

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PROTECT ANIMALS WITH SATELLITES, LLC,
Petitioner,

v.

ONPOINT SYSTEMS, LLC,
Patent Owner.

IPR2022-01141
Patent 9,922,522 B2

Before LYNNE H. BROWNE, DANIEL J. GALLIGAN, and
STACY B. MARGOLIES, *Administrative Patent Judges*.

BROWNE, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner, Protect Animals with Satellites, LLC, filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–18 of U.S. Patent No. 9,922,522 B2 (Ex. 1001, “the ’522 patent”). Patent Owner, OnPoint Systems, LLC, waived the filing of a preliminary response (Paper 6).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition and any response thereto shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Considering the Petition, as well as all supporting evidence, we determine that Petitioner shows a reasonable likelihood that at least one of the challenged claims is unpatentable. We institute *inter partes* review.

A. *Real Parties in Interest*

Petitioner states that “Protect Animals With Satellites, LLC is the real party-in-interest.” Pet. 73. Patent Owner states that it, OnPoint Systems, LLC, is the real party in interest. Paper 4, 2.

B. *Related Matters*

The parties identify the following related matter: *OnPoint Systems, LLC v. Protect Animals with Satellites, LLC*, C.A. No. 4:20-cv-657 (E.D. Tex.). Pet. 73; Paper 4, 2. Petitioner states that in addition to the ’522 patent, U.S. Patent Nos. 9,848,295, 9,538,329, and 9,924,314 were also asserted against Petitioner in this case. Pet. 73–74. The claims of U.S. Patent No. 9,924,314 are challenged in IPR2021-01139.

C. *The ’522 patent*

The ’522 patent “relates to containing and tracking a subject, e.g. an animal, a human, or an object such as a vehicle, using satellite positioning

data and more specifically to such a system which uses additional data to augment the satellite positioning data to improve positioning accuracy.” Ex. 1001, 1:18–22. The ’522 patent explains that “[c]ontainment systems for animals/pets, in particular dogs, have been used for several decades,” such as “the buried wire fence system, which uses a stimulus collar worn by the pet and the containment area is defined by a buried wire.” *Id.* at 1:26–30. Such systems, however, have certain negative aspects such as requiring a control box that is located within the pet owner’s home, is difficult to install, is expensive, and is costly to remove or modify. *Id.* at 1:39–48. A wireless pet containment system that uses Global Positioning System (GPS), is also available on the market. *Id.* at 2:27–32. According to the ’522 patent such systems overcome some of these disadvantages but “still require a base station and professional installation.” *Id.* These GPS and other satellite systems use “GPS/other satellite system receivers [that] receive and lock onto multiple satellites to determine location on earth,” but such systems may have “inherent positioning errors that come with the technology.” *Id.* at 2:35–38. The ’522 patent further explains that there are known pet collar tracking and location devices that “use[] the Global Navigation Satellite System (GNSS)” but GNSS “is limited by coverage area and is not very accurate.” *Id.* at 3:1–6. The ’522 patent purports to solve these disadvantages and problems with current tracking pet collars that “do not account for such environments and can cause large inaccuracies that misguide pet owners to their pets” by providing pet owners “accurate technology and techniques to be able to find their pets as efficiently as possible.” *Id.* at 3:21–25.

Figure 1 of the '522 patent, reproduced below, depicts a map of a containment area established by using its device and method of containing and tracking a subject.

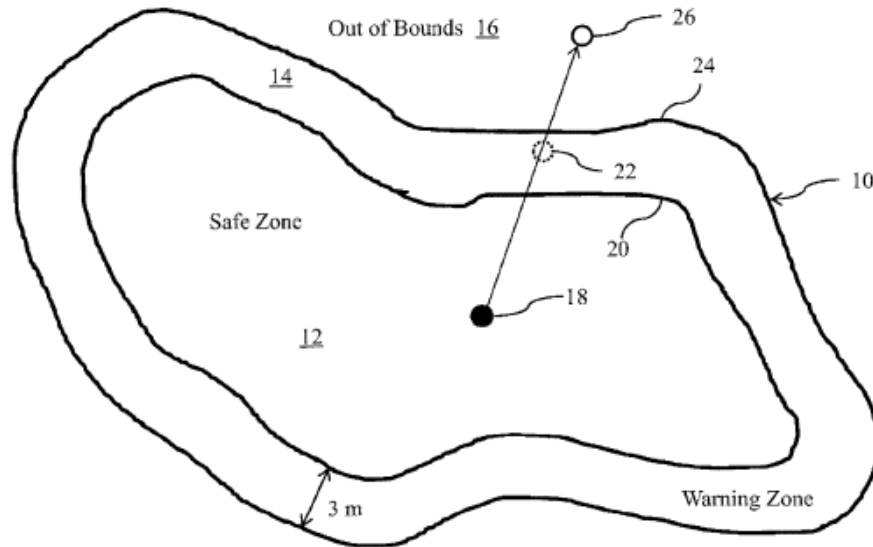


Fig. 1

Figure 1 shows an established and activated containment area 10 to track a pet and keep it within the containment area, which includes safe zone 12 and warning zone 14. Ex. 1001, 6:31–37. Any area outside of containment area 10 is considered to be out of bounds zone 16. *Id.* at 6:37–38.

A collar worn by the pet can track and control movement within these zones. *Id.* at 6:39–53. The collar includes processing unit 52, which is in communication with user interface unit 54, communication unit 56, static/audible correction unit 58, and precision positioning unit 60. *Id.* at 7:25–34. Processing unit 52 includes microprocessor 70 to provide overall control of the electronics and functionality of the collar and memory 72, which stores software to execute the functionality of the collar as well as to

store the maps of containment areas defined by the user. *Id.*

Communication unit 56 includes a cellular communications device 80, “which may further comprise a 2G cellular—Global System for mobile Communication (GSM)/General Packet Radio Service (GPRS) and 3G cellular—Universal Mobile Telecommunications System (UMTS)/High Speed Packet Access (HSPA)” for “providing critical alerts and information to the pet owner” such as pet location and other information. *Id.* at 7:41–52.

Correction unit 58, through processing unit 52, can issue audible corrections via a speaker unit and static corrections via static circuit for “containment and behavioral reinforcements.” *Id.* at 7:60–64.

Precision positioning unit 60 “is comprised of a global navigation satellite system receiver, such as a triple constellation concurrent GNSS receiver” and “an Attitude and Heading Reference System (AHRS: 3-axis gyroscope, 3-axis accelerometer, and 3-axis magnetometer)” in which the GNSS receiver “is a triple band receiver that is capable of tracking three (3) constellations concurrently: GPS, GLONASS, and GALILEO” to allow the GNSS receiver “to lock onto as many satellite vehicles as possible.” *Id.* at 7:65–8:7.

The ’522 patent states that its “system will operate in a containment mode and utilize a subset of algorithms and augmented GNSS positioning information.” *Id.* at 6:32–35. The ’522 patent further states that the true position of “the pet must be known at all times during operation” and “[i]n order to correct for real-time errors, the real-time stream of GNSS positioning information is augmented with data from the Attitude and Heading Reference System (AHRS) . . . of the precision positioning unit.” *Id.* at 16:32–42. The AHRS can include a gyroscope and magnetometer which are used to track speed and heading, compensate for any heading errors due to severe multipath of satellite signals, and “double check whether

the pet is moving or stationary.” *Id.* at 16:51–57. “The AHRS subsystem runs on an Attitude Engine and Extended Kalman Filter to provide the most accurate sensor data output” in which a filtered accelerometer output can be used to reliably determine if the pet is in motion or stationary. *Id.* at 17:13–17. According to the ’522 patent, “[a]ccelerometers, due to their nature, measure both gravitational and linear acceleration in m/s/s” but “[h]ere, only linear acceleration is needed,” which is used to derive a linear displacement of the pet if it actually moved. *Id.* at 17:20–23.

D. Illustrative Claims

Petitioner challenges claims 1–18. Pet. 1. Claims 1 and 10 are independent. Ex. 1001, 19:49–67, 21:42–59. Claim 1, with Petitioner’s limitation numbering included, is reproduced below. *See* Ex. 1017 (Petitioner’s numbering of the claims of the ’522 patent).

[1.Preamble] A device configured to be disposed on a subject for use by an operator for maintaining the subject within a containment zone, the device comprising:

[1.A] A positioning unit for generating satellite positioning data corresponding to a position of the subject and motion data corresponding to the motion of the subject;

[1.B] A memory for storing containment zone data defining the containment zone[;]

[1.C] A processor unit, in communication with the positioning unit and the memory, configured to determine from the motion data, a linear acceleration of the subject and configured to determine from the satellite positioning data, the linear acceleration of the subject, and the containment zone data if the subject is inside the containment zone or if the subject has exited the containment zone; and

[1.D] A correction unit, in communication with the processor unit, configured to issue the subject a stimulus when the subject exits the containment zone.

Ex. 1001, 19:49–67.

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–4, 7–14, 17, 18	102	Rosing ¹
1, 4, 5, 7–10, 14, 15, 17, 18	102	Shaprio ²
2, 3, 11, 12, 13	103	Shaprio or Rosing & Trenkle ³ or Ublox ⁴ or GNSS Intro ⁵
6, 16	103	Shaprio or Rosing & Giunta ⁶ or Kim ⁷ or Swanson ⁸
1, 7, 8, 10, 17, 18	103	McFarland ⁹ & BNO055 ¹⁰ or

¹ Rosing et al., U.S. Patent Publication No. 2010/0097208 A1, published April 22, 2010 (Ex. 1007) (“Rosing”).

² Shaprio et al., U.S. Patent Publication No. 2016/0150362 A1, published May 26, 2016 (Ex. 1008) (“Shaprio”).

³ Trenkle et al., U.S. Patent No. 9,173,380 B2, published November 3, 2015 (Ex. 1009) (“Trenkle”).

⁴ *u-blox 7 Receiver Description Including Protocol Specification V14*, u-blox AG, February 1, 2013 (Ex. 1010) (“Ublox”).

⁵ *An Introduction to GNSS – GPS, GLONASS, BeiDou, Galileo and other Global Navigation Satellite Systems*, 2nd edition, NovAtel, Inc., 2015 (Ex. 1003) (“GNSS Intro”).

⁶ Giunta, U.S. Patent No. 8,448,607 B2, published May 28, 2013 (Ex. 1012).

⁷ Kim et al., U.S. Patent Publication No. 2013/0157628 A1, published June 20, 2013 (Ex. 1014) (“Kim”).

⁸ Swanson et al., U.S. Patent Publication No. 2007/0204804 A1, published Sept. 6, 2007 (Ex. 1025) (“Swanson”). We note that in the Overview of the Prior Art section of the Petition, Petitioner identified Swanson as Exhibit 1027 rather than Exhibit 1025. *See* Pet. 20.

⁹ McFarland et al., U.S. Patent Publication No. 2013/0127658 A1, published May 23, 2013 (Ex. 1004) (“McFarland”).

¹⁰ *BNO055 Intelligent 9-axis absolute orientation sensor Data sheet*, Bosch, November 2014 (Ex. 1013) (“BNO055”).

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
		InvenSense ¹¹
2, 3, 11, 12	103	McFarland & BNO055 or InvenSense & Trenkle or Ublox or GNSS Intro
4, 9, 13, 14	103	McFarland & BNO055 or InvenSense & Trenkle, Kim, or Jessop ¹²
5, 6, 15, 16	103	McFarland & BNO055 or InvenSense & Giunta or Kim or Swanson
1, 5–10, 13, 15–18	103	Giunta & BNO055 or InvenSense
2, 3, 11, 12	103	Giunta & BNO055 or InvenSense & Trenkle or Ublox or GNSS Intro
4, 14	103	Giunta & BNO055 or InvenSense & Trenkle, Kim, or Jessop

Pet. 1–2. In addition to the references listed above, Petitioner relies on the Declaration of Vijay K. Madiseti, Ph.D. (Ex. 1016).

¹¹ *Motion Sensors Introduction*, InvenSense Corp., 2011 (Ex. 1005) (“InvenSense”).

¹² Jessop, U.S. Patent Publication No. 2013/0271281 A1, published October 17, 2013 (Ex. 1015).

II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus. Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co. v. United States*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner proposes that a person of ordinary skill in the art “would have a bachelor’s degree in Electrical or Computer Engineering, Computer Science, or a related field and have three or more years of experience in the field.” Pet. 6 (citing Ex. 1016 ¶¶ 34–39).

For purposes of this Decision, we adopt Petitioner’s proposal, with the exception of the open-ended language “or more,” as reasonable and consistent with the prior art.

B. *Claim Construction*

In *inter partes* reviews, the Board interprets claim language using the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). See 37 C.F.R. § 42.100(b). Under that standard, we generally give claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. See *Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms

under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

Petitioner proposes construction of the term “linear acceleration of the subject” as “acceleration that does not include acceleration due to gravity.” Pet. 4–6. We do not find construction of this term or any other term necessary at this time. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. Ground One: Anticipation of Claims 1–4, 7–14, 17, and 18 by Rosing

1. Overview of Rosing

Rosing “relates in general to a method and system for monitoring and tracking the location and travel pattern of a remote user, vehicle or other asset type” and “relates particularly to autonomous reporting of asset activity by means of a navigation system beacon device.” Ex. 1007 ¶ 1. Rosing explains that “[b]ecause of the frequency of travel and the growing dependence on information processing devices, in societies around the world both workplaces and their hard assets are increasingly mobile or portable.” *Id.* ¶ 2. As an example, Rosing asserts that a problem exists in the pet industry in which animals “commonly leave their home turf to wander neighborhoods or even go far afield.” *Id.* ¶ 14. In response, according to Rosing, “[a]n emerging product category is tracking devices that can be attached to pet collars” that use the technology of a “RoamEO” product that “combines GPS with a 154.60 MHz band to provide transmissions of location information from up to a mile away even in the absence of cell

phone coverage” or a “related RoamEO product” that “displays the pet’s exact location, current movements and velocity.” *Id.* Rosing asserts that “[e]xternal devices such as GPS-equipped tags may be damaged during handling, [and] moreover they need a clear radio path to satellites.” *Id.* ¶ 15. Rosing purports to solve such problems by enabling users “to audit and as necessary recover their assets directly using real-time information.” *Id.* ¶ 16.

Rosing discloses “a device for tracking a mobile or portable asset” that includes a “navigation system beacon device (NSBD)” “stored in, on or near the asset” which “is turned on under the control of an accelerometer in response to movement of the asset.” *Id.* ¶ 17. In Rosing, “[a] signal providing the asset’s position and or motion information is then transmitted from the NSBD to a user or client optionally by routing the information to and through a central server.” *Id.* A client can receive the information via a report by way of “telephone, email, text message, voice message, transmission to a hand-held navigational device, posted entry at a client-accessible website, or other media.” *Id.* ¶ 18. The tracking device includes “a component that can transmit position information.” *Id.* ¶¶ 35, 38.

Rosing discloses that “GPS and similar devices rely on navigation guidance systems, broadly known as the global navigation satellite system (GNSS).” *Id.* ¶ 118. In Rosing, “GNSS Augmentation” is used to incorporate external information “to improve accuracy, availability, or reliability of satellite broadcasts” and augmentation systems “include the WAAS, EGNOS, MSAS, Differential GPS, and Inertial Navigational Systems [(INS)].” *Id.* ¶ 123. An accelerometer can be used “for measuring reaction forces that are generated by acceleration and[/]or gravity.” *Id.* ¶ 133. The accelerometers track direction and angle for use in the INS, which “employs a computer and motion sensors—particularly a combination

of accelerometers and optionally a device such as gyroscope—to continuously track the position, orientation, and velocity (direction and speed of movement) of a vehicle without the need for external references.” *Id.* ¶ 169. The INS “can detect a change in its velocity, orientation (rotation about an axis) and geographic direction (vector) by measuring the linear and angular accelerations.” *Id.* ¶ 170. Rosing further discloses that communication can be accomplished by using “a cellular phone and or assisted GPS (‘aGPS’) system which is in communication with a server and a GPS/INS system.” *Id.* ¶ 261.

2. *Claims 1 and 10*

Claim 1 recites “[a] device configured to be disposed on a subject for use by an operator for maintaining the subject within a containment zone.” Claim 10 recites “[a] method for an operator to maintain a subject within a containment zone.” The claims recite similar limitations. In its challenge to claim 10, Petitioner refers to its challenge to claim 1. Pet. 24. We discuss the limitations of claim 1 and understand Petitioner’s position to be the same for the corresponding limitations of claim 10.

a. *[1.Preamble] A device configured to be disposed on a subject for use by an operator for maintaining the subject within a containment zone, the device comprising:*

Petitioner asserts that “*Rosing* discloses a ‘method and system for monitoring and **tracking the location** and travel pattern of a **remote user**, vehicle or other asset type.[.]’” Pet. 20 (quoting Ex. 1007 ¶ 1). According to Petitioner, “*Rosing* further notes that even before its filing date in 2009, tracking devices were attached to pet collars, such as ‘the RoamEO [that] combines GPS with a 154.60 MHz band to provide transmission of location information from up to a mile away even in the absence of cell phone

coverage.” *Id.* at 21 (alteration by Petitioner; quoting Ex. 1007 ¶ 14).
Petitioner asserts further that Rosing’s “system can provide ‘alerts’ when they sense “use outside the default boundaries.” *Id.* (citing Ex. 1007 ¶ 101).

b. [1.A] A positioning unit for generating satellite positioning data corresponding to a position of the subject and motion data corresponding to the motion of the subject;

Petitioner asserts that “*Rosing* describes the system as including ‘GPS and similar devices [that] rely on navigation guidance systems, broadly known as the global navigation satellite system (GNSS)’” and “*Rosing* also discloses that the system includes ‘GNSS Augmentation’ such as WAAS, EGNOS, MSAS, Differential GPS, and ***Inertial Navigational Systems.***”
Pet. 21 (alteration by Petitioner; quoting Ex. 1007 ¶¶ 118, 123).

c. [1.B] A memory for storing containment zone data defining the containment zone

Petitioner asserts that “*Rosing* describes that the ‘NSBD’ devices can include a ‘data storage unit’” and that they “can determine ‘whether the vehicle stayed within defined boundaries.’” Pet. 22–23 (quoting Ex. 1007 ¶¶ 101, 241, 280).

d. [1.C] A processor unit, in communication with the positioning unit and the memory, configured to determine from the motion data, a linear acceleration of the subject and configured to determine from the satellite positioning data, the linear acceleration of the subject, and the containment zone data if the subject is inside the containment zone or if the subject has exited the containment zone;

Petitioner asserts that “*Rosing* discloses a combined ‘GPS/INS’ system for location determination and specifically states that the INS system determines linear acceleration and integrates that data with the original

position determined by the GPS system.” Pet 23. According to Petitioner, “*Rosing* discloses that ‘[t]here is typically a linear accelerometers [sic] to measure motion in space along each of three axes’” and “that ‘[c]ombining INS output data with output data from another navigation system such as a GPS system can minimize and stabilize drift in position and velocity computations for either or both systems.’” *Id.* (quoting Ex. 1007 ¶¶ 171–172). Petitioner asserts further that *Rosing*’s “devices can determine ‘whether the vehicle stayed within defined boundaries’ and that they can prove ‘alerts’ when they sense ‘use outside the default boundaries.’” *Id.* at 24 (quoting Ex. 1007 ¶¶ 280, 101).

e. [1.D] A correction unit, in communication with the processor unit, configured to issue the subject stimulus when the subject exits the containment zone.

Petitioner asserts that “*Rosing* discloses that the described ‘NSBD’ were configured to ‘sound an alarm’ when various conditions, including boundary violations, occurred.” Pet. 24 (quoting Ex. 1007 ¶ 282¹³).

f. Determination for Claims 1 and 10

We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claims 1 and 10 on Ground One.

3. Claims 2 and 11

Petitioner addresses the limitations of claim 2 and 11 together. Pet. 25–26. We discuss claim 2 and understand Petitioner’s position to be the same for the corresponding limitations of claim 11.

¹³ Petitioner cites paragraph 35 of *Rosing*, but the quoted material appears in paragraph 282.

- a. wherein the positioning unit includes a global navigation satellite system receiver in communication with a plurality of satellite constellations to produce the satellite positioning data*

Petitioner asserts that “*Rosing* describes the use of a ‘GNSS-2’ receive[r] that has multiple frequencies (e.g., ‘L1 and L2’).” Pet 25 (quoting Ex. 1007 ¶ 119). Petitioner asserts that “*Rosing* further describes that there are a plurality of satellite systems available (e.g., ‘the Russian GLONASS and the European Union’s Galileo. Regional satellite navigation systems include China’s *Beidou* navigation system titled “Compass” based on 30 Medium Earth Orbit satellites and five geostationary satellites, India’s IRNSS under development, and Japan’s QZSS system.’).” *Id.* (quoting Ex. 1007 ¶ 118¹⁴). Given these disclosures, Petitioner asserts that “[a] [person of ordinary skill (“POSA”)], at the time of invention, would have known that the various satellite systems operated on different frequencies” and “would recognize that *Rosing* discloses the use of a multi-frequency device capable of receiving signals *from multiple constellations*.” *Id.* at 25 (citing Ex. 1016 ¶ 173).

- b. wherein the positioning unit further includes an attitude and heading reference system configured to provide to the processor unit attitude and reference data regarding the subject; wherein the position data includes the attitude and reference data.*

Petitioner asserts that *Rosing* “describes the use of an attitude and heading reference system in the form of an inertial navigation system.”

Pet. 25. Petitioner adds that

Rosing describes that “accelerometers are used to track direction and angle include their use in an inertial navigation system (INS).

¹⁴ Petitioner cites paragraph 119 of *Rosing*, but the quoted material appears in paragraph 118.

The INS employs a computer and motion sensors—particularly a combination of accelerometers and optionally a device such as gyroscope—to continuously track the position, orientation, and velocity (direction and speed of movement) of a vehicle without the need for external references.”

Pet. 25–26 (quoting Ex. 1007 ¶ 169).

c. Determination for Claims 2 and 11

We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claims 2 and 11 on Ground One.

4. Claims 3 and 12

Petitioner addresses the limitations of claims 3 and 12 together. Pet. 26. We discuss claim 3 and understand Petitioner’s position to be the same for the corresponding limitations of claim 12. Claim 3 requires an attitude and heading reference system comprising “one or more of a gyroscope, accelerometer, and a magnetometer.” Ex. 1001, 20:9–11.

Petitioner asserts that Rosing teaches a device that uses accelerometers to track direction and angle in its INS. Pet. 26 (citing Ex. 1007 ¶ 169). We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine the Petitioner has demonstrated a reasonable likelihood of prevailing for claims 3 and 12 on Ground One.

5. Claims 4 and 14

Petitioner addresses the limitations of claims 4 and 14 together. Pet. 26–27. We discuss claim 4 and understand Petitioner’s position to be the same for the corresponding limitations of claim 14. Claim 4 requires a “a communication unit, in communication with the processor unit, wherein the communication unit includes a cellular communications device

configured to transmit an alert to an electronic device of the operator by way of a cellular communication network when the subject exits the containment zone.” Ex. 1001, 20:12–17.

Petitioner asserts that Rosing discloses reporting location data and providing an alert when the device is outside certain boundaries and further asserts “Rosing discloses that ‘[t]he report to the client may be by telephone, email, text message, voice message, transmission to a hand-held navigational device, posted entry at a client-accessible website, or other media.” Pet. 26–27 (alteration by Petitioner; citing Ex. 1007 ¶¶ 17, 18, 35 101; quoting Ex. 1007 ¶ 18). According to Petitioner, “*Rosing* describes that “the transmission is accomplished by coupling assisted GPS (aGPS), **cellular telephone technology**, and INS or other accelerometer-based circuit with a switching device that toggles transmission capability “on” when a potential “in-flight” condition is detected.” *Id.* (quoting Ex. 1007 ¶ 249).

We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claims 4 and 14 on Ground One.

6. *Claims 7, 8, 17, and 18*

Petitioner addresses the limitations of claims 7, 8, 17, and 18 together. Pet. 27–28. We discuss claims 7 and 8, and understand Petitioner’s position to be the same for the corresponding limitations of claims 17 and 18. Claim 7 requires a subject that is “one of an animal, a human, or an object.” Ex. 1001, 20:32–33. Claim 8 requires a device that “includes a collar.” Ex. 1001, 20:34–35.

Petitioner asserts that “*Rosing* discloses a ‘method and system for monitoring and **tracking the location** and travel pattern of a **remote user**, vehicle or other asset type.’” Pet. 27 (quoting Ex. 1007 ¶ 1). Petitioner also

asserts that “Rosing further describes that ‘[a]n emerging product category is tracking devices that can be attached to *pet collars*.’” *Id.* (alteration by Petitioner; quoting Ex. 1007 ¶ 14).

We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claims 7, 8, 17, and 18 on Ground One.

7. *Claims 9 and 13*

Petitioner addresses the limitations of claims 9 and 13 together. Pet. 28. We discuss claim 9 and understand Petitioner’s position to be the same for the corresponding limitations of claim 13. Claim 9 requires a device that includes “a communication unit, in communication with the processor unit, wherein the communication unit includes a Bluetooth low energy (BLE) module configured to communicate with the electronic device of the operator or a BLE fob when the user is in close proximity to the subject wearing the device.” Ex. 1001, 20:36–41.

Petitioner asserts that “*Rosing* disclose that “[i]n one embodiment of transmission and reporting, when the NSBD comes within a 32 foot range *of a Bluetooth™ device* there is ‘connection made’ allowing automatic notification of the client.” Pet. 28 (first and third alterations by Petitioner; quoting Ex. 1007 ¶ 226). According to Petitioner, “when the NSBD is ‘ACTIVE/ON’ in that range of distance, the user will be able to detect the presence via software applications run to ‘watch’ for the appropriately ‘named Bluetooth™ device’” and “[t]he NSBD will then contact the central server and or the client through the Bluetooth™ device.” *Id.*

We have reviewed Petitioner's assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claims 9 and 13 on Ground One.

8. *Determination for Ground One*

Based on the current record, we find Petitioner's assertions for claims 1–4, 7–14, 17, and 18 on Ground One to be sufficiently persuasive and supported to justify institution of review.

D. *Ground Two: Anticipation of Claims 1, 4, 5, 7–10, 14, 15, 17, and 18 by Shaprio*

1. *Overview of Shaprio*

Shaprio discloses “[a]n identity, geolocation (e.g., position), and/or health status monitoring apparatus that has a thin profile, is low cost, and is curved.” Ex. 1008 ¶ 1. Shaprio discloses “geolocation, identity, position, and/or health monitoring devices and systems” that “may be configured as a small chip that is attachable or otherwise capable of being mounted to a substrate, for easy transport, and/or may be configured to be coupled with or otherwise made part of a secondary article,” such as a bracelet. *Id.* ¶ 6.

Shaprio discloses that its “geolocation system may include one or more technologies such as a Global Navigation Satellite System (GNSS)” and exemplary GNSS systems that “enable accurate geolocation can include GPS in the United States, Globalnaya navigatsionnaya sputnikovaya sistema (GLONASS) in Russia, Galileo in the European Union, and/or BeiDou System (BDS) in China.” *Id.* ¶ 39. Shaprio's system includes a controlling device that “may alternatively have the ability to actively track the location of the geolocation device” and “[s]uch active tracking may be accomplished via a dedicated software application on the controlling device and/or tracking device, a software application running on remote server, or via a

website.” *Id.* ¶ 52. Shaprio indicates that “[g]eolocation can also be determined by using inertial sensors (e.g. accelerometers and gyroscopes[]) either in addition to, or in place of GNSS” and “information from inertial sensors associated with the bracelet” and “an inertial sensor data on the current angular velocity and the current linear acceleration of a child and/or his or her movements can be used to determine the angular velocity and inertial position of a bracelet having such sensors.” *Id.* ¶ 76.

2. *Claims 1 and 10*

In its challenge to claim 10, Petitioner refers to its challenge to claim 1. Pet. 31. We discuss the limitations of claim 1 and understand Petitioner’s position to be the same for the corresponding limitations of claim 10.

a. [1.Preamble] A device configured to be disposed on a subject for use by an operator for maintaining the subject within a containment zone, the device comprising:

Petitioner asserts that “*Shaprio* discloses a ‘controlling device’ with the ‘ability to **actively track** the location of the geolocation device such as by indicating the time and the distance between the user and the geolocation device and may chart the same such as on an electronic graph, table, or map.’” Pet. 28 (quoting Ex. 1008 ¶ 52). Petitioner also argues that *Shaprio* discloses geofencing capabilities of the device. Pet. 29 (citing Ex. 1008 ¶ 109).

b. [1.A] A positioning unit for generating satellite positioning data corresponding to a position of the subject and motion data corresponding to the motion of the subject;

Petitioner asserts that “*Shaprio* describes a ‘geolocation device’ that includes ‘a satellite based geolocation system’ such as ‘a Global Navigation

Satellite System (GNSS).” Pet. 29 (quoting Ex. 1008 ¶ 39). Petitioner asserts further that “*Shaprio* discloses that ‘**[g]eolocation can also be determined by using inertial sensors** (e.g. accelerometers and gyroscopes; see *infra*) either **in addition to**, or in place of **GNSS**, RF fingerprinting, or other location systems.’” *Id.* (alteration by Petitioner; quoting Ex. 1008 ¶ 76).

c. [1.B] A memory for storing containment zone data defining the containment zone:

Petitioner asserts that “*Shaprio* describes that the device may include ‘a memory.’” Pet. 29 (citing Ex. 1008 ¶ 106). Specifically, Petitioner asserts that *Shaprio*’s devices “can determine ‘if the subservient device 1 leaves the perimeter’ and that they can provide ‘a warning cascade’ if such a determination is made.” *Id.* at 30 (citing Ex. 1008 ¶ 117). According to Petitioner, “[i]t is inherent that in order to enable such functionality, the boundaries must be stored in a memory.” *Id.* (citing Ex. 1016 ¶ 346).

d. [1.C] A processor unit, in communication with the positioning unit and the memory, configured to determine from the motion data, a linear acceleration of the subject and configured to determine from the satellite positioning data, the linear acceleration of the subject, and the containment zone data if the subject is inside the containment zone or if the subject has exited the containment zone;

Petitioner asserts that *Shaprio* “describes that ‘**information from inertial sensors associated with the bracelet disclosed herein can be used to calculate relative location using dead reckoning with respect to a previous location**, or absolute location with respect to a last-known absolute location.’” Pet. 30 (quoting Ex. 1008 ¶ 76). Petitioner notes *Shaprio*’s disclosure that ““inertial sensor data on the current angular velocity and **the**

current linear acceleration of a child and/or his or her movements ***can be used to determine the angular velocity and inertial position*** of a bracelet having such sensors.” *Id.* (quoting Ex. 1008 ¶ 76). To address the “containment zone” recitations of this limitation, Petitioner refers to Shaprio’s disclosure of issuing a warning when a device leaves a perimeter. Pet. 30 (citing Ex. 1008 ¶ 117).

e. [1.D] A correction unit, in communication with the processor unit, configured to issue the subject stimulus when the subject exits the containment zone.

Petitioner asserts that “*Shaprio* describes that the devices can determine ‘if the subservient device 1 leaves the perimeter’ and that they can provide ‘a warning cascade’ if such a determination is made.” Pet. 31 (quoting Ex. 1008 ¶ 117).

f. Determination for Claims 1 and 10

We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claims 1 and 10 on Ground Two.

3. Claims 4 and 14

Petitioner addresses the limitations of claims 4 and 14 together. Pet. 31–32. We discuss claim 4 and understand Petitioner’s position to be the same for the corresponding limitations of claim 14. Claim 4 requires “a communication unit, in communication with the processor unit, wherein the communication unit includes a cellular communications device configured to transmit an alert to an electronic device of the operator by way of a cellular communication network when the subject exits the containment zone.” Ex. 1001, 20:12–17.

Petitioner refers to Shaprio’s disclosure of issuing a warning if a device leaves a perimeter and further notes Shaprio’s disclosure that “transmission of the ‘data related to a determined position, location, and/or motion’ . . . can occur ‘over a radio frequency, *or a cellular network*.’” Pet. 31–32 (citing Ex. 1008 ¶ 117; quoting Ex. 1008 ¶ 104¹⁵). According to Petitioner, “to transmit the location data over a cellular network, the device would have to include a cellular communications device, as required by the claims.” *Id.* at 32 (citing Ex. 1016 ¶ 370).

We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claims 4 and 14 on Ground Two.

4. *Claims 5 and 15*

Petitioner addresses the limitations of claims 5 and 15 together. Pet. 32–33. We discuss claim 5 and understand Petitioner’s position to be the same for the corresponding limitations of claim 15. Claim 5 requires a correction unit including

a static circuit for issuing the stimulus to the subject, wherein the stimulus includes a static correction when the subject exits the containment zone, and wherein the correction unit further includes an audio speaker for issuing an audible correction when the subject is within a predetermined distance of a perimeter of the containment zone.

Ex. 1001, 20:19–25.

Petitioner asserts that in Shaprio the master device sets up a perimeter a given distance away from the master device and “‘if the servant device 1 approaches and/or exceeds that distance, an alarm can be set to go off.’”

¹⁵ Petitioner cites paragraph 52 of Shaprio, but the quoted material appears in paragraph 104.

Pet. 32 (citing Ex. 1008 ¶ 109). Petitioner asserts further that information can “be communicated to the user, such as in a visual, ***auditory***, or ***tactile manner***, such as via a display, a graphic, a light. e.g., an LED light, light sequence, or series of light, . . . a sounded alarm or bell, or a vibration, and the like.” *Id.* at 32–33 (quoting Ex. 1008 ¶ 14). According to Petitioner, a person of ordinary skill in the art “would recognize, and OnPoint admits, that a static circuit is a well-known type of tactile circuit.” *Id.* at 33.

We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claims 5 and 15 on Ground Two.

5. *Claims 7 and 17*

Petitioner addresses the limitations of claims 7 and 17 together. Pet. 33. We discuss claim 7 and understand Petitioner’s position to be the same for the corresponding limitations of claim 17. Claim 7 requires a subject that is “one of an animal, a human, or an object.” Ex. 1001, 20:32–33.

Petitioner asserts that Shaprio discloses an apparatus that ““may be configured so as to be worn by a user, such as a child whose location is to be monitored and/or tracked.”” Pet. 33 (quoting Ex. 1008 ¶ 89).

We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claims 7 and 17.

6. *Claims 8 and 18*

Petitioner addresses the limitations of claims 8 and 18 together. Pet. 33. We discuss claim 8, and understand Petitioner’s position to be the same for the corresponding limitations of claim 18. Claim 8 requires a device that “includes a collar.” Ex. 1001, 20:34–35.

Petitioner asserts that *Shaprio* describes an apparatus that “may be ‘configured so as to be part of, or otherwise coupled with, a piece of adornment, such as a piece of jewelry, a piece of clothing, a key chain, **collar**, and the like.’” Pet. 33 (quoting Ex. 1008 ¶ 89).

We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claims 8 and 18.

7. *Claim 9*

Claim 9 requires a device including “a communication unit, in communication with the processor unit, wherein the communication unit includes a Bluetooth low energy (BLE) module configured to communicate with the electronic device of the operator or a BLE fob when the user is in close proximity to the subject wearing the device.” Ex. 1001, 20:36–41. Petitioner asserts that “*Shaprio* describes the device as being able to communicate in a variety of ways including via Bluetooth.” Pet. 33–34. Petitioner asserts further that “*Shaprio* discloses that ‘selecting a “child tracker” setting may utilize GPS and/or cellular signals more typically available for outdoor use, while selecting a “**proximity**” **setting** may use only a device-specific type of communication (e.g. **Bluetooth**® Smart).”’ *Id.* at 34 (alterations by Petitioner; quoting Ex. 1007 ¶ 58).

We have reviewed Petitioner’s assertions and supporting evidence. Based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing for claim 9.

8. *Determination for Ground Two*

Based on the current record, we find Petitioner’s assertions for claims 1, 4, 5, 7–10, 14, 15, 17, and 18 on Ground Two to be sufficiently persuasive and supported to justify institution of review.

E. Grounds Three–Six:

Pursuant to the Supreme Court’s decision in *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018) and pursuant to 37 C.F.R. 42.108(a), when we institute trial, we institute review of all challenged claims on all asserted grounds. Having determined that institution is warranted as to 16 of the 18 challenged claims in this proceeding based on anticipation Grounds One and Two, we do not address Grounds Three–Six at this time.

III. CONCLUSION

After considering the evidence and arguments presented in the Petition, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one of the challenged claims, and thus, we institute an *inter partes* review of all challenged claims on all presented challenges. 37 C.F.R. § 42.108(c); *SAS Inst.*, 138 S. Ct. 1348 at 1359–60; *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute to require “a simple yes-or no institution choice respecting a petition, embracing all challenges included in the petition”).

At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim or any underlying factual and legal issues.

III. ORDER

In consideration of the foregoing, it is hereby

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–18 of U.S. Patent No. 9,922,522 B2 is instituted with respect to the grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 9,922,522 B2 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

IPR2022-01141
Patent 9,922,522 B2

FOR PETITIONER:

Gregory Bishop
Haden Marrs
TROUTMAN PEPPER HAMILTON SANDERS
gregory.bishop@troutman.com
haden.marrs@troutman.com

FOR PATENT OWNER:

Monté T. Squire
Paul H. Belnap
Patrick D. McPherson
Duane Morris LLP
MTSquire@duanemorris.com
PHBelnap@duanemorris.com
PDMcPherson@duanemorris.com

Steven G. Saunders
Nutter, McClennen & Fish, LLP
ssaunders@nutter.com