008, 4:18–23, 6:65–8:47, 16:17–19; Ex. 1003 ¶ 113).

Petitioner also asserts that, because Raymond discloses that its batteries are connected to CPUs, it would have been obvious to one of ordinary skill in the art that the batteries in the combination of Allum and Raymond would be connected to Allum's microprocessor. *Id.* at 28–29 (citing Ex. 1009, 9:38–46; Ex. 1003 ¶ 114).

On this record, we are persuaded that Petitioner has made an adequate showing. Allum discloses system processor 14 that receives signals from body sway sensors 12 and is “implemented as a conventional microprocessor based computer system.” Ex. 1008, 6:67–7:2, 7:8–9. Also, Allum's Figure 1 labels system processor 14 “ μ C,” which suggests a microcontroller or microprocessor and depicts a connection between system processor 14 and sensors 12. We also agree with Petitioner that, in the combination of Allum and Raymond, one of ordinary skill in the art would have understood that the batteries would be connected to the microprocessor.

e) *“said microprocessor capable of receiving, interpreting, storing and responding to said movement data based on user-defined operational parameters”*

Petitioner asserts that, in teaching “that the ‘system processor is programmed to **transform** the angular position and velocity information provided by the sensors into useful information formats,’” Allum discloses that the processor receives and interprets movement data. Pet. 29 (citing Ex. 1008, code (57), 4:18–23, 7:21–25). Petitioner also asserts that Allum's processor uses the sensor data to determine whether to issue a warning signal when the user approaches his or her “cone of stability,” which Petitioner contends is a user-defined operational parameter. *Id.* (citing Ex. 1008, 13:12–32, 13:52–62, 14:47–49, 15:20–31; Ex. 1003 ¶ 115).

Petitioner next argues that the processor receives and stores movement data because Allum discloses that “the ‘information provided by the wearable body sway sensors may be continuously provided to a system processor attached to the subject and **stored** therein for future analysis.’” *Id.* (quoting Ex. 1008, 6:14–17; citing *id.* at 4:18–19, 9:9–15).

Last, Petitioner argues that “Allum’s system processor 14 **responds to the movement data** signals from the sensors by ‘provid[ing] the body sway angle and angular velocity feedback signals to a feedback system’ that generates ‘visual,’ ‘auditory,’ and ‘tactile’ feedback.” *Id.* at 30 (citing Ex. 1008, 8:8–12, 7:56–61).

We have reviewed these aspects of Petitioner’s contentions and determine that the Petition makes a sufficient showing, at this stage of the proceeding, that Allum discloses this limitation.

f) *“detecting a first user-defined event based on the movement data and at least one of the user-defined operational parameters regarding the movement data”*

Petitioner argues that Allum discloses detecting a “fall event,” which Petitioner contends is when the subject’s body sway approaches or exceeds the limits of safety. Pet. 30 (citing Ex. 1008, 14:7–11). According to Petitioner,

[w]hether a subject is about to fall is determined by comparing the body sway data (“**movement data**”) from the sensors to the subject’s “cone of stability” and detecting when “the subject’s angular sway has approached within a certain percentage of the angular cone of stability” (“**at least one of the user-defined operational parameters**”).

Id. (quoting Ex. 1008, 14:7–11; citing *id.* at 13:16–28, 15:43–50). Petitioner asserts that a fall event is a user-defined event because the user defines the

cone of stability and the proximity to the cone of stability threshold. *Id.* at 31 (citing Ex. 1008, 13:16–28, 15:20–31).

At this stage of the proceeding, we are persuaded by Petitioner’s contention that Allum discloses detecting a user-defined event based on movement data (i.e., the body sway data) and user-defined operational parameters (i.e., the cone of stability and the proximity threshold).

g) *“storing first event information related to the detected first user-defined event along with first time stamp information reflecting a time at which the movement data causing the first user-defined event occurred”*

Petitioner asserts that Allum discloses logging fall warnings for later retrieval and “system processor 14 ‘**save[s] in the processor system memory**’ the ‘circumstances’ of the fall warning, including the ‘time of day’ (**‘along with first time stamp information’**).” Pet. 32–33 (citing Ex. 1008, 14:47–52, 15:48–53).

We have reviewed these aspects of Petitioner’s contentions, and determine that the Petition makes a sufficient showing, at this stage of the proceeding, that Allum discloses this limitation.

h) *“at least one user input connected to said microprocessor for controlling the operation of said device”*

For this limitation, Petitioner points to Conlan’s disclosure of user-input pushbutton switches 22, 23 as being connected to a microprocessor. Pet. 33 (citing Ex. 1003 ¶ 121; Ex. 1010, code (57), 6:38–40). Petitioner argues that “switches 22, 23 ‘allow the subject to indicate the occurrence of a particular event’ such as ‘dizziness,’ and, when depressed, the switches 22, 23 ‘cause that occurrence to be recorded in the internal memory of the monitor.’” *Id.* at 34 (citing Ex. 1010, 6:38–46, Fig. 6; Ex. 1003 ¶ 122). Petitioner asserts that switches 22, 23 are user inputs that control operation

of the measuring device by causing data for a user-specified event (e.g., dizziness) to be recorded. *Id.* at 35 (citing Ex. 1003 ¶ 123).

Petitioner argues that it would have been obvious to one of ordinary skill in the art to modify the device of the Allum-Raymond combination “to include Conlan’s buttons to enable the device to gather data (e.g., subject’s balance or movement) as it relates to a particular event specified by the user input buttons.” *Id.* at 21–22 (citing Ex. 1003 ¶ 79). Petitioner also articulates reasons, supported with the testimony of Dr. Kenny, to combine the relied-upon aspects of the references with a foreseeable chance of success. *Id.* at 22–24 (citing Ex. 1008, 7:8–10, 16:17–19; Ex. 1010, 1:65–2:2, 4:5–57, 5:64–6:67, 9:1–15, 10:6–65, 11:58–62, Fig. 2; Ex. 1003 ¶¶ 79–84). At this stage of the proceeding, we are persuaded that Petitioner’s rationale and evidence are sufficient to show that a person of ordinary skill in the art would have combined Conlan with Allum and Raymond in the manner proposed.

Furthermore, we are persuaded on this record that Petitioner has made an adequate showing that the combination of Allum, Raymond, and Conlan discloses the claimed user input.

i) “a real-time clock connected to said microprocessor”

Petitioner first contends that one of ordinary skill in the art “would have understood that Allum’s device includes a real-time clock . . . connected to the microprocessor at least because Allum’s device records the ‘time of day’ when a fall warning is issued and the recorded data is used to produce a ‘time history of the subject’s angular sway deviations.’”

Pet. 35–36 (citing Ex. 1008, 14:47–54, 10:10–13; Ex. 1003 ¶ 124).

Alternatively, Petitioner argues that it would have been obvious to include a real-time clock as taught by Raymond. *Id.* at 36 (citing Ex. 1009, 9:65–67,

10:1–36, Fig. 4); *see also id.* at 17 (asserting it would have been obvious to incorporate Raymond’s real-time clock into Allum’s measuring device).

At this stage of the proceeding, we are persuaded by Petitioner’s contention, which is supported by the uncontroverted testimony of Dr. Kenny (*see* Ex. 1003 ¶ 124), that one of ordinary skill in the art would have understood Allum to include a real-time clock.

j) *“memory for storing said movement data”*

For this limitation, Petitioner asserts that Allum’s memory 16 stores data generated by the system processor. Pet. 37–38 (citing Ex. 1008, 6:14–17, 7:8–20, 10:54–61, 14:47–54, 15:60–16:2, Fig. 1; Ex. 1003 ¶ 128). On the current record, we are persuaded that Petitioner has made an adequate showing that Allum discloses a memory that stores movement data.

k) *“an output indicator connected to said microprocessor for signaling the occurrence of user-defined events”*

Petitioner argues that “Allum’s device includes ‘[v]isual 24, auditory 26, tactile 28, and electro-vestibular 30 feedback systems’ (***output indicator***) that are ‘also attached to the subject’s body’ and ***connected to the microprocessor 14.***” Pet. 38 (citing Ex. 1008, 7:56–61, 8:8–12, Fig. 1) (alteration in original). Petitioner argues further that when Allum’s device detects that a subject is about to fall, fall warnings are issued through the feedback system. *Id.* at 38–39 (citing Ex. 1008, 14:7–17, 15:50–52).

We have reviewed these aspects of Petitioner’s contentions and determine that the Petition makes a sufficient showing, at this stage of the proceeding, that the combination of Ono and Hutchings discloses this limitation.

l) “wherein said movement sensor measures the angle and velocity of said movement”

Petitioner contends that Allum’s sensors 12 measure body sway angle and body sway angular velocity. Pet. 40 (citing Ex. 1008, 6:8–11, 8:66–9:1; Ex. 1003 ¶ 130).

We have reviewed these aspects of Petitioner’s contentions and determine that the Petition makes a sufficient showing, at this stage of the proceeding, that the combination of Ono and Hutchings discloses this limitation.

m) Conclusion

For the above reasons, we determine, based on the current record, that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 1 is unpatentable over Allum, Raymond, and Conlan.

5. Independent Claim 20

Independent claim 20 recites a method to monitor physical movement of a body part having similar limitations as the device claim of claim 1. Compare Ex. 1001, 1:25–50 C1, with *id.* at 2:23–42 C1. For its analysis of claim 20, Petitioner primarily refers back to its analysis of claim 1. Pet. 47–49.

Accordingly, at this stage of the proceeding, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 20 is unpatentable over Allum, Raymond, and Conlan for the reasons discussed above in connection with claim 1.

6. *Dependent Claims 2–5, 8–11, 25, 30, 36, 39–42, 45–47, 61–65, 144, and 147*

Claims 2–5, 8–11, 30, 36, 39–42, 45–47, 61–65, 144, and 147 depend from claim 1, and claim 25 depends from claim 20. Petitioner provides reasonable and detailed explanations, supported by the testimony of Dr. Kenny, indicating where in the references the limitations of claims 2–5, 8–11, 25, 30, 36, 39–42, 45–47, 61–65, 144, and 147 are disclosed. Pet. 41–47, 49–63.

Based on our review of the Petition, we determine that the information presented in the Petition establishes that there is a reasonable likelihood that Petitioner would prevail in its assertion that claims 1–5, 8–11, 20, 25, 30, 36, 39–42, 45–47, 61–65, 144, and 147 are unpatentable over Allum, Raymond, and Conlan.

E. Remaining Grounds

Petitioner presents two more grounds that build on the combination of Allum, Raymond, and Conlan and a fourth ground based on Gesink and Raymond. Pet. 63–86. Because Petitioner has demonstrated that it is reasonably likely that at least one claim of the '576 patent is unpatentable, we institute on all grounds and all claims raised in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60 (2018); 37 C.F.R. § 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

IV. CONCLUSION

After considering the evidence and arguments of record, we determine that Petitioner has demonstrated a reasonable likelihood of success with respect to at least one of the challenged claims. Accordingly, an *inter partes*

review of all of the claims and all of the grounds presented in the Petition is hereby instituted.

At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claims or any underlying factual or legal issues. The final determination will be based on the record as developed during the *inter partes* review.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–5, 8–11, 20, 25, 30–32, 36, 39–42, 45–51, 61–65, 144, and 147 of the '576 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '576 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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Patent 6,059,576 C1

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