

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

LULULEMON ATHLETICA CANADA INC.  
AND LULULEMON USA INC.,  
Petitioner,

v.

NIKE, INC.,  
Patent Owner.

---

IPR2023-00189  
Patent 9,278,256 B2

---

Before MITCHELL G. WEATHERLY, CARL M. DEFRANCO, and  
STEPHEN E. BELISLE, *Administrative Patent Judges*.

BELISLE, *Administrative Patent Judge*.

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

## I. INTRODUCTION

lululemon athletica canada inc. and lululemon usa inc. (collectively, “Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–20 (“Challenged Claims”) of U.S. Patent No. 9,278,256 B2 (Ex. 1001, “the ’256 patent”). Nike, Inc. (“Patent Owner”) timely filed a Preliminary Response to the Petition. Paper 8, “Prelim. Resp.”; *see* Paper 10, 2. We instituted an *inter partes* review of claims 1–20 of the ’256 patent on all grounds of unpatentability alleged in the Petition. Paper 11 (“Institution Decision” or “Dec.”).

After institution, Patent Owner filed a Response. Paper 18 (“PO Resp.”). Petitioner filed a Reply. Paper 22 (“Pet. Reply”). Patent Owner filed a Sur-reply. Paper 26 (“PO Sur-reply”). We held an oral hearing in this case on February 14, 2024, and a transcript of the hearing is included in the record. Paper 36 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6 (2018). Under the applicable evidentiary standard, Petitioner has the burden to prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d) (2022). “Preponderance of the evidence means the greater weight of evidence, evidence which is more convincing than the evidence which is offered in opposition to it.” *United States v. C.H. Robinson Co.*, 760 F.3d 1376, 1383 (Fed. Cir. 2014) (internal quotations omitted). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

For the reasons discussed below, we determine Petitioner has established by a preponderance of the evidence that claims 1–4, 7, 8, 11–16 (but not claims 5, 6, 9, 10, and 17–20) of the ’256 patent are unpatentable.

## II. BACKGROUND

### *A. Related Matters*

The parties indicate that Patent Owner asserted the '256 patent against Petitioner in a U.S. district court action, namely, *Nike, Inc. v. lululemon athletica inc. et al.*, Case No. 1:22-cv-00082-AJN (S.D.N.Y.) (“District Court Action”), which is presently stayed. Pet. 86; Paper 5, 2.

Although not identified by the parties, we note that the District Court Action also involves the following U.S. Patents against which Petitioner filed the noted requests for *inter partes* review: 8,620,413 (IPR2023-00438); 9,259,615 (IPR2023-00349); 10,188,930 (IPR2023-00348); 10,232,220 (IPR2023-00180); and 10,923,225 (IPR2023-00424).

### *B. The '256 Patent*

The '256 patent is titled “Interactive Athletic Equipment System,” and issued March 8, 2016, from U.S. Patent Application No. 14/726,023, filed May 29, 2015. Ex. 1001, codes (10), (21), (22), (45), (54). The '256 patent claims priority through a series of continuation applications to U.S. Provisional Patent Application No. 61/033,355, filed March 3, 2008. *Id.* at 1:7–23, codes (60), (63).

The '256 patent relates to “the collection of athletic information over a network, and displaying the collected information.” Ex. 1001, 1:28–31. In particular, the '256 patent discloses “[v]arious examples of the invention may allow a user to ‘challenge’ one or more other users (i.e., athletes employing embodiments of the invention) to a competition regarding athletic activities” (*id.* at 21:59–62), and to “display a comparison of substantially real-time athletic performance data” (*id.* at 30:35–44). An example of an

athletic information monitoring device employed according to such examples is shown in Figure 3, reproduced below.

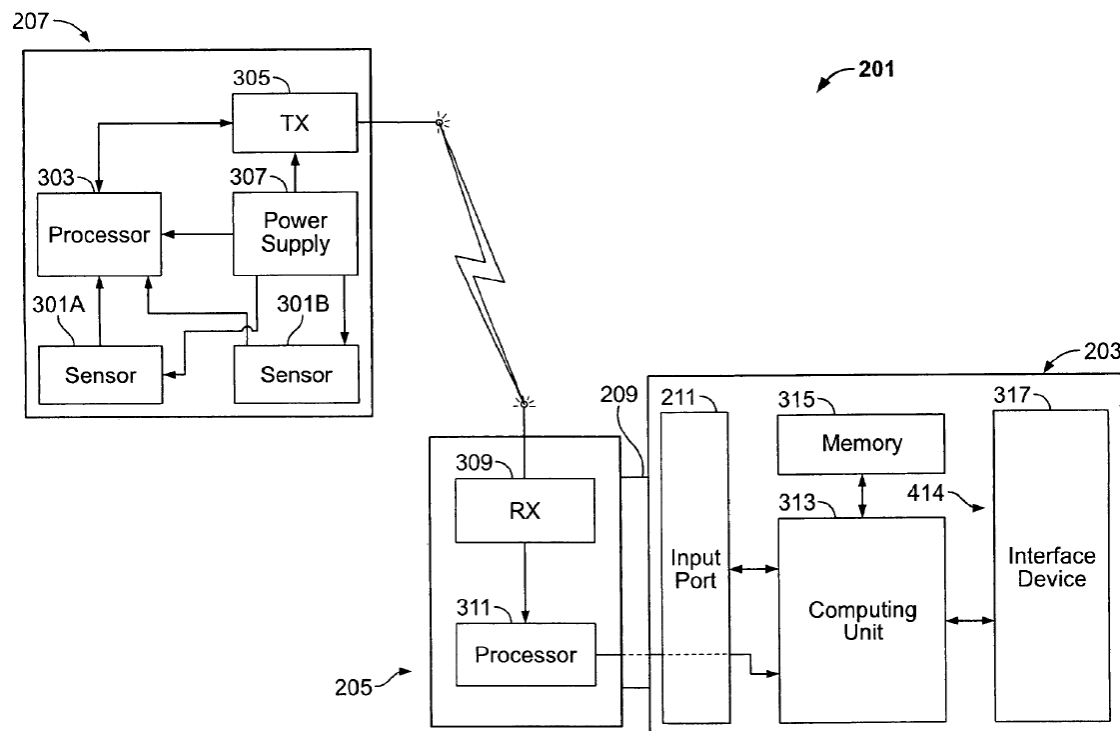


FIG. 3

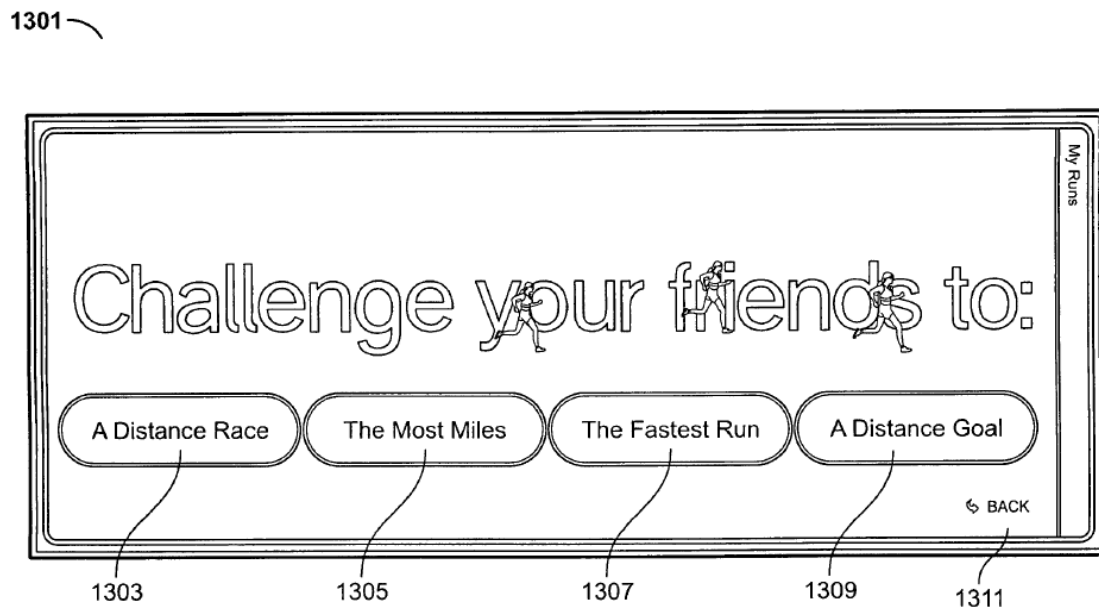
Figure 3 depicts an example of an athletic information monitoring device.

*Id.* at 3:45–47, 7:55–8:55, Fig. 3.

As shown above in Figure 3, athletic parameter measurement device 207 includes one or more sensors 301 (e.g., 301A), such as accelerometers, “for measuring an athletic parameter associated with a person wearing or otherwise using the athletic parameter measurement device 207.” Ex. 1001, 8:11–14. Athletic parameter measurement device 207 transmits processed signals to electronic interface device 205, which provides the received information to digital music player 203 or other portable electronic device. *Id.* at 8:44–46, 56–60. When digital music

player 203 subsequently is connected to a computing device implementing an athletic information collection tool, computing unit 313 will download the athletic data to a display configuration tool. *Id.* at 9:58–63. According to the '256 patent, “bi-directional communication is provided between the portable device 203/athletic equipment and [an] athletic performance tracking site,” and “[c]onstant updates can be provided from the athletic performance tracking site to the athletic equipment and portable device 203.” *Id.* at 31:42–46.

Figure 13A, reproduced below, shows an exemplary user interface provided to create a challenge to other users. Ex. 1001, 4:5–7, Fig. 13A.

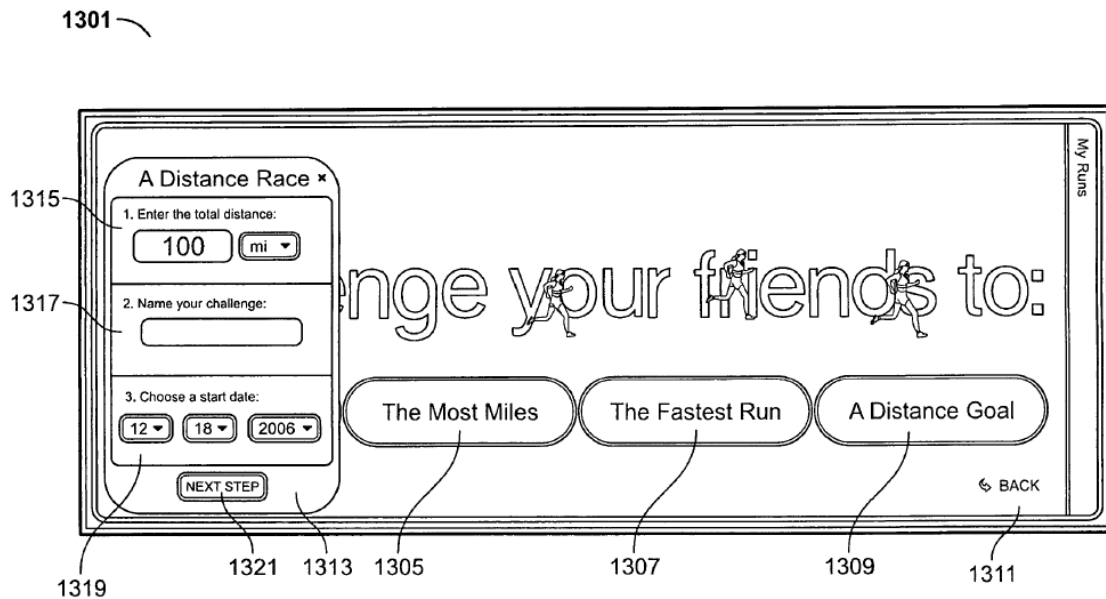


**FIG. 13A**

Figure 13A depicts an exemplary user interface for creating challenges to other users.

*Id.* at 21:57–22:8, Fig. 13A. As shown in Figure 13A, a user may issue a challenge to one or more other athletes to “Distance Race” 1303, “Most Miles” race 1305, “Fastest Run” 1307, or “Distance Goal” 1309. *Id.*

at 21:65–22:1. If the user activates distance race button 1303, Figure 13B, reproduced below, shows the next sub-interface, where the user indicates “Total Distance” for the race 1315 and “Start Date” 1319. *Id.* at 22:9–16, Fig. 13B.



**FIG. 13B**

Figure 13B depicts another exemplary user interface for creating challenges to other users.

*Id.* at 4:5–7, Fig. 13B. After selecting “Next Step” 1321, the user enters email addresses or screen names of athletes that the user wishes to invite to participate in the challenge 1327, as shown in Figure 13C, reproduced below.

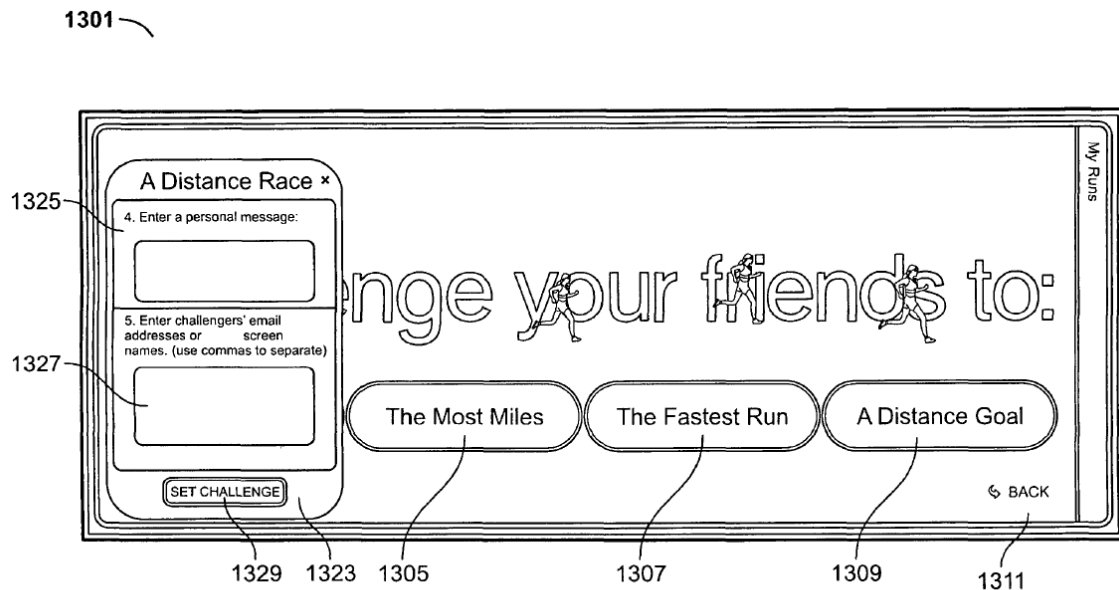


FIG. 13C

Figure 13C depicts another exemplary user interface for creating challenges to other users.

*Id.* at 4:5–7, Fig. 13C.

After participants agree to join the challenge, athletic data display configuration device 601 “monitors the collected athletic data for each of the participants, and aggregates the relevant data values in the collected athletic data.” Ex. 1001, 23:4–7. Athletic data display configuration device 601 “may additionally provide updates regarding the status of a participant relative to the other participants.” *Id.* at 23:26–38. In addition, a console, i.e., user interface 1700, may display a user’s or athlete’s athletic performance “substantially in real-time.” *Id.* at 30:39–41; *see id.* at 33:37–40.

*C. Illustrative Claims*

The '256 patent includes twenty claims, all of which are challenged. Claims 1 and 11 are the challenged independent claims, and both are reproduced below with bracketing added to mirror the parties' usage thereof.

1. [pre] A system comprising:
  - [A] an athletic performance module configured to receive athletic activity data from a wirelessly-connected sensor worn on an appendage of a first user, wherein the first user is performing athletic activities at a first location; and
  - [B] a challenge module configured to:
    - [C] receive information specifying a challenge, wherein the challenge includes a competition between the first user, and a second user performing athletic activities at a second location, different to, and remote from, the first location;
    - [D] determine, from the received athletic activity data, a first amount of athletic activity performed by the first user;
    - [E] receive data from a second sensor indicating a second amount of athletic activity performed by the second user;
    - [F] determine whether the challenge has been met by the first user based on a comparison of the first amount of athletic activity performed by the first user and a second amount of athletic activity performed by the second user; and
    - [G] continuously generate and simultaneously communicate in real-time to the first user at the first location and the second user at the second location, an interface indicating whether the challenge has been met.

Ex. 1001, 40:42–67.



11. [pre] A method comprising:

- [A] receiving a prompt inviting a first user to participate in a challenge, wherein the challenge includes a competition between the first user performing athletic activities at a first location and a second user performing athletic activities at a second location different to, and remote from, the first location;
- [B] determining an amount of athletic activity performed by the first user based on sensor data received from a sensor worn on an appendage of the first user; and
- [C] receiving data from a second sensor indicative of an amount of athletic activity performed by the second user;
- [D] determining whether the challenge has been met by the first user based on a comparison of the amount of athletic activity performed using the first user to the amount of athletic activity performed by the second user; and
- [E] continuously generating and simultaneously communicating in real-time to the first user at the first location and the second user at the second location, an interface indicating whether the challenge has been met.

Ex. 1001, 41:23–42:8.

*D. Evidence of Record*

Petitioner relies on the following patent and published patent application evidence.

Name	Patent Document	Exhibit
Tagliabue	US 8,162,804 B2	1004
Arrasvuori	US 2007/0239479 A1	1005
Watterson	US 6,458,060 B1	1006
Ellis	WO 02/067449 A2	1007

Pet. 23.

Petitioner also relies upon two Declarations of Dr. Kevin Lynch (Exs. 1003, 1017).

Patent Owner relies upon two Declarations of Dr. Megan Toney-Bolger (Exs. 2001, 2005).

*E. Asserted Challenges to Patentability*

We instituted *inter partes* review of claims 1–20 of the ’256 patent on the following grounds asserted by Petitioner. Dec. 2–3, 39–40; Pet. 24.

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1–20	102 <sup>1</sup>	Tagliabue
1–4, 7, 8, 11–16	102	Arrasvuori
1–4, 7, 8, 11–16	103	Arrasvuori
13	103	Arrasvuori, Ellis
1, 7, 8, 11–13, 15, 16	103	Watterson, Arrasvuori

### III. PATENTABILITY

*A. Applicable Law*

Petitioner challenges the patentability of claims 1–20 of the ’256 patent on grounds that the claims would have been anticipated under 35 U.S.C. § 102 or obvious under 35 U.S.C. § 103 in light of various references, namely Tagliabue, Arrasvuori, Watterson, and Ellis. “In an [*inter partes* review], the petitioner has the burden from the onset to show *with particularity* why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing

---

<sup>1</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103. Because the ’256 patent was effectively filed before March 16, 2013, the effective date of the relevant amendment, the pre-AIA version of §§ 102 and 103 apply.

35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)) (emphasis added). This burden never shifts to Patent Owner. See *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review).

To serve as an anticipatory reference under 35 U.S.C. § 102, “the reference must disclose each and every element of the claimed invention, whether it does so explicitly or inherently.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009). “The identical invention must be shown in as complete detail *as is contained in the . . . claim.*” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989) (emphasis added). The elements must be arranged as required by the claim, “but this is not an ‘*ipsissimis verbis*’ test,” i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990) (citing *Akzo N.V. v. United States Int’l Trade Comm’n*, 808 F.2d 1471, 1479 & n.11 (Fed. Cir. 1986)).

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented 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 skill in the art; and (4) when of record, objective evidence of

obviousness or non-obviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Secondary considerations may include the following: “commercial success, long felt but unsolved needs, failure of others, etc.”<sup>2</sup> *Id.* The totality of the evidence submitted may show that the challenged claims would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). 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)).

The Supreme Court has made clear that we apply “an expansive and flexible approach” to the question of obviousness. *Id.* at 415. Whether a patent claiming a combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. To reach this conclusion, however, requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination. *Unigene Lab ’ys, Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *Id.* “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead

---

<sup>2</sup> Patent Owner does not present objective evidence of non-obviousness.

articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

*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 of the ’256 patent,

would have had (1) a bachelor’s degree in engineering, computer science, industrial design, biomechanics, or a related field, and (2) at least two years of experience researching, developing, designing, and/or testing fitness or physiological sensors, wearable devices, physiological or biomechanical devices, remotely-controlled systems or interfaces, and/or network-based applications and/or equipment, or the equivalent experience or education.

Pet. 23 (citing Ex. 1003 ¶¶ 43, 44).

Patent Owner “does not dispute [Petitioner’s] proposed level of skill in the art” in this case. PO Resp. 23.

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). The level of ordinary skill in the art also is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Neither party argues that the outcome of this case would differ based on our adoption of any particular definition of the level of ordinary skill in the art. Considering the subject matter of the '256 patent, the background technical field, the prior art, and Petitioner's unopposed definition of the skilled artisan, we apply the level of skill set forth above, which is consistent with the testimony of Dr. Lynch (Ex. 1003 ¶¶ 43, 44).

*C. Claim Construction*

We construe claims “using 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); *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

In this context, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips*, 415 F.3d at 1312–13; *see CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (explaining that there is “a ‘heavy presumption’ that a claim term carries its ordinary and customary meaning”). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is “less significant than the

intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317.

Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that “we need only construe 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 dispute the meanings of two claim limitations, namely, (1) “continuously generat[e] and simultaneously communicat[e] in real-time to the first user at the first location and the second user at the second location, an interface indicating whether the challenge has been met,” as recited in independent claims 1 and 11 (see limitations 1[G] and 11[E]) (PO Resp. 28–36; Pet. Reply 2–3; PO Sur-reply 2–6); and (2) “common unit,” as recited in dependent claims 7 and 15 (PO Resp. 39–41; Pet. Reply 4–5; PO Sur-reply 6–7). The parties otherwise do not contend that claim construction is necessary to resolve the controversy in this case. *See* PO Resp. 28; Pet. 22. To the extent necessary to resolve the controversy before us, we address claim interpretation in our patentability analysis below.

*D. Anticipation of Claims 1–4, 7, 8, and 11–16 by Arrasvuori*

Petitioner contends claims 1–4, 7, 8, and 11–16 are unpatentable under 35 U.S.C. § 102 as anticipated by Arrasvuori (Ex. 1005). Pet. 1–2, 11–15, 41–65; Pet. Reply 10–20. Patent Owner opposes Petitioner’s contentions. PO Resp. 41–52; PO Sur-reply 12–18. For the reasons expressed below, and based on the complete record before us, we determine

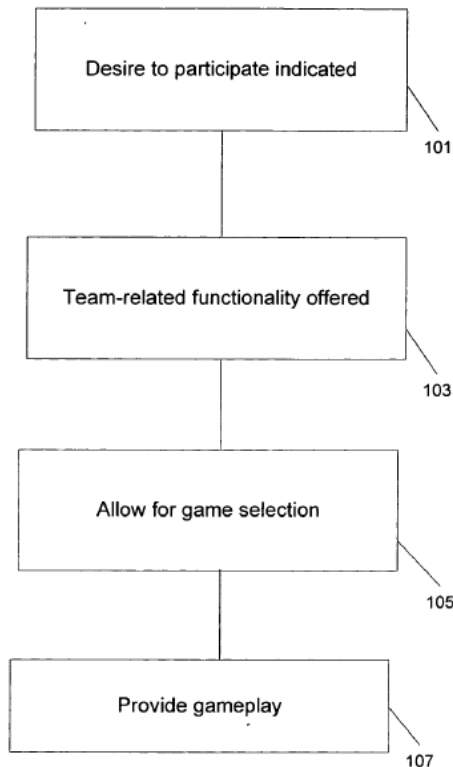
that Petitioner has demonstrated by a preponderance of the evidence that claims 1–4, 7, 8, and 11–16 are unpatentable as anticipated by Arrasvuori. We turn first to an overview of Arrasvuori.

*1. Overview of Arrasvuori (Ex. 1005)*

Arrasvuori relates to systems and methods of gaming “wherein one or more users are, in the context of a video game, presented with one or more real-world fitness tasks to be performed.” Ex. 1005 ¶¶ 1, 5.

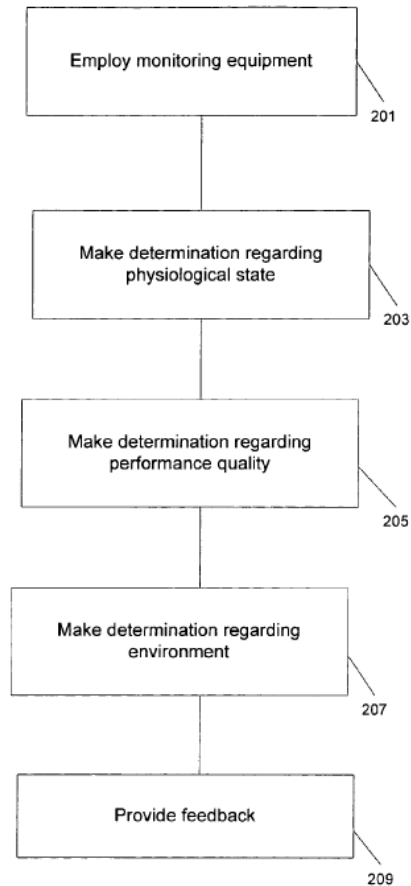
Arrasvuori summarizes its “game initiation and game play operations” in Figure 1, reproduced below. Ex. 1005 ¶ 7, Fig. 1. During gameplay, user wireless nodes and/or computers and servers conduct “monitoring and feedback operations” by exchanging user athletic activity data and feedback, as summarized in Figure 2, reproduced below. *Id.* at ¶¶ 8, 38–55, 90–96, Fig. 2.





**FIG. 1**

Figure 1 depicts exemplary steps involved in game initiation and game play operations.



**FIG. 2**

Figure 2 depicts exemplary steps involved in monitoring and feedback operations.

Ex. 1005 ¶¶ 7–8, Figs. 1–2.

In step 201 of Figure 2 above, Arrasvuori employs “monitoring equipment” to collect athletic activity data from users. Ex. 1005 ¶¶ 38–40, Fig. 2. Monitoring equipment may “include one or more sensors,” such as a GPS, heart rate meter, or pedometer. *Id.* at ¶ 40. Monitoring equipment is part of “wireless nodes and/or other computers of users, and/or . . . attached

to bodies of users.” *Id.* at ¶ 39. Arrasvuori broadly defines “computer” to include wearable devices, such as “a computerized watch.” *Id.* at ¶ 90.

In monitoring and feedback operations steps 203, 205, and/or 209, a server determines each user’s athletic activity, evaluates whether any user won a real-world fitness task or challenge, and displays each user’s progress. *See* Ex. 1005 ¶¶ 42–48. The server may determine, for example, “whether or not the user had reached a target heart rate” (*id.* at ¶ 42), and “the speed with which the fitness task was completed” (*id.* at ¶ 46). Arrasvuori’s system and method provides “real-time feedback” to users (*id.* at ¶ 49), and may do so in the form of “leaderboards” and other graphics (*id.* at ¶¶ 48–53). Arrasvuori discloses that, “with completion of and/or *during performance of a real-world fitness task*, display might be provided wherein graphical indicators corresponding to users that *are performing* and/or that have performed the real-world fitness task are *positioned relative to one another*, a goal corresponding to the task, and/or a route corresponding to the task.” *Id.* at ¶ 52 (emphases added). Arrasvuori discloses an example of displaying such real-world user progress during a challenge:

[I]n the case where a stage of a game requires that users reach a game-world landmark by performing a real-world fitness task of running and/or jogging, display might provide a graphical representation for each user performing the task and show the graphical representations as progressing along a game-world route terminating in the game-world landmark. A user viewing such display might, for instance, be able to determine how close each participating user was to the goal and/or how well each such user was competing relative to other such users.

*Id.* at ¶ 53 (emphases added).

Petitioner contends Arrasvuori qualifies as prior art under 35 U.S.C. §§ 102(a) and 102(e) based on its filing and publication dates. Pet. 24.

Patent Owner does not contest the prior art status of Arrasvuori. Also, on this record, we have no evidence of an invention date other than the earliest possible effective filing date of the challenged claims. Thus, for purposes of this Decision, we determine that Arrasvuori qualifies as prior art under 35 U.S.C. § 102(a) because Arrasvuori's publication date of October 11, 2007, is before the earliest possible effective filing date of the challenged claims, which is March 3, 2008, and under § 102(e) because Arrasvuori's filing date of March 29, 2006, is before the earliest possible effective filing date of the challenged claims (March 3, 2008). Ex. 1001, codes (22), (60), (63); Ex. 1005, code (22), (43).

We further discuss below the disclosure of Arrasvuori in connection with the parties' arguments.

## *2. Analysis*

### *a. Independent Claim 1*

Petitioner provides an element-by-element analysis of independent claim 1 in relation to Arrasvuori. Pet. 41–58; Pet. Reply 2–3, 10–17. Petitioner's analysis relies on testimony from its declarant, Dr. Lynch. *See, e.g.*, Ex. 1003 ¶¶ 47–82; Ex. 1017 ¶¶ 9, 24, 35–45. Patent Owner opposes. PO Resp. 41–48; PO Sur-reply 12–17. Patent Owner relies on testimony from its declarant, Dr. Toney-Bolger. *See, e.g.*, Ex. 2005 ¶¶ 35–51, 79–84.

*(1) [1[pre]] A system comprising:*

Petitioner contends Arrasvuori meets the preamble of claim 1 by disclosing the system discussed below in connection with limitations 1[A] through 1[G]. Pet. 41.

Neither Petitioner nor Patent Owner takes a position as to whether the preamble is limiting, nor does Patent Owner dispute that Arrasvuori

discloses such a “system,” generally. *See* Pet. 41; *see generally* PO Resp.; PO Sur-reply. Because we find that Petitioner’s cited disclosure from Arrasvuori discloses a “system” with limitations 1[A] through 1[G], we need not determine whether the preamble is limiting. *See Nidec*, 868 F.3d at 1017.

(2) *[1[A]] an athletic performance module configured to receive athletic activity data from a wirelessly-connected sensor worn on an appendage of a first user, wherein the first user is performing athletic activities at a first location; and*

Petitioner contends Arrasvuori discloses limitation 1[A] by describing, *inter alia*, “user ‘wireless nodes and/or computers’ corresponding to the ‘wirelessly-connected sensor’ and a computer server with software modules corresponding to the ‘athletic performance module,’” and “transmitting data from the wireless nodes and/or computers to the computer server during ‘monitoring and feedback operations.’” Pet. 41–42 (citing Ex. 1005 ¶¶ 38–55, 90–99, Fig. 2).

As for the claimed “wirelessly-connected sensor worn on an appendage of a first user,” Petitioner contends that in the first step of “monitoring and feedback operations,” Arrasvuori “[e]mploy[s] monitoring equipment’ to collect athletic activity data about ‘real-world fitness tasks,’” and such “monitoring equipment includes ‘one or more sensors,’ such as [Global Positioning System (GPS) hardware, Radio Frequency Identification (RFID) tag interface hardware, heart rate meter hardware, electrocardiogram hardware, pedometer hardware, or skin conductance measuring hardware].” Pet. 41–42 (citing Ex. 1005 ¶¶ 38, 40, Fig. 2). Petitioner contends Arrasvuori discloses that its “monitoring equipment is ‘integrated into . . .

wireless nodes and/or other computers of users, and/or . . . attached to bodies of users,” and includes “a computerized watch,” which typically is worn on a user’s wrist (i.e., a user’s appendage). Pet. 42–43 (citing, *inter alia*, Ex. 1005 ¶¶ 39, 90).

Patent Owner argues that Petitioner’s foregoing argument concerning the computerized watch “is flawed because Arrasvuori never discloses that its wireless node, which monitors the ‘performance of real-world fitness tasks,’ is a computerized watch.” PO Resp. 48 (citing Ex. 1005 ¶¶ 38, 40, 90); *see* PO Sur-reply 16–17 (“Arrasvuori never discloses or suggests that its wireless node is a computerized watch.”). We find Patent Owner’s arguments unavailing.

Arrasvuori discloses (a) “[m]onitoring” of “users performing real-world fitness tasks” (Ex. 1005 ¶ 38), using (b) “monitoring equipment . . . integrated into . . . wireless nodes and/or other computers of users, and/or [] *attached to bodies of users*” (*id.* at ¶ 39 (emphasis added)), where (c) “[u]sers might . . . wear their wireless nodes and/or other computers” (*id.* (emphasis added)), and where (d) “[t]he phrase[] ‘computer’ . . . refer[s] but [is] not limited to . . . *a computerized watch*” (*id.* at ¶ 90 (emphasis added); *see id.* at ¶ 40 (disclosing that “employed monitoring equipment might include one or more sensors”))). We find that these descriptions in Arrasvuori provide an anticipatory disclosure, particularly to the skilled artisan, of the limitation “wirelessly-connected sensor worn on an appendage of a first user.” *See* Ex. 1017 ¶ 45; Ex. 2006, 84:10-85:22. Although Arrasvuori does not recite in a single sentence the substance of disclosures (a) through (d) above, such as explicitly stating that its “wireless node is a computerized watch,” this is not necessary for the skilled artisan to

understand that Arrasvuori discloses such a feature. *See In re Bond*, 910 F.2d at 832–33 (anticipation “is not an ‘*ipsissimis verbis*’ test”). Moreover, as argued by Petitioner, Arrasvuori’s disclosure of sensors “attached to bodies of users” and of users “wear[ing]” sensors itself discloses the subject limitation as broadly recited, even without considering the additional disclosure of a computerized watch. *See* Pet. Reply 17 (“Arrasvuori teaches wrist-worn sensors by stating that its users can ‘wear their wireless nodes and/or other computers.’” (citing Ex. 1005 ¶39)).

As for the claimed “athletic performance module configured to receive athletic activity data,” Petitioner contends Arrasvuori “discloses a computer server containing executable software modules configured to receive athletic activity data from the wireless nodes and/or computers hosting the monitoring equipment.” Pet. 43 (citing Ex. 1005 ¶¶ 38, 55); *see* Pet. 43–45 (citing, *inter alia*, Ex. 1005 ¶ 38, 49, 91–92, Fig. 4) (arguing Arrasvuori’s “server is configured to wirelessly communicate with wireless nodes and/or other computers via I/O interfaces 4057 and 4058 during monitoring”).

As for the claimed “first user . . . performing athletic activities at a first location,” Petitioner contends Arrasvuori’s server and software modules “necessarily receive athletic activity data from a user at a ‘first location.’” Pet. 45.

Based on the foregoing evidence, we find Petitioner persuasively establishes that Arrasvuori discloses “an athletic performance module configured to receive athletic activity data from a wirelessly-connected sensor worn on an appendage of a first user, wherein the first user is performing athletic activities at a first location,” as recited in claim 1.

*(3) [1[B]] a challenge module configured to:*

Petitioner contends Arrasvuori's server and software modules correspond to the claimed "challenge module." Pet. 46. In particular, Petitioner contends Arrasvuori discloses limitation 1[B] by describing, *inter alia*, that its "server and software modules can receive a challenge from a user, determine the user's athletic activity, receive athletic activity data from a second user, evaluate which user won a competition, and provide real-time feedback to multiple users." Pet. 46. Petitioner contends that this limitation is met because Arrasvuori describes each of limitations 1[C] through 1[G], which are the actions that the claimed "challenged module" is configured to perform. Pet. 46. We discuss limitations 1[C] through 1[G] in turn below.

*(4) [1[C]] receive information specifying a challenge, wherein the challenge includes a competition between the first user, and a second user performing athletic activities at a second location, different to, and remote from, the first location;*

Petitioner contends Arrasvuori discloses limitation 1[C] by describing, *inter alia*, that its "server receives information specifying a multiplayer challenge three times during 'Game Initiation and Game Play Operations.'" Pet. 47 (citing Ex. 1005 ¶ 17); *see* Pet. 47–49 (citing, *inter alia*, Ex. 1005 ¶¶ 20, 25, 26, 29, 31, 36, 37, 51, 57, Fig. 1).

As for the limitation "a second user performing athletic activities at a second location, different to, and remote from, the first location," Arrasvuori describes that users can be "dispersed throughout the world." Ex. 1005 ¶ 19 (citing at Pet. 50). Petitioner alternatively contends that "Arrasvuori inherently discloses that competing users can be located remotely from each other," because "Arrasvuori's 'game initiation and game play operations

might involve communication among one or more wireless nodes and/or other computers of users, and/or other wireless nodes and/or other computers (e.g., one or more servers),” and “[t]hose computers can communicate via ‘the Internet.’” Pet. 50 (citing Ex. 1005 ¶ 37).

Based on the foregoing evidence, we find Petitioner persuasively establishes that Arrasvuori discloses limitation 1[C] as recited in claim 1. Patent Owner does not contest that this limitation is present in Arrasvuori. *See generally* PO Resp.

*(5) [1[D]] determine, from the received athletic activity data, a first amount of athletic activity performed by the first user;*

Petitioner contends Arrasvuori discloses limitation 1[D] by describing “twice” that its “server determines amounts of athletic activity from the received data.” Pet. 50–51 (citing Ex. 1005 ¶¶ 38–47, 55, Fig. 2).

Based on the foregoing evidence, we find Petitioner persuasively establishes that Arrasvuori discloses limitation 1[D] as recited in claim 1. Patent Owner does not contest that this limitation is present in Arrasvuori. *See generally* PO Resp.

*(6) [1[E]] receive data from a second sensor indicating a second amount of athletic activity performed by the second user;*

Petitioner contends Arrasvuori discloses limitation 1[E] by describing, *inter alia*, “a server that receives [athletic activity] data from sensors that monitor athletic activity by [multiple] user[s]”:

Monitoring might, for instance, relate to **users** performing real-world fitness tasks . . . . Monitoring might, for example, be performed by one **or more** wireless nodes and/or other computers (e.g., servers, and/or wireless nodes and/or other computers of users).



Pet. 51–52 (citing Ex. 1005 ¶38 (emphases in original)).

Based on the foregoing evidence, we find Petitioner persuasively establishes that Arrasvuori discloses limitation 1[E] as recited in claim 1. Patent Owner does not contest that this limitation is present in Arrasvuori. *See generally* PO Resp.

*(7) [1[F]] determine whether the challenge has been met by the first user based on a comparison of the first amount of athletic activity performed by the first user and a second amount of athletic activity performed by the second user; and*

Petitioner contends Arrasvuori discloses limitation 1[F] by describing, *inter alia*, a server that determines whether a challenge has been met “in one or more of steps 203, 205 and 209 of monitoring and feedback operations” as shown, for example, in Figure 2, reproduced above in Section III.D.1. Pet. 52 (citing Fig. 2 (showing steps of “[203] Make determination regarding physiological state,” “[205] Make determination regarding performance quality,” “[209] Provide feedback”)).

Petitioner contends, in steps 203 and 205, “the server can determine each user’s ‘physiological state[,]’” and “‘how well the fitness task was performed.’” Pet. 53 (citing Ex. 1005 ¶¶ 41–43, 55). Petitioner contends, in step 209, “the server can translate its determinations into feedback in the form of leaderboards and other graphical representations of relative user performance” (Pet. 53 (citing Ex. 1005 ¶¶ 48–53)), which representations include depictions of “users that are performing and/or that have performed the real-world fitness task . . . positioned relative to one another [and/or] a goal corresponding to the task” (Ex. 1005 ¶ 52). Petitioner argues that “[b]oth forms of feedback indicate whether a challenge has been met based

on a comparison of users' athletic activity and require a determination of the same." Pet. 53.

Based on the foregoing evidence, we find Petitioner persuasively establishes that Arrasvuori discloses limitation 1[F] as recited in claim 1. Patent Owner does not contest that this limitation is present in Arrasvuori. *See generally* PO Resp.

(8) *[1[G]] continuously generate and simultaneously communicate in real-time to the first user at the first location and the second user at the second location, an interface indicating whether the challenge has been met.*

In our Institution Decision, we noted that the parties' arguments concerning limitation 1[G] appeared to depend on particular constructions of "continuously generate and simultaneously communicate in real-time . . . an interface indicating whether the challenge has been met" that the parties had not yet proffered and supported, and we ordered the parties to submit proposed constructions for this limitation. Dec. 16, 40–41. We turn below first to construing this limitation and then to whether Arrasvuori discloses limitation 1[G].

(i) *Claim Construction: "continuously generate and simultaneously communicate in real-time . . . an interface indicating whether the challenge has been met"*

We construe the limitation "continuously generate and simultaneously communicate in real-time . . . an interface indicating whether the challenge has been met" to mean "repeatedly generating and simultaneously communicating an interface indicating whether a challenge has been met as developments occur that may affect whether the challenge has been met." We begin with a review of the parties' claim construction arguments.

Patent Owner proposes in its Response that this limitation means “generating and communicating to the first user at the first location and the second user at the second location, *at the same time and without interruption or perceived delay*, an interface indicating whether the challenge has been met.” PO Resp. 28 (citing Ex. 2005 ¶ 35) (emphasis added). Patent Owner argues:

An interface indicating whether the challenge has been met is generated and communicated in real-time. Ex. 2005, ¶¶ 36–37. This is consistent with and supported by the intrinsic record of the ’256 patent. The ’256 patent discloses that “performance data collected from one or more users or athletes may be collected . . . [and] displayed . . . so that the user or athlete may have a substantially real-time display of their performance” and that “[t]he user or athlete may also have a display of their performance in a competition or challenge.” ’256 patent, 3:30–37.

PO Resp. 29; *see id.* at 29–36. Patent Owner argues that “[g]enerating the interface in real-time means that current updates regarding user performance are provided to the interface.” PO Resp. 34 (citing Ex. 2005 ¶ 48). Patent Owner argues the skilled artisan “would have understood continuous generation of the interface to first and second users to mean that the interface is generated *without perceived interruption*.” PO Resp. 35 (citing Ex. 2007, 1–2) (emphasis added).

Petitioner replies that, “[*f*]or this proceeding, [Petitioner] *does not dispute* Nike’s proposal to swap some of Limitation 1[G]/11[E]’s terms for *synonyms*: ‘without [perceived] interruption’ for ‘continuously’; ‘at the same time’ for ‘simultaneously’; and ‘without . . . perceived delay’ for ‘real time.’” Pet. Reply 2 (emphases added). We note that, despite ordering *each* party to provide *its own* construction for the subject limitation with support

therefor (Dec. 16, 40–41) and Rule 42.104 requiring Petitioner to set forth with particularity *in the Petition* how the challenged claim is to be construed (37 C.F.R. § 42.104(b)(3)), Petitioner in its Reply (as in its Petition) does not provide its own supported, express construction for the subject limitation. Instead, despite substantial controversy throughout this case over the meaning of the subject limitation in the context of applying Petitioner’s asserted art, Petitioner nonetheless submits “the Board need not construe Limitation 1[G]” because Patent Owner’s proposed construction “do[es] not impact patentability.” Pet. Reply. 2–3.

Patent Owner responds that, Petitioner, by applying its asserted art against the Challenged Claims, effectively “takes the position that *any* interface depicting user progress is ‘continuously generated,’” even if the interface is “generated once every two years.” PO Sur-reply 3–4; *see* Tr. 9:10–11:10 (Petitioner’s counsel arguing during oral hearing that generating an interface “every five minutes” independent of the occurrence of developments that may affect whether a challenge has been met still would constitute “continuously generating” the interface). Patent Owner reiterates its argument that “[an] update must be generated and communicated to the interface *such that the user does not perceive a delay between their performance and the displayed activity.*” PO Sur-reply 5 (citing Ex. 1005 ¶ 70) (emphasis added). Generally, we find Patent Owner’s proposed construction of the subject limitation persuasive, but in need of clarification; and find unpersuasive Petitioner’s implied construction that “continuously” generating an interface “in real-time” includes generating the interface at intervals independent of the occurrence of developments that may affect whether a challenge has been met.

Claims: We turn first to the claim language itself. We are mindful of Judge Rich’s guidance from over thirty years ago: in all aspects of claim construction, “the name of the game is the claim.” *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) (quoting Giles Sutherland Rich, *Extent of Protection and Interpretation of Claims—American Perspectives*, 21 Int’l Rev. Indus. Prop. & Copyright L. 497, 499 (1990) (“The U.S. is strictly an examination country and the main purpose of the examination, to which every application is subjected, is to try to make sure that what each claim defines is patentable. To coin a phrase, *the name of the game is the claim.*”)).

Claim 1 recites, in relevant part, “*continuously generate* and simultaneously communicate *in real-time* to the first user at the first location and the second user at the second location, an interface *indicating whether the challenge has been met.*” Ex. 1001, 40:64–67 (emphasis added). The claim language itself suggests that “continuously generat[ing]” an interface in “real-time” allows the interface to indicate whether a challenge “has been met,” and doing so “in real-time” suggests that updates to the interface are generated as developments occur that may affect whether the challenge “has been met.” Notably, the subject claim limitation explicitly recites “continuously” generating the interface “in real-time”; it does *not* recite—but easily could have if intended—“periodically” generating the interface (i.e., at predetermined time intervals independent of the occurrence of developments that may affect whether the challenge has been met).<sup>3</sup>

---

<sup>3</sup> Oral Hearing: “[Judge]: It seems like the claim drafter or the applicant would have chosen the word ‘periodically generating,’ if that’s what they

Specification: We next turn to disclosures in the Specification relevant to the subject limitation. *See E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003) (Claims must be interpreted “‘in view of the specification’ without unnecessarily importing limitations from the specification into the claims.” (citing *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1203–04 (Fed. Cir. 2002))).

The Specification discloses that the subject interface may display a user’s or athlete’s performance substantially in real-time, or in other words, that the underlying system is repeatedly or constantly generating data as developments occur that may affect whether a challenge has been met (e.g., showing current relative positioning of two runners racing each other in a challenge). *See, e.g.*, Ex. 1001, 3:30–36 (“[T]he performance data collected from one or more users or athletes may be collected by an athletic device or machine and/or displayed on an athletic device or machine console so that the user or athlete may have a *substantially real-time display of their performance* against personal goals, benchmarks, or mile-stones.” (emphasis added)); 30:39–44 (“[T]he user interface 1700 may be a console that *displays the user or athlete’s athletic performance substantially in real-time*. Further, the user interface 1700 console may *display a comparison of substantially real-time athletic performance data* to historical or otherwise stored athletic performance data.” (emphases added)); 31:44–46 (“*Constant updates* can be provided from the athletic performance tracking site to the athletic equipment and portable device 203.” (emphasis added)).

---

meant, as opposed to ‘continuously generating.’ [Patent Owner’s Counsel]: It’s a great point, Your Honor. We agree.” Tr. 51:20–23.

We find that the above-cited disclosures in the context of the whole Specification and Challenged Claims strongly support interpreting “continuously generate and simultaneously communicate in real-time . . . an interface indicating whether the challenge has been met” to mean “repeatedly generating and simultaneously communicating an interface indicating whether a challenge has been met as developments occur that may affect whether the challenge has been met,” because this feature of “as developments occur that may affect whether the challenge has been met” gives appropriate weight to the claim limitation of “in real-time” and stays true to the Specification’s disclosure of displaying a user’s athletic performance substantially *in real-time*. See PO Resp. 34 (“Generating the interface in real-time means that current updates regarding user performance are provided to the interface.” (citing Ex. 2005 ¶ 48)).

Prosecution History: Neither party has directed us to any evidence in the prosecution history of the ’256 patent relevant to interpreting the subject limitation. See *generally* Ex. 1002 (excerpted prosecution file history of the ’256 patent).

Extrinsic Evidence: Although we rely herein solely on the intrinsic evidence to construe the limitation 1[G], we note that Petitioner’s expert provided testimony that supports our interpretation. For example, Petitioner’s expert, Dr. Lynch, testified in the context of questions concerning “continuously generated” and “constant updates” that this encompassed generating an interface as developments occur that may affect whether an objective has been met:

[Answer:] Yes, as I mentioned before, “continuous” means, in some ways, *recurring [or repeating]*, and when it recurs, *it has to be something appropriate for the task*.

And so a person of ordinary skill would understand that, instead of wasting bandwidth sending a new set of data that’s unchanged from the previous set of data every ten milliseconds, another way to do this is *to only send new data when there’s something new to be reported*.

Ex. 2013, 62:11–19 (emphases added).

[Answer:] I would view the -- the interface that changes *when there’s something new to be reported* as without interruption.

*Id.* at 65:17–20 (emphasis added).

[Question:] What’s another way that a system could provide constant updates?

[Answer:] For instance, *updating when there’s something to be updated*.

*Id.* at 65:17–20 (emphasis added). We find that Dr. Lynch’s testimony that the subject limitation captures generating or updating an interface “when there’s something to be updated” supports our construction that the combined terms “continuously” and “in real-time” in the context of the subject limitation call for repeatedly generating an interface indicating whether a challenge has been met *as developments occur that may affect whether the challenge has been met*.

Based on the record before us, we construe the limitation “continuously generate and simultaneously communicate in real-time . . . an interface indicating whether the challenge has been met” to mean “repeatedly generating and simultaneously communicating an interface indicating whether a challenge has been met as developments occur that may affect whether the challenge has been met.”



Although Patent Owner’s proposed construction requires generating *without interruption or perceived delay* an interface indicating whether a challenge has been met, we find “without interruption” and particularly “perceived delay” lack clarity or useful boundaries; thus, in our construction, we clarify that generating an interface as set forth in claim 1 (or doing so without interruption or perceived delay) requires repeatedly generating an interface indicating whether a challenge has been met *as developments occur that may affect whether the challenge has been met*. That is, as long as the interface is generated at least as developments occur, then the interface would be repeatedly generated in real-time and users would not perceive delay between their performance and display thereof relative to other users in a challenge.

(ii) *Arrasvuori’s Disclosures*

Petitioner contends Arrasvuori discloses limitation 1[G] by describing, *inter alia*, that its “server ‘generate[s] and simultaneously communicate[s]’ whether a challenge has been met to users during step 209 of monitoring and feedback operations.” Pet. 55–56 (citing Ex. 1005 ¶49, Fig. 2 (showing step 209 of “Provide feedback”).

As noted by Petitioner, Arrasvuori discloses presenting “leaderboards” to users via interfaces that show the relative, “real-time” status of users as they progress in a given challenge:

[0049] . . . Feedback operations might, for example, be performed by one or more [servers]. . . . [I]n various embodiments, *real-time feedback* might be provided.

[0050] . . . One or [more] wireless nodes and/or other computers (e.g., one or more servers) might make available *leaderboards* showing[] user and/or team performances. Such a leaderboard might, for example, *show the performance of users*

*with respect to other users . . . . A wireless node and/or other computer making available leaderboards might, for instance, make such leaderboards available for direct viewing by users (e.g., via a GUI and/or other interface provided by the node and/or other computer) . . . . For example, a server might make leaderboards available for receipt by user wireless nodes and/or other computers, which in turn could provide leaderboard display to their users via GUIs and/or other interfaces.*

\* \* \*

[0052] . . . [D]uring performance of a real-world fitness task, display might be provided wherein graphical indicators corresponding to *users that are performing . . . the real-world fitness task are positioned relative to one another*, a goal corresponding to the task, and/or a route corresponding to the task. Such display might . . . *be presented via one or more GUIs and/or other interfaces provided by wireless nodes and/or other computers of users*. Such display might, in various embodiments, take into account quality of real-world fitness task performance.

[0053] . . . [D]isplay might provide a graphical representation for each user performing the task and show the graphical representations as progressing along a game-world route terminating in the game-world landmark. A user viewing such display might, for instance, be able *to determine* how close each participating user was to the goal and/or *how well each such user was competing relative to other such users*.

Ex. 1005 ¶¶ 49–50, 52–53 (emphases added).

Petitioner argues “[t]he phrase ‘make leaderboards available for receipt’ and the verb ‘display’ confirm that [Arrasvuori’s] server generates the leaderboards.” Pet. 56 (citing Ex. 1005 ¶ 50). Petitioner argues “Arrasvuori’s use of ‘presented’ coupled with its disclosure that ‘[f]eedback operations might . . . be performed by . . . servers’ again confirms that the server generates the graphical indicators,” and “[b]oth leaderboards and a

graphical interface showing relative positions of competitors indicate whether a challenge was met.” Pet. 56–57 (citing Ex. 1005 ¶¶ 49, 51–53, 55; Ex. 1003 ¶ 72). Petitioner argues the above description in Arrasvuori discloses that its server also “simultaneously communicates the interface to multiple users at different locations in ‘real-time.’” Pet. 57 (citing Ex. 1005 ¶¶ 49–50). Petitioner argues the skilled artisan “would have understood from these disclosures that the server communicates the interfaces to users as it generates them.” Pet. 58 (citing Ex. 1003 ¶ 72).

Patent Owner argues Petitioner “has not shown by a preponderance of the evidence that Arrasvuori discloses or suggests ‘continuously generating . . . to the first user . . . and the second user . . . an interface.’” PO Resp. 42; *see id.* at 43 (“Notably, [Petitioner’s] Petition altogether ignores the requirement that the claimed interface be generated ‘continuously.’”; “[B]oth the Petition and [Dr. Lynch’s] declaration are silent on *how* the interfaces are generated and, specifically, whether they are ‘continuously’ generated as required by the Challenged Claims.”). Patent Owner acknowledges that Arrasvuori discloses, and Petitioner relies upon, “leaderboards,” but argues “even if Arrasvuori generates an interface—and even if that interface is provided in real-time . . . —providing an interface *in real-time* does not equate to *continuously* generating the interface.” *Id.* at 46–47; *see* PO Sur-reply 13–16. Patent Owner argues Arrasvuori’s interface would not be continuously generated *if the leaderboard is presented to users only at the completion of the real-world fitness task*, and conjures an example of a “leaderboard” being presented to users only at designated checkpoints, such as every mile, rather than “continuously.” *See id.* (“[T]he server may collect the users’ athletic performance information

and may display that information throughout the user's performance of an activity, but may only update the interface, i.e. the leaderboards depicting the user's relative progress, at certain intervals such as every mile.").

We find Patent Owner's arguments unavailing.

First, we find that Patent Owner relies upon an unreasonably narrow interpretation of a "leaderboard," in arguing that the skilled artisan allegedly would not have understood a "leaderboard" as disclosed in Arrasvuori to be continuously generated and simultaneously communicated in real-time to indicate whether a challenge has been met (i.e., repeatedly generated and simultaneously communicated to indicate whether a challenge has been met *as developments occur that may affect whether the challenge has been met*).

As argued by Petitioner (Pet. Reply 10–11) and discussed above,

"Arrasvuori's leaderboards can 'show the [real-time] performance of users with respect to other users,'" and "like other 'graphical indicators,' they are provided [in real-time] '*during* performance of a real-world fitness task.'"

Ex. 1005 ¶¶ 50, 52; *see* Ex. 1017 ¶¶ 35–44 (testimony of Dr. Lynch

concerning leaderboards). Indeed, Arrasvuori explicitly discloses that

"[a] user viewing such display might, for instance, be able to *determine how close* each participating user was to the goal and/or *how well each such user was competing relative to other such users*." Ex. 1005 ¶ 53 (cited at Pet.

Reply 12) (emphases added).

Based on the record before us, and contrary to Patent Owner's arguments (PO Resp. 42–47; PO Sur-reply 13–16) and its expert's testimony (Ex. 2005 ¶¶ 79–80), we find it not credible that the skilled artisan would have understood Arrasvuori to disclose "leaderboards" as being displayed (or generated) *only periodically*, rather than repeatedly generated to indicate

whether a challenge has been met *as developments occur that may affect whether the challenge has been met*—doing so only periodically would defeat the very purpose of using a “leaderboard” such as used at an athletic event, where current scores are presented as the event progresses, not merely every so often. *See, e.g.*, Ex. 2006, 66:24–67:2 (Dr. Lynch testifying that “the continuous generation . . . needs to be appropriate to . . . the application, otherwise it has no value”); Ex. 1017 ¶ 40 (Dr. Lynch testifying that, “[i]n short, there is no doubt that [the skilled artisan] would have understood that Arrasvuori’s leaderboards are continuously generated”).

Second, we find that Patent Owner unpersuasively discounts Arrasvuori’s disclosure *as a whole* of presenting “leaderboards” to users via interfaces that show the relative, “real-time” status of users as developments occur in a given challenge. Indeed, Arrasvuori explicitly discloses generating and providing “real-time feedback”; generating and providing “leaderboards” showing “real-time” performance of users “with respect to other users” “during performance of a real-world fitness task”; and generating and providing “leaderboards” that depict graphical indicators corresponding to users that “are performing” the real-world fitness task “positioned relative to one another,” and displaying those indicators “as progressing along a game-world route terminating in the game-world landmark,” which would allow users to determine “how well each such user was competing relative to other such users.” Ex. 1005 ¶¶ 49–50, 52–53. Taking Arrasvuori’s disclosure as a whole, we find that the skilled artisan would have understood Arrasvuori to disclose, at least via its use of leaderboards, repeatedly generating and simultaneously communicating an interface indicating whether a challenge has been met as developments occur

that may affect whether the challenge has been met. Even though Patent Owner imagines scenarios where an alleged “leaderboard” might be presented to users only at designated times or checkpoints, Petitioner persuades us that the skilled artisan understands Arrasvuori to disclose and use “leaderboards” that satisfy the subject limitation as construed herein.

Based on the foregoing evidence, we find Petitioner persuasively establishes that Arrasvuori discloses “continuously generate and simultaneously communicate in real-time to the first user at the first location and the second user at the second location, an interface indicating whether the challenge has been met,” as recited in claim 1.

*(9) Conclusion for Independent Claim 1*

For the foregoing reasons, and the reasons stated in the Petition (Pet. 41–58), we conclude that Petitioner has demonstrated by a preponderance of the evidence that independent claim 1 is unpatentable as anticipated by Arrasvuori.

*b. Independent Claim 11*

Petitioner contends independent claim 11 would have been unpatentable as anticipated by Arrasvuori. Pet. 61–63; Pet. Reply 10–17. Claim 11 recites limitations generally commensurate in scope with independent claim 1, except that features of “system” claim 1 are embodied in “method” claim 11, and that claim 11 includes a limitation of receiving “a prompt” inviting a first user to participate in a challenge. *Compare* Ex. 1001, 41:23–42:8, *with id.* at 40:42–67. The Petition provides a detailed assessment of claim 11, with references to the Petition’s analysis of claim 1, disclosures in Arrasvuori, and the declaration testimony of Dr. Lynch. Pet. 61–63.

In particular, as to the limitation of “receiving a prompt inviting a first user to participate in a challenge” (limitation 11[A]), Petitioner persuasively argues that Arrasvuori discloses such “prompts” by describing that “users might be presented with real-world fitness tasks in the context of a game-world athletic competition,” and “in various embodiments, a user’s wireless node and/or other computer might . . . present her with a portal for viewing games available for play.” Pet. 61–62 (citing Ex. 1005 ¶¶ 18, 22, 25–29, 34, 36; Ex. 1003 ¶ 62); *see id.* at 47–50 (discussing receipt of a challenge). Petitioner also argues that, according to the ’256 patent itself, “interactive prompts . . . are well known in the art.” Ex. 1001, 22:66–23:3 (cited at Pet. 62). Patent Owner does not present any separate arguments that are distinct to independent claim 11. Rather, Patent Owner generally is of the view that the alleged deficiencies in the Petition with respect to claim 1 also are applicable to claim 11. *See* PO Resp. 41–48; PO Sur-reply 12–17.

For the same reasons provided above for independent claim 1, as well as the foregoing arguments and evidence submitted by Petitioner concerning claim 11, we conclude that Petitioner has demonstrated by a preponderance of the evidence that independent claim 11 is unpatentable as anticipated by Arrasvuori.

*c. Dependent Claims 2, 3, and 14*

Claim 2 depends from independent claim 1 and recites, “wherein the challenge is received from the second user.” Ex. 1001, 41:1–2. Claim 3 depends from claim 2 and recites, “wherein the first user is prompted, by the challenge module, to accept the challenge.” *Id.* at 41:3–4. Claim 14 depends from independent claim 11 and recites the same limitation as claim 2. *Id.* at 42:14–15.

Petitioner contends Arrasvuori discloses the limitations of claims 2 and 14 by describing, *inter alia*, “Arrasvuori’s server receives information specifying a challenge from each user,” and thus, “Arrasvuori’s server receives the challenge from multiple users.” Pet. 58 (citing Pet. 46–50), 64; *see supra* § III.D.2.a.4. Petitioner contends Arrasvuori discloses the limitations of claim 3 by describing, *inter alia*, “in various embodiments, a user’s wireless node and/or other computer might . . . present her with a portal for viewing games available for play,” and that “user[’s] wireless node[] and/or other computer[] might act as [a] server[.]” Pet. 58–59 (citing Ex. 1005 ¶¶ 34, 37. Petitioner argues that, “[b]ecause Arrasvuori’s ‘games’ include inter-user athletic challenges, . . . the server prompts a user to accept a challenge by presenting the user with a portal including such a challenge.” Pet. 59 (citing Pet. 47–50 (discussing receipt of a challenge))).

Patent Owner contends Arrasvuori does not disclose “the challenge is received from the second user” as recited in claims 2 and 14, but does not otherwise present any separate arguments for claim 3, other than noting its dependence on claim 2. PO Resp. 49. In particular, Patent Owner argues “Arrasvuori never discloses or suggests any user inviting another user to participate in a particular challenge, i.e., a competition.” *Id.*; *see id.* at 49–50; PO Sur-reply 17 (“Although Arrasvuori generally discloses two users being in a challenge, it never discloses receiving a challenge from a ‘second user.’” (citing Ex. 2005 ¶¶ 82–83)). We find Patent Owner’s arguments unavailing.

Rather, we agree with Petitioner that Arrasvuori discloses the broadly claimed feature of receiving a “challenge” from a “second user”:



Arrasvuori teaches receiving a challenge from a second user in at least two ways. First, for multiplayer video games, Arrasvuori teaches users “indicat[ing] a desire” to play and “select[ing] from one or more indicated games one or more games that she wished to play[.]” (See Ex. 1005, ¶¶17–22, 29, 31, 36, 51; Ex. 1017, ¶48.) Because multiplayer videogames involve more than just a first user, Arrasvuori’s system receives an indication of desire and selection of the multiplayer videogame from a second user. Second, Arrasvuori teaches that “users might . . . be able to select . . . the order in which they performed the fitness tasks . . . [u]sers might, for example, be able to indicate . . . moving from one fitness task to another.” (*Id.*, ¶36.) Because “users” is plural, Arrasvuori’s system receives such selections from at least a second user. (See Ex. 1017, ¶49.)

Pet. Reply 19. Also, contrary to Patent Owner’s argument (PO Resp. 49), Arrasvuori not only discloses multiple users (i.e., at least first and second users), but also discloses such users competing against one another. See, e.g., Ex. 1005 ¶¶ 34 (“users competing with and/or against one another”), 36 (“users might be presented [or challenged] with real-world fitness tasks in the context of a game-world athletic competition”); Ex. 1017 ¶ 50 (Petitioner’s expert, Dr. Lynch, testifying how Arrasvuori discloses “an example of a user specifying a challenge in which multiple users, i.e., at least a first and second users, compete”); *see also* Ex. 1017 ¶¶ 48–49.

For the same reasons provided above for independent claims 1 and 11, as well as the foregoing arguments and evidence submitted by Petitioner concerning dependent claims 2, 3, and 14, we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claims 2, 3, and 14 are unpatentable as anticipated by Arrasvuori.

*d. Dependent Claim 12*

Claim 12 depends from independent claim 11 and recites, “wherein the sensor worn on the appendage of the first user comprises a location-determining sensor.” Ex. 1001, 42:9–11.

Petitioner contends Arrasvuori discloses the limitations of claim 12 by describing, *inter alia*, that “[its] monitoring equipment can include ‘one or more sensors,’ including ‘GPS[] hardware,’” and the monitoring equipment “can be integrated into a watch worn on a user’s wrist.” Pet. 64 (citing, *inter alia*, Ex. 1005 ¶ 40); *see supra* § III.D.2.a.2.

Patent Owner concedes that “Arrasvuori states that its monitoring equipment may include GPS hardware.” PO Resp. 50. Patent Owner argues instead that Arrasvuori does not disclose “the sensor is worn on an appendage of the user” as recited in underlying independent claim 11, and thus, dependent claim 12 is patentable. *Id.*; *see* PO Sur-reply 17. As discussed above in Section III.D.2.a.(2), we find Patent Owner’s arguments in this regard unavailing.

For the same reasons provided above for independent claim 11, as well as the foregoing arguments and evidence submitted by Petitioner concerning dependent claim 12, we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claim 12 is unpatentable as anticipated by Arrasvuori.

*e. Dependent Claim 13*

Claim 13 depends from independent claim 11 and recites, “wherein the sensor worn on the appendage of the first user comprises an accelerometer.” Ex. 1001, 42:12–13.

Petitioner contends Arrasvuori discloses the limitations of claim 13 by describing, *inter alia*, that “[its] monitoring equipment can include ‘one or more sensors,’” which “might, for instance, include . . . pedometer hardware.” Pet. 64 (citing Ex. 1005 ¶ 40). Petitioner submits that the skilled artisan would have understood that a pedometer is “[a]n instrument that gauges the approximate distance traveled on foot by registering the number of steps taken,” and “[o]ne type of pedometer includes an accelerometer.” Pet. 64 (citing Ex. 1008, 1296;<sup>4</sup> Ex. 1009, 2:1–15 (disclosing “[a]nother prior art pedometer device uses an accelerometer to measure the number of times that a user’s foot impacts the surface when the user is in locomotion”)).

Patent Owner argues “Arrasvuori has no mention of an accelerometer, let alone an accelerometer constituting the sensor worn on the appendage of the first user.” PO Resp. 51. In short, Patent Owner faults Petitioner for relying on Arrasvuori’s disclosed “pedometer,” which allegedly would not have disclosed to the skilled artisan a pedometer that functions using an accelerometer. *See id.* at 51–52; PO Sur-reply 18.

Petitioner responds, and we agree, that “Arrasvuori teaches incorporating pedometers into its sensors,” and that the skilled artisan would have understood such “pedometers” at the relevant time “included both ‘weight-on-a-spring’- and accelerometer-based pedometers.” Pet. Reply 18 (citing Ex. 1005 ¶ 40; Ex. 1009, 2:1–15). Further, Petitioner’s expert,

---

<sup>4</sup> Although Petitioner cites to page “1296” of Exhibit 1008 presumably for a dictionary definition of “pedometer,” Petitioner’s Exhibit 1008 as filed does not include page 1296 (it skips from “interregional” at page 915 to “Washington Island” at page 1942).

Dr. Lynch, “whose scientific research involves accelerometers” (Pet. Reply 18 (citing Ex. 1003 ¶ 7)), testified that the skilled artisan “would have understood that Arrasvuori’s reference to ‘pedometer’ . . . includes accelerometer-based pedometers (Ex. 1017 ¶¶ 46–47 (cited at Pet. Reply 18)). Petitioner submits that “just as ‘car’ today means both gas and electric cars, [the skilled artisan] would have understood ‘pedometer’ meant both types of pedometers.” Pet. Reply 18.

For the same reasons provided above for independent claim 11, as well as the foregoing arguments and evidence submitted by Petitioner concerning dependent claim 13, we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claim 13 is unpatentable as anticipated by Arrasvuori.

*f. Dependent Claims 4, 7, 8, 15, and 16*

Petitioner contends claims 4, 7, 8, 15, and 16, which depend directly from one of independent claims 1 and 11, are unpatentable as anticipated by Arrasvuori. Pet. 59–61, 65. The Petition provides a detailed assessment of these claims, with references to the Petition’s analysis of claims 1 and 11, disclosures in Arrasvuori, and the declaration testimony of Dr. Lynch. *Id.* Patent Owner does not present any separate arguments that are distinct to any of these claims. Rather, Patent Owner generally states the view that the alleged deficiencies in the Petition with respect to claims 1 and 11 also are applicable to claims 4, 7,<sup>5</sup> 8, 15, and 16. *See generally* PO Resp.; PO

---

<sup>5</sup> Dependent claim 7 recites, “[t]he system of claim 1, wherein the challenge is defined in terms of a *common unit* used for multiple types of athletic activities.” Ex. 1001, 41:12–14 (emphasis added). Although the parties dispute the meaning of “common unit,” Patent Owner does not contest that

Sur-reply. As discussed above, we are persuaded that the cited evidence sufficiently supports Petitioner’s contention that independent claims 1 and 11 are unpatentable as anticipated by Arrasvuori. For the same reasons provided above for independent claims 1 and 11, and the reasons set forth in the Petition (Pet. 59–61, 65), we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claims 4, 7, 8, 15, and 16 are unpatentable as anticipated by Arrasvuori.

### 3. Conclusion

For the foregoing reasons, we conclude that Petitioner has demonstrated by a preponderance of the evidence that claims 1–4, 7, 8, and 11–16 are unpatentable as anticipated by Arrasvuori.

#### *E. Obviousness of Claims 1–4, 7, 8, and 11–16 over Arrasvuori*

Petitioner alternatively contends claims 1–4, 7, 8, and 11–16 would have been unpatentable under 35 U.S.C. § 103 as obvious over Arrasvuori (Ex. 1005). Pet. 1–2, 11–15, 41–65; Pet. Reply 10–20. For the reasons discussed above in Section III.D. regarding anticipation by Arrasvuori of claims 1–4, 7, 8, and 11–16, *a fortiori*, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–4, 7, 8, and 11–16 would have been unpatentable as obvious over Arrasvuori. *See Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1364 (Fed. Cir. 2008) (“[I]t is commonly understood that prior art references that anticipate a claim will usually render that claim obvious.”); *Game & Tech. Co. v. Activision*

---

this “common unit” feature is disclosed in Arrasvuori. Thus, we do not and need not construe this term for purposes of this challenge. *See Nidec Motor*, 868 F.3d at 1017.

*Blizzard Inc.*, 926 F.3d 1370, 1381 (Fed. Cir. 2019) (“[Appellant’s] assertion that ‘a single reference . . . cannot support obviousness’ is wrong as a matter of law.” (internal citation omitted)); *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016) (“[A] patent can be obvious in light of a single prior art reference if it would have been obvious to modify that reference to arrive at the patented invention.”); *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1336–37 (Fed. Cir. 2010) (affirming an invalidity judgment where claims were held obvious over a single reference).

For completeness, we turn to the specific instances in which Petitioner alternatively relies on obviousness in its application of Arrasvuori.

*1. Independent Claims 1 and 11*

*a. Limitation 1[C]*

Limitation 1[C] of independent claim 1 recites “[a challenge module configured to:] *receive information specifying a challenge*, wherein the challenge includes a competition between the first user, and a second user performing athletic activities at a second location, different to, and remote from, the first location.” Ex. 1001, 40:49–53 (emphasis added).

Petitioner argues, even if “Arrasvuori [were found not to] expressly disclose the server receiving a user’s selection of any of [certain identified] challenges, it would have been obvious to configure the server to receive it.” Pet. 49. In particular, Petitioner argues “Arrasvuori discloses that its users compete in multiplayer video games” (Pet. 49 (citing Ex. 1005 ¶¶ 2, 13, 17, 24, 36)), and the skilled artisan “would have understood that the server can host those video games” (Pet. 49 (citing Ex. 1003 ¶ 60; Ex. 1005 ¶¶ 36, 37)). Petitioner contends the skilled artisan “would have been motivated to configure Arrasvuori’s server hosting the video games to receive the user’s

. . . selections *so that the server knew which games or tasks to present to the user.*” Pet. 49–50 (citing Ex. 1003 ¶¶ 59–61). Petitioner contends the skilled artisan “would have reasonably expected this modification to succeed because the user wireless nodes already communicate with ‘one or more servers’ during game initiation and game play operations.” Pet. 50 (citing Ex. 1003 ¶¶ 59–61; Ex. 1005 ¶ 37). We find that Petitioner’s reason for modifying Arrasvuori as noted above (if necessary), namely, so that the server would know which games or tasks to present to users, is rational and persuasive.

Based on the foregoing evidence, and our analysis above of limitation 1[C] in Section III.D.2.a.4, we find Petitioner persuasively establishes that Arrasvuori teaches or at least fairly suggests limitation 1[C] as recited in claim 1. Patent Owner does not contest otherwise. *See generally* PO Resp.

*b. Limitation 1[F]*

Limitation 1[F] of independent claim 1 recites “[a challenge module configured to:] *determine whether the challenge has been met* by the first user based on a comparison of the first amount of athletic activity performed by the first user and a second amount of athletic activity performed by the second user.” Ex. 1001, 40:59–63 (emphasis added).

Petitioner argues, even if Arrasvuori were found not to expressly disclose the server determining whether the challenge has been met, “it would have been obvious to configure the server to determine whether a challenge was met.” Pet. 53. In particular, Petitioner argues “Arrasvuori discloses that both (1) user wireless nodes and/or computers or (2) the server can make determinations and provide feedback” (Pet. 53 (citing Ex. 1005

¶¶ 41, 49), and “[w]here, as here, an ‘ordinary artisan would . . . be left with two design choices . . . [e]ach of these two design choices is an obvious combination of prior art elements” (Pet. 53 (citing *ACCO Brands Corp. v. Fellowes, Inc.*, 813 F.3d 1361, 1367 (Fed. Cir. 2016))). Petitioner contends, among other reasons (Pet. 54), the skilled artisan “would have been motivated to configure the server to determine whether the challenge was met to conserve resources” (Pet. 53–54 (citing Ex. 1003 ¶ 75), particularly where “[t]he server, in the context of ‘Compensatory Operations,’ can already ‘[d]etermin[e] . . . which user was to receive the higher score’ between ‘two users perform[ing] a real-world fitness task of running a certain distance” (Pet. 54 (citing Ex. 1003 ¶¶ 56–57, 72 (internal citations omitted))). Indeed, configuring the server to do so in the context of monitoring and feedback operations “avoids duplicating that function into each user wireless node and/or computer.” Pet. 54 (citing Ex. 1003 ¶ 75). Petitioner contends the skilled artisan would have reasonably expected this modification to succeed because, as Dr. Lynch testifies, “centralizing data processing at a server was well understood by 2008.” Pet. 55 (citing Ex. 1003 ¶ 77; Ex. 1005 ¶¶ 38, 41, 49–50). We find that Petitioner’s reason for modifying Arrasvuori as noted above (if necessary), namely, to conserve computer processing resources, is rational and persuasive.

Based on the foregoing evidence, and our analysis above of limitation 1[F] in Section III.D.2.a.7, we find Petitioner persuasively establishes that Arrasvuori teaches or at least fairly suggests limitation 1[F] as recited in claim 1. Patent Owner does not contest otherwise. *See generally* PO Resp.



*c. Limitation 1[G]*

Limitation 1[G] of independent claim 1 recites “[a challenge module configured to:] *continuously generate* and simultaneously communicate *in real-time* to the first user at the first location and the second user at the second location, *an interface indicating whether the challenge has been met.*” Ex. 1001, 40:64–67 (emphases added).

Petitioner argues, even if Arrasvuori were found not to expressly disclose the server continuously generating in real-time an interface indicating whether the challenge has been met, “it would have been obvious to configure the server to generate the claimed interface.” Pet. 57. In particular, Petitioner argues “Arrasvuori discloses that either the user wireless nodes and/or the computer or the server perform the feedback step” (Pet. 57 (citing Ex. 1005 ¶ 49)), and “[w]here, as here, an ‘ordinary artisan would . . . be left with two design choices . . . [e]ach of these two design choices is an obvious combination of prior art elements” (Pet. 57 (citing *ACCO Brands*, 813 F.3d at 1367)). We agree as to configuring the server in this context. However, but for this aspect of configuring *the server* to generate the interface, as noted by Patent Owner (PO Resp. 44–45), Petitioner does not otherwise set forth with particularity in the Petition an obviousness argument for limitation 1[G] (if this limitation were found not to be anticipated by Arrasvuori).

Based on the foregoing evidence, and our analysis above of limitation 1[G] in Section III.D.2.a.(8), we find Petitioner persuasively establishes that Arrasvuori teaches or at least fairly suggests limitation 1[G] as recited in claim 1.

*d. Limitation 11[A]*

Limitation 11[A] of independent claim 11 recites “*receiving a prompt* inviting a first user to participate in a challenge, wherein the challenge includes a competition between the first user performing athletic activities at a first location and a second user performing athletic activities at a second location different to, and remote from, the first location.” Ex. 1001, 41:23–28 (emphasis added).

Petitioner argues, even if Arrasvuori were found not to expressly disclose this “prompt” to participate in a challenge, “it would have been obvious to configure a user’s wireless node to prompt a user to participate in a challenge.” Pet. 62 (citing Ex. 1003 ¶¶ 62–64). In particular, Petitioner argues Arrasvuori discloses that “[t]he wireless node and/or other computer might, for instance, allow the users . . . to invite one or more users to join one or more new and/or existing teams” (Pet. 62 (citing Ex. 1005 ¶ 18)), and to the skilled artisan, “[i]t would have been trivial to configure a wireless node to issue similar invitations to join challenges” (Pet. 62 (citing Ex. 1003 ¶ 64)). Petitioner argues the skilled artisan “would have been motivated to adopt this configuration to shorten the waiting time between a user’s selection of a challenge and the start of the challenge.” Pet. 62 (citing Ex. 1003 ¶ 63 (discussing an example of a challenge requiring ten users and the benefit of issuing invitations to users)). We find that Petitioner’s reason for modifying Arrasvuori as noted above (if necessary), namely, to shorten waiting times between a user’s selection of a challenge and the start of the challenge, is rational and persuasive.

Based on the foregoing evidence, and our analysis above of limitation 11[A] in Section III.D.2.b, we find Petitioner persuasively

establishes that Arrasvuori teaches or at least fairly suggests limitation 11[A] as recited in claim 11. Patent Owner does not contest otherwise. *See generally* PO Resp.

*e. Conclusion*

For the foregoing reasons, and the reasons set forth above in Sections III.D.2.a,.b (claim 11), we conclude that Petitioner has demonstrated by a preponderance of the evidence that independent claims 1 and 11 would have been unpatentable as obvious over Arrasvuori.

*2. Dependent Claims 2 and 14*

Dependent claims 2 and 14 recite “wherein the challenge is received from the second user.” Ex. 1001, 41:1–2, 42:14–15.

Petitioner argues, even if Arrasvuori were found not to expressly disclose the features of dependent claim 2, “it would have been obvious to configure the server to transmit challenges between users as explained for claim 11,” and “[i]n that configuration, the server would receive the challenge from any user.” Pet. 58 (citing Pet. 61–62 (discussing limitation 11[A])); *see supra* §§ III.D.2.b, III.E.1.d (both discussing limitation 11[A]). Patent Owner contends Petitioner does not provide any rational reason to modify Arrasvuori to achieve this feature of receiving a challenge from a second user (PO Resp. 50), but ignores Petitioner’s reliance on its reasoning provided for limitation 11[A], discussed above. Thus, as discussed above in Section III.E.1.d, we find that Petitioner’s reason for modifying Arrasvuori to achieve the subject feature, namely, to shorten waiting times between a user’s selection of a challenge and the start of the challenge, is rational and persuasive.

Based on the foregoing evidence, we find Petitioner persuasively establishes that Arrasvuori teaches or at least fairly suggests the features of dependent claims 2 and 14. *See supra* §§ III.D.2.a–c, III.E.1.

### 3. *Dependent Claim 3*

Dependent claim 3 recites “wherein the first user is prompted, by the challenge module, to accept the challenge.” Ex. 1001, 41:3–4.

Petitioner argues, even if Arrasvuori were found not to expressly disclose the features of dependent claim 3, “it would have been obvious to configure the server to prompt users to accept challenges as explained for claim 11.” Pet. 58–59 (citing Pet. 61–62 (discussing limitation 11[A])); *see supra* §§ III.D.2.b, III.E.1.d (both discussing limitation 11[A]). Patent Owner does not present any separate arguments that are distinct to claim 3. Rather, Patent Owner generally states the view that the alleged deficiencies in the Petition with respect to claims 2 and 14 also are applicable to claim 3. *See generally* PO Resp. 49–50; PO Sur-reply 17. As discussed above, we are persuaded that the cited evidence sufficiently supports Petitioner’s contention that independent claims 1 and 11 and dependent claims 2 and 14 would have been unpatentable as obvious over Arrasvuori. For the same reasons provided above for claims 1, 2, 11, and 14, we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claim 3 would have been unpatentable as obvious over Arrasvuori. *See supra* §§ III.D.2.a–c, III.E.1–2.

### 4. *Conclusion*

For the foregoing reasons, and those provided above in Section III.D., we conclude that Petitioner has demonstrated by a preponderance of the

evidence that claims 1–4, 7, 8, and 11–16 would have been unpatentable as obvious over Arrasvuori.

*F. Anticipation of Claims 1–20 by Tagliabue*

Petitioner contends claims 1–20 are unpatentable under 35 U.S.C. § 102 as anticipated by Tagliabue (Ex. 1004). Pet. 1–2, 7–11, 25–41; Pet. Reply 5–10. Patent Owner opposes Petitioner’s contentions. PO Resp. 36–41; PO Sur-reply 7–12. For the reasons expressed below, and based on the complete record before us, we determine that Petitioner has not demonstrated by a preponderance of the evidence that any of claims 1–20 is unpatentable as anticipated by Tagliabue. We turn first to an overview of Tagliabue.

*1. Overview of Tagliabue (Ex. 1004)*

Tagliabue is a U.S. Patent titled “Collection and Display of Athletic Information” and is assigned to Patent Owner. Ex. 1004, codes (12), 73; PO Resp. 14. Patent Owner does not challenge in this case that Tagliabue is prior art to the ’256 patent. PO Resp. 14 n.1. The parties acknowledge that the ’256 patent incorporates by reference Tagliabue’s non-provisional application. Pet. 7–8 (citing Ex. 1001, 33:25–28); PO Resp. 14.

Tagliabue and the ’256 patent share some common disclosures, word-for-word and figure-by-figure in many instances, but the ’256 patent also includes disclosures not present in Tagliabue. Patent Owner submitted a redline of the ’256 patent highlighting the differences between those two disclosures. See Ex. 2008. According to Patent Owner, relative to Tagliabue, the ’256 patent adds (1) column 3, lines 30–37, and (2) column 29, line 26 until column 40, line 29 and associated figures

(Figures 17–42). *See* PO Resp. 15–16; Ex. 2005 ¶ 69; *compare* Ex. 1004, *with* Ex. 1001.

We further discuss below the disclosure of Tagliabue in connection with the parties’ arguments.

## 2. *Disputed Limitations 1[G]/11[E]*

As with Arrasvuori discussed above in Section III.D, the parties similarly dispute whether Tagliabue discloses limitation 1[G] of independent claim 1 and limitation 11[E] of independent claim 11, and more particularly, the features in those limitations of “continuously generat[ing] and simultaneously communicat[ing] in real-time . . . an interface indicating whether the challenge has been met.” The entirety of Petitioner’s argument in the Petition concerning limitations 1[G] and 11[E] consists of four sentences:

Tagliabue discloses notifying users whether a challenge has been met via a “special-purpose interface . . .” (Ex. 1004, 22:45–50.) During the challenge, “the athletic data display configuration device 601 may additionally provide *updates* regarding the status of a participant relative to other participants.” (*Id.*, 22:54–56.) It “may configure and provide a user interface showing each participant’s *progress* toward the goal of the challenge using, e.g., bar graphs for each participant of the type previously described with regard to monitoring individual goals.” (*Id.*, 22:61–65.) As explained above, the competing users can be located remotely from each other. (*Supra* § VI.A.4.)

Pet. 33 (emphases added); *see* Pet. Reply 5–10.

Patent Owner responds:

Noticeably missing from these four sentences is any mention of “continuous generation” of an interface, or “real-time” communication of an interface. Moreover, [Petitioner]

makes no attempt to explain how the cited portions of Tagliabue could be interpreted to teach those elements, and does not rely on its expert in support. The reason for these deficiencies is simple: Tagliabue lacks any disclosure of these elements.

PO Resp. 38. Patent Owner argues Tagliabue lacks (1) any description of “real-time” display of performance (PO Resp. 15 (*compare* Ex. 1004, *with* ’256 patent, 3:30–37, 30:39–44) (citing Ex. 2005 ¶ 69)); (2) any teachings related to “constantly” or “continuously” generating a user interface (PO Resp. 15–16 (*compare* Ex. 1004, *with* ’256 patent, 31:41–46) (citing Ex. 2005 ¶ 69)); and (3) “the disclosure in the ’256 patent that ‘a user interface may display both avatars in relative position to one another based on how far each user has *actually run*. This may help motivate users to close the gap if they are behind and to further increase a lead if they are leading in the challenge’” (PO Resp. 16 (*compare* Ex. 1004, *with* ’256 patent, 39:50–55) (citing Ex. 2005 ¶ 69)). *See* PO Resp. 38–39 (discussing same; “Tagliabue thus discloses a slower, less automated process, in which a first user’s challenge performance data would not be available to a second user continuously, nor in real-time.” (citing Ex. 2005 ¶¶ 68, 70–71)) (citing *Net MoneyIN, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008) (“[D]ifferences between the prior art reference and a claimed invention, however slight, invoke the question of obviousness, not anticipation.”)).

Petitioner argues in its Reply that Tagliabue’s disclosures relating to generating and communicating an interface that shows a participant’s “progress” in a challenge or “updates” concerning the same in turn disclose continuously generating and simultaneously communicating in real-time an interface indicating whether the challenge has been met, or as construed herein, disclose “repeatedly generating and simultaneously communicating

an interface indicating whether a challenge has been met as developments occur that may affect whether the challenge has been met.” Pet. Reply 5–10; *see, e.g., id.* at 5–6 (“Progress updates subject to interruptions would be of little use in a live competition, and [the skilled artisan] would have expected Tagliabue’s system to provide such updates without interruption.”), 6 (“[The skilled artisan] would have understood that Tagliabue’s updates are generated and communicated without perceived delay.”). We find Petitioner’s arguments and cited evidence unpersuasive.

Petitioner asks us to stretch Tagliabue’s disclosure of “progress” and performance “updates” to disclose the subject limitation, namely “continuously” generating and simultaneously communicating “in real time” an interface, but we decline to do so on the record before us. As Patent Owner’s expert, Dr. Toney-Bolger, testifies, “The portions of Tagliabue cited by [Petitioner] (and surrounding portions), by contrast, describe intermittent communication of challenge completion,” not real-time communication (Ex. 2005 ¶ 68 (cited at PO Sur-reply 8)):

Tagliabue discloses a more conventional, less technologically advanced process by which *a user transfers* recorded athletic data from a “special-purpose computing device,” e.g., digital music player or other portable device, to a local computer by *syncing* the device (in a wired or wireless fashion) to the local computer. Ex. 1004, 5:4–12, 9:19–24, 11:40–58. The local computer then transfers the data to a remote server which saves the data. *Id.*, 5:12–16; 12:35–43. Afterwards, a user can use a local computing device to intermittently query, retrieve, and view the stored data from the server. *Id.*, 5:16–23; 13:25–39. Tagliabue discloses a slower, less automated process, in which a first user’s challenge performance data *would not be available to a second user continuously, nor in real-time.*



Ex. 2005 ¶ 71 (emphases added). Notably, the “interface” disclosures concerning “real-time” (*see, e.g.*, Ex. 1001, 30:39–44) and “[c]onstant updates” (*see, e.g., id.* at 31:44–46), which underly our interpretation of limitation 1[G]/11[E], appear *only* in the ’256 patent, not in Tagliabue. Thus, we find that Petitioner does not sufficiently demonstrate that the disclosure of “progress” in Tagliabue *necessarily* would have disclosed to the skilled artisan an interface that is “continuously” generated and simultaneously communicated “in real time.”<sup>6,7</sup> *See* PO Sur-reply 9–12; *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) (“To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the

---

<sup>6</sup> For these same reasons, we find unpersuasive Petitioner’s argument that Tagliabue’s Figure 12, for example, which is “an example of a user interface that may be provided to indicate a user’s progress toward achieving an athletic activity goal” (Ex. 1004, 3:53–56), discloses the subject limitation. *See* Pet. Reply 8–9. We also find unpersuasive Petitioner’s argument that Tagliabue and its Figure 17 disclose the subject limitation because “Tagliabue describes an interface ‘provid[ing] updates regarding the status of a participant relative to the other participants’ in a challenge to see ‘who can run the most miles in a given period of time.’” Pet. Reply 9–10. Here, Tagliabue discloses “updates,” whereas the ’256 patent further discloses “*constant* updates,” but more importantly, Petitioner’s argument ignores the subject limitation’s requirement for the interface to display *in real-time* an indication of whether a challenge has been met.

<sup>7</sup> Petitioner cites to deposition testimony in which Patent Owner’s expert agreed (responding, “Yes”) that an interface displaying multiple avatars to illustrate the *progress* of each user in a challenge would be an example of an interface that is continuously generated and simultaneously communicated in real time. Pet. Reply 8 (citing Ex. 1016, 19:12–19) (emphasis added). In this testimony, it is unclear what definition the witness is attributing to the term “progress.” Thus, we give little weight to this testimony.

reference . . . . Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” (citations and internal quotations omitted)).

Based on the foregoing evidence, we find Petitioner does not persuasively establish that Tagliabue discloses limitations 1[G] and 11[E].

### 3. Conclusion

For the foregoing reasons, we conclude that Petitioner has not demonstrated by a preponderance of the evidence that any of claims 1–20 is unpatentable as anticipated by Tagliabue.

#### *G. Obviousness of Claim 13 over the Combination of Arrasvuori and Ellis*

Petitioner alternatively contends claim 13 would have been unpatentable under 35 U.S.C. § 103 as obvious over the combination of Arrasvuori (Ex. 1005) and Ellis (Ex. 1007). Pet. 65–67.

Petitioner argues, even if Arrasvuori alone were found not to teach “wherein the sensor worn on the appendage of the first user comprises an *accelerometer*” (Ex. 1001, 42:12–13 (emphasis added)), this accelerometer feature would have been obvious over the combination of Arrasvuori and Ellis. Pet. 65–67. In particular, Petitioner argues “it would have been obvious to add Ellis’ accelerometer to Arrasvuori’s computerized watch.” Pet. 65. Petitioner argues, *inter alia*, that “[b]ecause Ellis’ accelerometer is already integrated into an [individual network component (INC)] ‘worn on a wristband’” (Pet. 67 (citing Ex. 1007, 64:12–13, Fig. 44)), “it would have been trivial to add it to Arrasvuori’s computerized watch” (Pet. 67 (citing Ex. 1003 ¶¶ 108–109)). Petitioner also argues the skilled artisan “would

have been motivated to add Ellis' accelerometer to Arrasvuori's computerized watch to provide an athlete with additional information about their performance" (Pet. 67 (citing Ex. 1003 ¶¶ 106–107)), such as "to calculate an athlete's 'cadence,' 'form,' and stride length" (Pet. 67 (citing Ex. 1007, 64:16–17, 84:19–22, 84:29–30)). We find Petitioner's arguments persuasive.

Patent Owner argues that this Arrasvuori-Ellis combination fails for the same reasons that Patent Owner proffered against Arrasvuori alone, but does not otherwise contest that Ellis teaches an accelerometer in an athletic sensor worn on an appendage of a user (*see* Ex. 1007, 64:12–13; 84:9–18, Figs. 44, 70 (cited in Pet. 66)). PO Resp. 52–53 (Patent Owner arguing Petitioner's proposed combination with Ellis "does not cure [the] deficiencies" in Arrasvuori); PO Sur-reply 18 ("[Petitioner] fails to show that Arrasvuori's wireless node is worn on an appendage of a user," and "[f]or at least that reason, [Petitioner's] arguments for claim 13 fail.")).

For the foregoing reasons (*see* Pet. 65–67), and for the reasons discussed above in Section III.D. regarding anticipation by Arrasvuori of claims 1–4, 7, 8, and 11–16 and in Section III.E. regarding obviousness of these claims over Arrasvuori, we determine that Petitioner has demonstrated by a preponderance of the evidence that dependent claim 13 would have been unpatentable as obvious over the combination of Arrasvuori and Ellis. *See Cohesive Techs.*, 543 F.3d at 1364.

*H. Obviousness of Claims 1, 7, 8, 11–13, 15, and 16 over the Combination of Watterson and Arrasvuori*

Petitioner contends claims 1, 7, 8, 11–13, 15, and 16 are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Watterson

(Ex. 1006) and Arrasvuori (Ex. 1005). Pet. 1–2, 11–18, 68–85; Pet. Reply 21–24. Patent Owner opposes Petitioner’s contentions. PO Resp. 53–66; PO Sur-reply 18–24. For the reasons expressed below, and based on the complete record before us, we determine that Petitioner has not demonstrated by a preponderance of the evidence that any of claims 1, 7, 8, 11–13, 15, and 16 would have been unpatentable as obvious over the combination of Watterson and Arrasvuori. We turn to an overview of Watterson.

As a preliminary matter, we already determined above that Petitioner has demonstrated by a preponderance of the evidence that claims 1–4, 7, 8, and 11–16 are unpatentable as anticipated by or obvious over Arrasvuori. *See supra* §§ III.D, III.E. For completeness, and to the extent such claims were deemed not to be anticipated by or obvious over Arrasvuori, we consider below Petitioner’s Watterson-Arrasvuori challenge to claims 1, 7, 8, 11–13, 15, and 16. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, Nos. 2019-1594, -1604, -1605, 2020 WL 2071962, at \*4 (Fed. Cir. Apr. 30, 2020) (non-precedential) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding” and, thus, agreeing that the Board has “discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

### *1. Overview of Watterson (Ex. 1006)*

Watterson relates to “systems and methods for providing improved exercise devices in combination with other users and/or a live or stored

trainer via a communications network,” as shown, for example, in Figure 1 of Watterson, reproduced below. Ex. 1006, 1:18–21, Fig. 1.

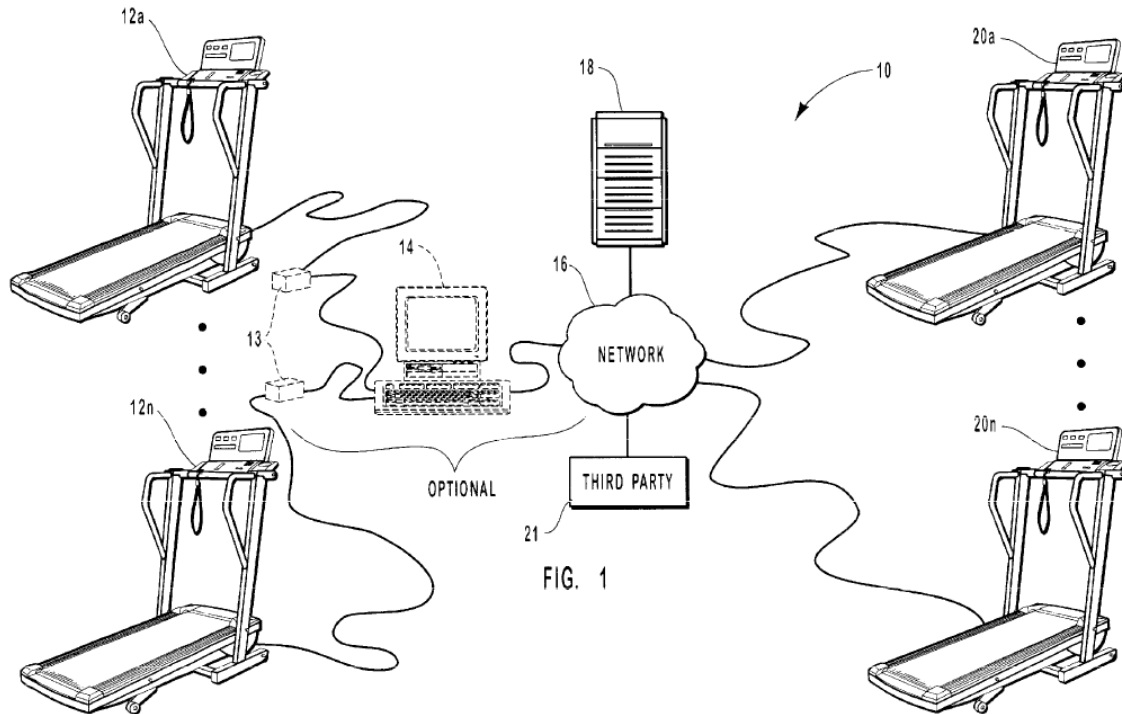


Figure 1 depicts “an exercise system” of Watterson.  
*Id.* at 5:1–2, 6:16–21, Fig. 1.

Watterson discloses an embodiment in which activation of “iFit.com button” 82 connects treadmill 12 to communication system 18 such as a website, “enable[ing] one or more users to interact one with another, and optionally compete one against another.” Ex. 1006, 10:7–9, 10:48–58. “[C]ommunication system 18 includes an interface 190 that communicates with a control processor 192 and an interface 198,” where “[i]nterface 190 is configured to transceiver one or more signals to and from computer 14 and treadmill 12 via network 16.” *Id.* at 18:62–66. “Such signals may include audio and visual signals of the user exercising, the status of the exercise

device, . . . data and information about the user, such as heart rate, blood pressure, and the like that has been gathered by one or more health monitoring devices,” where such devices include, for example, a pulse watch and a heart rate monitor. *Id.* at 18:66–19:8.

Watterson discloses that communication system 18 transmits signals to and receive signals from a trainer (e.g., at treadmill 20), including audio, visual, and/or control signals for controlling the speed and/or degree of incline of the treadmill. Ex. 1006, 19:8–12, 21:10–16, 21:42–48. According to Watterson, “the trainer may observe the user in real-time and control the user’s treadmill 12 remotely and in real-time via communication system 18.” *Id.* at 22:64–67. The trainer also “may selectively choose groups of participants based on various criteria, such as participant’s heart rates, and change those participants exercise program, while maintaining other participants at the original or different exercise level.” *Id.* at 49:7–11.

Petitioner contends Watterson qualifies as prior art under 35 U.S.C. §§ 102(a), (b), and (e) based on its filing and issue dates. Pet. 24. Patent Owner does not contest the prior art status of Watterson. For purposes of this Decision, we determine that Watterson qualifies as prior art at least under 35 U.S.C. § 102(b) because Watterson’s issue date of October 1, 2002, is more than one year before the earliest possible effective filing date of the challenged claims, which is March 3, 2008. Ex. 1001, codes (22), (60), (63); Ex. 1006, code (45).

We further discuss below the disclosure of Watterson in connection with the parties’ arguments.

## 2. *Disputed Limitations*

The parties dispute, *inter alia*, whether the combination of Watterson and Arrasvuori teaches the combined features of limitations 1[A], 1[D], 1[F], and 1[G], particularly whether the combination teaches determining whether a challenge has been met based on a comparison of athletic activity (1[F]) determined from athletic activity data (1[D]) received from a wirelessly-connected sensor worn on an appendage of a user (1[A]), and continuously generating and simultaneously communicating in real-time an interface indicating whether the challenge has been met based on that determined athletic activity (1[G]). *See* Pet. 68–81; PO Resp. 53–63.

For limitation 1[A], Petitioner contends “Watterson’s ‘*pulse* watch’ corresponds to the claimed wirelessly connected sensor” (Pet. 70 (emphasis added)), argues such watches are worn on user wrists (appendages) (Pet. 71), and relies on *heart-related data* generated by such a watch (Pet. 70, 74–75). But then for limitations 1[F] and 1[G], Petitioner contends Watterson teaches determining whether a challenge has been met based on a comparison of athletic activity derived from *distance, time, or speed data* of users generated by treadmills (or the like), not doing so based on a wirelessly connected sensor attached to a user’s wrist (appendage). *See* Pet. 78 (“During a ‘live on live’ personalized race, users ‘view[] graphical representations of the distan[ce], time, and speed of the other competitors.’ Specifically, users can view ‘a racing track that shows a relative position of each competitor one with another,’ i.e., whether the challenge was met.”); *see id.* at 78–81. Petitioner contends the combined teachings of Watterson and Arrasvuori provide a bridge via limitation 1[D] from the *heart-related data* generated by Watterson’s *pulse* watch to the *distance/time/speed data*

relied on by Watterson to determine whether a challenge has been met. *See* Pet. 74–75 (“Watterson’s software normalizes competing users’ velocities by their heart rates. Communication module 254 computing apparent velocity as a function of heart rate and actual velocity is a determination of ‘a first amount of athletic activity performed by the first user’ based on the received heart rate data;” “Arrasvuori[] discloses normalizing virtual performance according to competitor physical fitness levels.” (internal citations omitted)); *see id.* at 75–78.

Patent Owner emphasizes that, “[n]otably, ‘the received athletic activity data’ in limitation 1[D] refers to the athletic activity data received from the wirelessly-connected sensor in limitation 1[A],” and that “‘the first amount of athletic activity performed by the first user’ [in limitation 1[F]] refers to the athletic activity of the first user determined using the athletic activity data received from the wirelessly-connected sensor, as previously recited in limitations 1[A]/1[D].” PO Resp. 54. Patent Owner argues, “[i]n an attempt to show that Watterson teaches or suggests these limitations, [Petitioner] strings together two unrelated disclosures from Watterson, but [Petitioner’s] argument is internally inconsistent and contrary to Watterson’s disclosures.” *Id.* at 55. In particular, Patent Owner argues that “in both the race around the world and the personalized race options in Watterson, the amount of athletic activity that is compared to determine whether the challenge has been met is the *distance* that users travelled [obtained from a treadmill or the like],” not *heart-rate information* from Watterson’s *pulse* watch on a user’s wrist (appendage). *Id.* at 56–57.



Patent Owner further argues:

Apparently recognizing this problem, [Petitioner] argues with respect to limitation 1[D] that its proposed combination changes “how Watterson’s software determined user speed during a personalized race so that a user’s apparent velocity equaled the multiple of the user’s actual speed and heart rate divided by the constant.” See Petition, 71, 74–75. [Petitioner] proposed modification is a hindsight-based<sup>8</sup> attempt to incorporate athletic activity data from Watterson’s pulse watch to meet the claimed limitation. . . . However, as explained above, [Petitioner’s] theory is nowhere disclosed or suggested in Watterson, and [Petitioner] does not provide sufficient reasoning based on rational underpinning as to why [the skilled artisan] would have been motivated to make this modification. Ex. 2005, ¶95.

Watterson teaches that the race around the world and personalized race options involve a comparison of the *actual* distance travelled by the users, which can be determined based on a simple calculation using the belt speed multiplied by the duration of the workout. As explained in the next Section, [the skilled artisan] would have had no need to modify Watterson to incorporate the user’s heart rate to calculate an *apparent* velocity. Ex. 2005, ¶96.

PO Resp. 58–59. Patent Owner also argues that “neither [Petitioner] nor its expert establish a reasonable expectation of success for the proposed

---

<sup>8</sup> Patent Owner argues “[Petitioner] has not established that there was any reason for [the skilled artisan] to make the proposed Watterson-Arrasvuori combination, other than hindsight reconstruction of the claimed invention.” PO Resp. 62 (citing Ex. 2005 ¶ 105; *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1369 (Fed. Cir. 2012) (“Because each device independently operates effectively, a [POSITA], who was merely seeking to create a better device . . . would have no reason to combine the features of both devices into a single device.”); *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1334 (Fed. Cir. 2013)).

modification,” and “neither [Petitioner] nor its expert explain how [the skilled artisan] would have determined the constant that [Petitioner] proposes dividing the multiple of the user’s actual speed and heart rate by.” PO Resp. 59 (citing, *inter alia*, Ex. 1003 ¶¶ 115–16; Ex. 2005 ¶ 97). Patent Owner further argues Petitioner does not proffer a rational reason for why the skilled artisan would have combined Watterson and Arrasvuori to achieve the claimed invention. PO Resp. 60–63.

Petitioner responds:

[Petitioner’s] argument is that it would have been obvious [to] use data from Watterson’s pulse watch or Arrasvuori’s<sup>9</sup> computerized watch *together with* raw velocity data from Watterson’s treadmill to compute effective velocity. (Petition, 70-71, 74-78.) In this combination, Watterson’s system would (1) use data from a treadmill and data from a watch to determine a first user’s athletic activity (Limitation 1[D]), (2) receive the same data from a second user’s treadmill and watch (Limitation 1[E]), (3) determine whether a challenge was met based on those data (Limitation 1[F]), and (4) provide an interface based on the same (Limitation 1[G]). (*Id.*) As the claims do not require using *only* data from the claimed sensors, this combination met the claims. (*See* Ex. 1001, 40:42-42:33.)

Pet. Reply 21. Petitioner further responds that the skilled artisan “would have combined Watterson and Arrasvuori so that users could fairly compete

---

<sup>9</sup> For limitation 1[A], Petitioner alternatively contends “it would have been obvious to use Arrasvuori’s computerized watch, which included ‘heart rate meter hardware,’ as the claimed wirelessly connected sensor,” “[c]omputerized watches with sensors were well understood by the early-2000s,” and “[s]wapping Arrasvuori’s computerized watch for Watterson’s pulse watch was a ‘mere substitution of one element for another known in the field.’” Pet. 71 (citing Ex. 1005 ¶¶ 39, 40, 90; Ex. 1003 ¶ 109; Ex. 1007, 17:4–5, 42:10–16, 64:10–19, 84:12–26, Figs. 19, 44, 70); KSR, 550 U.S. at 416.

even if they had different levels of physical fitness.” Pet. Reply 22 (citing Pet. 74–78; Ex. 1003 ¶¶ 110–117; Ex. 2006, 105:19–106:4, 108:25–109:20). Petitioner argues that, even if Watterson already teaches three solutions to that problem, “all three solutions were deficient”: “None of Watterson’s modifying workout intensity during a group exercise class, scaling control, nor adjusting the difficulty of computer-competitor allowed users to compensate for their athletic ability level relative to others in a head-to-head competition.” *Id.* Petitioner argues “the fact that Watterson describes so many scaling features confirms the need for that feature in head-to-head competitions.” *Id.* Petitioner also counters Patent Owner’s challenge to motivation to combine, arguing in the context of “normalizing velocity” that “the equation is just one way to normalize velocity by heart rate; the point is that doing so would have been ‘trivial.’” Pet. Reply 23 (internal citations omitted). We agree with Patent Owner, and find Petitioner’s arguments unpersuasive and its overall obviousness challenge plagued by hindsight.

Claim 1, for example, requires (1) “receiv[ing] athletic activity data *from a wirelessly-connected sensor worn on an appendage of a first user*” (limitation 1[A]); (2) “determin[ing], *from the received athletic activity data*, a first amount of athletic activity performed by the first user” (limitation 1[D]); and comparing a “first amount of athletic activity” and “a second amount of athletic activity” (limitation 1[F]). We find these limitations plainly mean what they say—amounts of athletic activity performed by first and second users are determined from athletic activity data received from wirelessly-connected sensors worn on appendages of the users. As Patent Owner argues, Watterson simply does not teach this. *See* PO Sur-reply 18–22; PO Resp. 54–59; Pet. Reply 21 (“[that] Watterson’s pulse

watch alone could have supplied the claimed athletic activity data . . . was never [Petitioner’s] argument”); *see also* Ex. 2005 ¶ 94.

Nevertheless, Petitioner (1) selectively culls disclosure from Arrasvuori concerning “normalizing virtual performance according to competitor physical fitness levels” (Pet. 75); (2) selectively culls from Watterson (a) the “[pulse] data from Watterson’s pulse watch,” and (b) “raw velocity data” from Watterson’s treadmill (not worn on a user’s appendage); (3) argues the skilled artisan would have processed that combination of data to produce an “apparent velocity” for each user; and (4) argues the skilled artisan then would have combined these teachings to determine whether a challenge was met by considering users’ apparent velocities. Pet. Reply 21 (Petitioner arguing, “As the claims do not require using *only* data from the claimed sensors, this combination met the claims.”); Pet. 75–78 (discussing the “combination”). As indicated in our Institution Decision (Dec. 38), we agree with Patent Owner that Petitioner’s argument here is beset with hindsight (PO Resp. 53, 58–59; PO Sur-reply 18–22), and find that Petitioner’s proposed combined teachings amount to a hindsight-driven attempt to incorporate athletic activity data from Watterson’s pulse watch into a determination of athletic activity while using claim 1 as a guide.

The Board must “recognize that we cannot allow hindsight bias to be the thread that stitches together prior art patches into something that is the claimed invention.” *Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017) (“Without any explanation as to how or why the references would be combined to arrive at the claimed invention, we are left with only hindsight bias that *KSR* warns against.”); *see KSR*, 550 U.S. at 421 (2007) (“A factfinder should be aware, of course, of the distortion caused by

hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.”). “Any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant’s disclosure, such a reconstruction is proper.” *In re McLaughlin*, 443 F.2d 1392, 1313–14 (CCPA 1971).

In this case, (1) Watterson makes no mention or use of “apparent velocity” (which instead is a construct of Petitioner); (2) Watterson’s competitions track and compare *actual distance* traveled by users during races (*see* Ex. 1006, 40:48–61, 41:43–48); (3) when Watterson measures the “amount of athletic activity performed,” it relies on *the treadmill*—not a “wirelessly-connected sensor”—to measure that information (*see* Ex. 1006, 40:48–61, 41:43–48; Ex. 2006, 94:14–21); (4) Petitioner’s expert, Dr. Lynch, agrees that Watterson does not disclose a “pulse watch” in conjunction with any of its competitions (*see, e.g.*, Ex. 2006, 102:8–15); and (5) Watterson itself already solves the alleged problem that Arrasvuori’s compensation feature purports to solve, such as by scaling workout difficulty in the context of competitions among users (*see, e.g.*, Ex. 1006, 41:26–41). We find this context shows that Petitioner’s reason for combining Watterson and Arrasvuori to achieve the subject limitations lacks rational underpinning, and that Petitioner’s proposed combination of teachings is based on impermissible hindsight.

### 3. Conclusion

For the foregoing reasons, we conclude that Petitioner has not demonstrated by a preponderance of the evidence that any of claims 1, 7, 8,

11–13, 15, and 16 would have been unpatentable as obvious over the combination of Watterson and Arrasvuori.

#### IV. CONCLUSION

Petitioner *has* met its burden to show, by a preponderance of the evidence, that claims 1–4, 7, 8, and 11–16 are unpatentable as anticipated by and obvious over Arrasvuori, and that claim 13 is unpatentable as obvious over the combination of Arrasvuori and Ellis.<sup>10</sup>

Petitioner *has not* met its burden to show, by a preponderance of the evidence, that any of claims 1–20 are unpatentable as anticipated by Tagliabue; and that any of claims 1, 7, 8, 11–13, 15, and 16 are unpatentable as obvious over the combination of Watterson and Arrasvuori.

#### V. ORDER

Upon consideration of the record, it is

ORDERED that claims 1–4, 7, 8, and 11–16 of U.S. Patent No. 9,278,256 B2 are unpatentable;

FURTHER ORDERED that claims 5, 6, 9, 10, and 17–20 of U.S. Patent No. 9,278,256 B2 are not unpatentable; and

---

<sup>10</sup> 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. 16,654 (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).

FURTHER ORDERED that, because this is a Final Written Decision, parties to this proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

In summary:

<b>Claim(s)</b>	<b>35 U.S.C. §</b>	<b>Reference(s)</b>	<b>Claims Shown Unpatentable</b>	<b>Claims Not Shown Unpatentable</b>
1–20	102	Tagliabue		1–20
1–4, 7, 8, 11–16	102	Arrasvuori	1–4, 7, 8, 11–16	
1–4, 7, 8, 11–16	103	Arrasvuori	1–4, 7, 8, 11–16	
13	103	Arrasvuori, Ellis	13	
1, 7, 8, 11–13, 15, 16	103	Watterson, Arrasvuori		1, 7, 8, 11–13, 15, 16
<b>Overall Outcome</b>			1–4, 7, 8, 11–16	5, 6, 9, 10, 17–20

IPR2023-00189  
Patent 9,278,256 B2

FOR PETITIONER:

Alex S. Yap  
Mehran Arjomand  
Forrest McClellen  
Jean Nguyen  
MORRISON FOERSTER LLP  
ayap@mofo.com  
marjomand@mofo.com  
fmcclellen@mofo.com  
jnguyen@mofo.com

For PATENT OWNER:

Christopher J. Renk  
Michael J. Harris  
Nicholas M. Nyemah  
Aaron Bowling  
Lindsey Staubach  
ARNOLD & PORTER KAYE SCHOLER LLP  
chris.renk@arnoldporter.com  
michael.harris@arnoldporter.com  
nicholas.nyemah@arnoldporter.com  
aaron.bowling@arnoldporter.com  
lindsey.staubach@arnoldporter.com