

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.,
Petitioner,

v.

MULLEN INDUSTRIES LLC,
Patent Owner.

IPR2025-00742
Patent 11,904,243 B2

Before KEN B. BARRETT, JEFFREY S. SMITH, and
MIRIAM, L. QUINN, *Administrative Patent Judges*.

QUINN, *Administrative Patent Judge*.

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

Petitioner filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1, 6–10, 14, 17, 24–28, 30 (“the challenged claims”) of U.S. Patent No. 11,904,243 B2 (Ex. 1001, “the ’243 patent”) pursuant to 35 U.S.C. § 311(a). Patent Owner filed a Preliminary Response (Paper 9, “Prelim. Resp.”) pursuant to 35 U.S.C. § 313.

Pursuant to 35 U.S.C. § 314(a), the Director may not authorize an *inter partes* review unless the information in the petition and preliminary response “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons that follow, we institute an *inter partes* review as to the challenged claims of the ’243 patent on all grounds of unpatentability asserted in the Petition.

I. BACKGROUND

A. *Real-Parties-in-Interest*

Petitioner identifies itself as the real-party-in-interest. Pet. 1. Patent Owner identifies itself as the real-party-in-interest. Paper 7, 1.

B. *Related Matters*

The parties state that the ’243 patent is currently asserted in *Mullen Industries LLC v. Meta Platforms, Inc.*, No. 1:24-cv-00354 DAE (W.D. Tex.). Pet. 1; Paper 7, 1. The Petition identifies twelve IPRs challenging related patents. Pet. 1.

C. *The ’243 Patent*

The patent “relates to video games and video game systems.” Ex. 1001, 1:22–23. For example, the patent describes “an actuality game” as “a location-based game where a user’s location on a physical playfield corresponds to a video game character’s location on a virtual video game

playfield. *Id.* at 2:33–36. One embodiment describes providing a visor that includes a transparent display such that virtual objects can be placed onto the user’s actual, physical environment. *Id.* at 3:35–37. According to the ’243 patent, any device with a locating device and a display may be programmed to be at least a visible environment game system, such as a wireless telephone with a Global Positioning System (GPS). *Id.* at 3:43–46. A location device may be provided on the head-mounted display that determines how the head-mounted display moves with respect to a reference point. *Id.* at 4: 15–17.

D. Illustrative Claim

Of the challenged claims, claim 1 is independent, and is reproduced below.

1. A location based game comprising:

a head-mounted device operable to provide a location based game in a semi-visible environment in which a user of said head-mounted device can simultaneously view at least a portion of a real-world environment around said user as well as virtual indicia for said location based game, said virtual indicia comprising at least one of a virtual game character and a virtual interactive object;

processing circuitry in said head-mounted device;

memory in said head-mounted device storing computer programming capable of execution by said processing circuitry;

a first locating device in said head-mounted device for providing a first control signal for said location based game;

a second locating device in said head-mounted device for providing a second control signal for said location based game; and

a display provided on said head-mounted device, wherein said head-mounted device is a portable device and said processing circuitry is operable to execute said computer programming to cause said display to display said location based game based on a location, direction, and pitch associated, at least in part, with said first control signal and said second control signal, said display of said location based game comprising display of said virtual indicia in a manner that blocks part of, but not all of, said user's view of said real-world environment around said user, and

wherein said processing circuitry is operable to execute said computer programming to allow said user of said head-mounted device to manually set one or more boundaries for said location based game.

Ex. 1001, 23:59–24:26.

E. Prior Art and Asserted Grounds

Petitioner asserts that the challenged claims of the '243 patent are unpatentable on the following grounds:

Reference(s)	Basis	Challenged Claims
Levesque, ¹ Ronzani ²	§ 103	1, 6–8, 17, 24–28, 30
Levesque, Ronzani, Fager ³	§ 103	9, 10, 22

¹ US Patent Application No. US 2004/0110565 A1, published June 10, 2004. Ex. 1003. Petitioner asserts that Levesque is prior art under § 102(e) because it is entitled to the priority date of its provisional application (No. 60/430,682) filed on December 4, 2002, filed in the record as Exhibit 1010. Pet. 7–8. Petitioner provides sufficient showing that Levesque is entitled to the benefit of the provisional application filing date under *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1381 (Fed. Cir. 2015). *Id.*; Cooperstock Decl. ¶ 67.

² US Patent Application No. US 2002/0163486 A1, published November 7, 2002. Ex. 1004.

³ US Patent Application No. US 2004/0104934 A1, filed on February 7, 2002 and published June 3, 2004. Ex. 1005.

Reference(s)	Basis	Challenged Claims
Levesque, Ronzani, Ohshima ⁴	§ 103	14

Pet. 3, 8–79 (confirming that the grounds asserted for claims 9, 10, 14, and 22 also rely on the Levesque and Ronzani combination notwithstanding the error in Petitioner’s chart on page 3 of the Petition). Petitioner further supports its challenge of unpatentability with testimonial evidence in the form of a Declaration from Jeremy Cooperstock. Ex. 1002 (“Cooperstock Decl.”).

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill,

would have possessed a bachelor’s degree in electrical engineering, computer science, or similar field, with two years combined experience in designing and/or developing computer systems/software involving interactive graphical virtual and/or augmented reality. A person could also have qualified as a POSITA with some combination of (1) more formal education (such as a master’s of science degree) and less technical experience, or (2) less formal education and more technical or professional experience.

Pet. 4 (citing Cooperstock Decl. ¶¶ 21–25). Patent Owner does not propose a level of ordinary skill. As Petitioner’s description of a person of ordinary skill appears commensurate with the subject matter before us, we apply Petitioner’s definition for purposes of this Decision.

⁴ US Patent No. 6,951,515 B2, filed February 17, 2000. Ex. 1006.

B. Claim Interpretation

We interpret the challenged 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) (2022). We construe expressly only those claim terms that require analysis to determine whether to institute inter partes review.

See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc., 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that “only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”).

Petitioner has not proposed a particular construction for any recited claim term. Pet. 4. However, Patent Owner proposes construction of “a portable device.” Prelim. Resp. 2. With the Board’s authorization, Petitioner was afforded an opportunity to brief its claim construction position for “portable device.” Paper 10 (“Prelim. Reply”). And Patent Owner likewise provided a responsive brief. Paper 11 (“Prelim. Sur-reply”).

Claim 1 recites that the “head-mounted device is a portable device.” Ex. 1001, 24:12. According to Patent Owner, to be “portable” a computing device “must be free of encumbering external connections such as cables.” Prelim. Resp. 2 (citing Ex. 2013, “portable” definition, Microsoft Computer Dictionary (5th ed. 2002)). According to Patent Owner, the head-mounted device of Levesque is not “portable” because “it is tethered to a vehicle, as shown in Figure 3.” Prelim. Resp. 31. Figure 3 of Levesque annotated by Patent Owner is reproduced below.

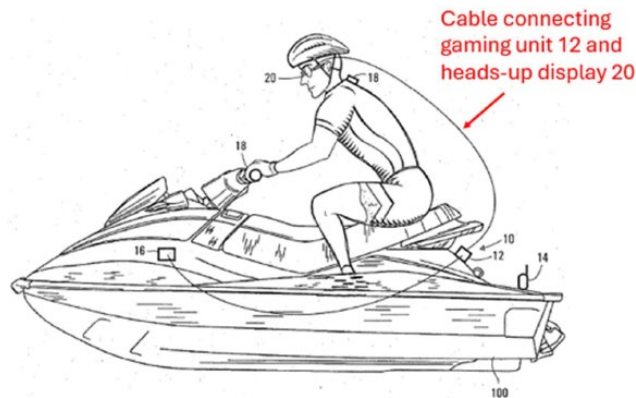


FIG. 3

Figure 3 of Levesque above depicts a recreational vehicle 100 in the form of a personal watercraft equipped with game device 10 and with a user/operator of the vehicle presented with heads-up display 20. Ex. 1003 ¶¶ 16, 31.

Patent Owner labels a line between display 20 and game device 10 as follows: “Cable connecting gaming unit 12 and heads-up display 20.”

Prelim. Resp. 31.

Petitioner contends that the intrinsic record does not support the proposed construction. Prelim. Reply 1–2. In particular, Petitioner relies on the disclosure of Provisional Application No. 60/603,481 (the ‘481 Provisional), which the ‘243 patent incorporates by reference. Ex. 1001, 1:14–18; Ex. 1009. According to Petitioner, the ‘481 Provisional describes the portable device as having components that are non-portable. Prelim. Reply 1–2. For instance, the ‘481 Provisional states, as an example of a portable device that may be “integrated in a non-portable device,” that “the flexible display and keyboard combinations of the present invention may be integrated into, and extendable from, a car ceiling or dashboard.” Ex. 1009, ¶ 23. Patent Owner argues that this passage actually supports its contention, because when the flexible display and keyboard combination” is integrated

into a car, it is a “non-portable device” because “it is no longer free of encumbering external connections.” Prelim. Sur-reply 1. We don’t agree with Patent Owner at this juncture.

The example provided in the ’481 Provisional continues to refer to the portable device 100 as “portable” even when components of that “device” are integrated in a “non-portable” device, such as a car. Examples of such portable devices are provided as wireless telephones, PDAs, laptops; handheld devices, and music players. Ex. 1009 ¶ 22; *See* Ex. 1001, 4:22–28 (describing a visor as a portable gaming system); 7:21–27 (listing additionally Blackberries, Personal Electronic Devices, IPODs and any other portable electronic device, to be configured as a gaming system). Taking these disclosures together, the ’243 patent does not define the degree of the “portability” of the claimed device to require that the “portable device” must be completely “free of encumbering external connections.” If “portability” can include integrating a component of the “portable device” into a “non-portable device,” then there is support for holding that the recited “portable device” could be tethered to a non-portable device.

As for the dictionary definition, Petitioner argues that the Microsoft Dictionary cited by Patent Owner does not support the proposed construction. Prelim. Reply 2–3. We agree that at this juncture, the definition of “portable” in that dictionary does not justify deeming non-portable a device that is tethered to another device. First, the full definition of the adjective “portable” from the proffered dictionary is “light, enough, rugged enough, and free *enough* of encumbering external connections to be carried by a user.” Ex. 2013, page 3 (emphasis added). Patent Owner’s

arguments gloss over the qualifier “enough,” which allows for a degree of “tethering” under the proffered dictionary definition. Second, Petitioner proffers another dictionary entry, for “portable computers”, which include “transportable” computers that are “encumbered with an external power cord connection to a wall outlet.” Prelim. Reply 3 (citing Microsoft Computer Dictionary (5th ed. 2002)). This evidence again points to the understanding that some “tethering” does not place a “device” into the “non-portable” category of devices.

Consequently, we find at this juncture that Patent Owner’s arguments and evidence do not support a construction of “portable device” to mean that a device must be (without qualifier) “free of encumbering external connections, such as cables.” We further note that some of Patent Owner’s arguments undermine its own position, when stating that the power cable of a portable computer is not an “encumbering connection” because the device gets unplugged and can be readily moved. Prelim. Sur-reply 3. In other words, such an argument shows that tethering of a “portable device” is permissible, so long as the device can be untethered or unplugged and moved. Accordingly, we need not resolve at this juncture what degree of tethering is permissible for a device to be considered “portable” because the evidence in the record and Petitioner’s arguments show sufficiently that Levesque’s display 20, together with the teachings of Ronzani, is a “portable” device that would be unplugged and moved. We address this in more detail when discussing the reasonable likelihood threshold analysis in Section II.E.4.

C. Ground 1: Obviousness based on Levesque and Ronzani

Petitioner contends that claims 1, 6–8, 17, 24–28, and 30 would have been obvious over Levesque and Ronzani. Pet. 8–61. Because the arguments presented by Patent Owner focus solely on independent claim 1, our analysis likewise focuses on that claim.

E. Independent Claim 1

Petitioner relies on Levesque as teaching or suggesting most of the limitations of claim 1, with the benefit of Ronzani’s teachings of a head-mounted display having electronics and a computer. Pet. 8–39. In particular, Petitioner states that Levesque discloses that its head-mounted device provides games with inputs from a location sensing sensor to control gameplay, such as to interact with opponents, and avoid enemy fire. Pet. 11 (citing Ex. 1004, Fig. 4, ¶¶ 9, 34, 39–40). Petitioner further relies on Levesque’s disclosures of a gaming unit that includes a processor 30 and a memory 32. Pet. 15–16, 25–26 (citing Ex. 1004, Fig. 2, ¶¶ 19–20). Petitioner asserts that Levesque’s GPS receiver and sensors 18 further show that Levesque teaches the “first” and “second locating devices” of the claim, relying on Ronzani’s teachings of a GPS device and sensors locatable in a head-mounted display. Pet. 18–19, 28–33. Petitioner addresses that a person of ordinary skill in the art would have had good reasons to combine the teachings of these references, resulting in the claimed locating devices, processor, and memory in the head-mounted display as claimed. *Id.* at 19–25.

Patent Owner urges that we deny the Petition because Levesque does not disclose a processor and a memory located in the head-mounted device,

Ronzani does not teach two locating devices in the head-mounted device, there is no motivation to combine the teachings of Levesque and Ronzani, the Levesque head-mounted display is not a “portable device,” and neither reference teaches the required “direction and pitch” for displaying the location based game. Prelim. Resp. 14–34. None of Patent Owner’s arguments are persuasive at this juncture at least for the reasons explained below.

1. Petitioner’s reliance on Levesque’s processor, memory, and two locating devices

Patent Owner first makes the point that Levesque’s processor and memory are not in a head-mounted device. Prelim. Resp. 14–15. Then Patent Owner stresses that the location sensor 14 or the sensors 18 of Levesque are likewise not in a head-mounted device. Prelim. Resp. 15–16. Patent Owner takes issue with Petitioner’s explanation of how the sensors 18 are for sensing the position (tilt and rotation) of the user’s head relative to the user’s torso. *Id.* at 17. According to Patent Owner, Petitioner is wrong because the relative position described in Levesque is measured from the shoulder, not the head. *Id.* Further, Patent Owner takes issue with the assertion that the sensor could be implemented in the head-mounted display of Levesque as accelerometers and/or gyroscopes because there is no disclosure of this device having those sensors and no analysis was provided. *Id.* at 18.

First, the Petition does not rely on Levesque alone for any of the limitations that require a processor, memory, and the locating devices in the head-mounted device. Ronzani makes explicit that its self-contained, head-mounted computer is equipped with a CPU and a communications module

and data storage. Ex. 1004 ¶¶ 7, 91, 162–171. And Petitioner relies on this knowledge and additional disclosures of Ronzani and Levesque, together with testimony of Dr. Cooperstock, to conclude that “it would have been obvious to include sensors and hardware for Levesque’s video gaming device in a head-mounted device, such that a user’s line of sight and location could be tracked as the user moves around the real world, including by walking or running without the use of a vehicle.” Pet. 18–19. Thus, we find unpersuasive arguments that Levesque’s teachings are not coextensive with the claim requirement of a head-mounted device with the processor, memory, and two locating devices, because Petitioner does not rely on Levesque alone as teaching these limitations.

Second, we are not persuaded that the Petition fails to show how Levesque’s sensors would have been a “second locating device” as alleged by Petitioner. Levesque expressly provides for “sensors to sense the position (e.g. tilt and rotation) of the user’s head relative to the user’s torso.” Ex. 1003 ¶ 26. Levesque also describes using the data about the display scenery with knowledge of the “user’s line of sight (as determined through sensors 18).” *Id.* ¶ 42. Petitioner relies on factually un rebutted testimonial evidence, at this juncture, that explains the particular sensors that would have been used for determining such tilt and rotation, to determine the user’s line of sight, namely accelerometers and/or gyroscopes. Cooperstock Decl. ¶ 126. Bare attorney argument does not undermine the evidence in the present record, of the knowledge of a person of ordinary skill in the art concerning accelerometers and/or gyroscopes useful as sensors in Levesque’s line of sight determination. Further, Levesque at least suggests that a sensor 18 would have been much closer to the head-mounted display

than the shoulders because Levesque states that “[a]ny motion of the user’s head, as sensed by one of external sensors 18 may be taken into account.” Ex. 1003 ¶ 34. And coupled with the express teaching of sensing the tilt and rotation of the user’s head, relative to the user’s torso, it is reasonable to conclude on the present record that Levesque’s processor and memory use the sensor 18 data on pitch and direction of the head to construct the displayed images accordingly.

2. *Whether Ronzani fails to disclose or render obvious two locating devices in said head-mounted device*

The Petition states that “it would have been obvious to place Levesque’s hardware components in a head-mounted device in light of Ronzani.” Pet. 29 (for the “first locating device” limitation); *see also* Pet. 32 (similar assertion for the “second locating device” limitation). Patent Owner argues that the “Petition points to different embodiments in Ronzani for a ‘first locating device’ and ‘a second locating device.’” Prelim. Resp. 19. Patent Owner then focuses on specific embodiments of Ronzani’s internal sensors and their specific functionality and how the embodiments separately do not disclose a GPS and location/position information sensors. *Id.* at 20–21. These arguments are not persuasive because it is not commensurate with the presented ground.

We are persuaded that on the present record, Petitioner shows sufficiently that it would have been obvious to put Levesque’s GPS and sensors 18 in the head-mounted display, Levesque’s display 20. Pet. 18–20, 23–25, 29–30 (relying on Figure 35 of Ronzani, teaching a communication module 720, which includes a GPS sensor or other position sensor), 32–33 (discussing alternative theory that in the event Levesque’s head tilt and

rotation sensors are found not to be positioned on Levesque's display, it would have been obvious to do so in light of Ronzani because Ronzani teaches equipping the head-mounted device with external and internal sensors). Petitioner's arguments and evidence regarding motivation to combine amount to showing that "if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007). The inquiry at this juncture is whether Petitioner has shown sufficiently that an ordinarily skilled artisan is "able to recognize, based on her background knowledge, [a technique's] potential to improve the device and be able to apply the technique." *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1003 (Fed. Cir. 2016).

The record presents evidence of improving Levesque's video gaming device to allow use of the device by an individual, for use with sports and exercise activity, as well as expanding the types of games to those without the use of a vehicle. Pet. 20 (citing Ex. 1003 ¶ 2, 6, 7, 43; Cooperstock Decl. ¶ 110). Ronzani makes explicit the use of a self-contained, head-mounted display with all the components necessary to implement a wearable computer with location-based electronics, with broad reference to entertainment uses and other more industrial fields, such as firefighting and military use. See Pet. 21–22 (citing Cooperstock Decl. ¶¶ 112–113; Ex. 1004 ¶¶ 5, 94, Figs. 35, 37). Petitioner also points out that notwithstanding all the features of Ronzani's head-mounted display, it is "light-weight," "compact," and "non-intrusive," making its design desirable for implementing a self-contained Levesque system. *Id.* at 22 (citing

Cooperstock Decl. ¶ 113; Ex. 1005 ¶ 4, 8). Ronzani further provides that its head-mounted display can be “adapted for use in many real world, situations” where the “wearer desires or needs auxiliary sensory input.” Ex. 1004 ¶ 173. We are persuaded by Petitioner’s arguments and evidence at this juncture, which tend to show that implementing a head-mounted display with a GPS and line of sight sensors in Levesque would have been nothing more than applying a known technique of situating the hardware components of Levesque (memory, CPU, GPS, and sensors) in a self-contained head-mounted display as taught by Ronzani. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007)

3. *Whether there is sufficient evidence of a motivation to combine Levesque and Ronzani’s teachings*

Patent Owner argues that there is no motivation to combine because Levesque’s fundamental design contradicts the reasoning proffered by Petitioner—that it would have been a motivation to expand the use cases for Levesque’s device to those without a vehicle. *See* Prelim. Resp. 21–22; Pet. 20. According to Patent Owner, the “whole point of Levesque is for a user to ride a real-life vehicle, like a jet ski, and see visuals of a video game that are impacted by his or her movement on the real-life vehicle.” Prelim. Resp. 22. Thus, Patent Owner argues, “to remove the jet ski would remove the whole point.” *Id.* At this juncture we are not persuaded by this argument.

Although the games depicted and embodied in Levesque include the use of vehicles (like watercraft and all-terrain vehicles), Levesque also mentions that “nearly an infinite variety of gaming software taking

advantage of one or more of display 20, location sensor 14 and sensors 18 may be possible.” Ex. 1003 ¶ 43. This passage of Levesque does not mention that the “infinite variety of gaming software” utilizes the vehicle electronic control unit interface, which would be in the vehicle. Indeed, Levesque mentions that the gaming software “processes inputs taken from one or more of location sensor 14, external sensors 18 and ECU interface 16.” *Id.* ¶ 28. Thus, because the game may not even use the vehicle inputs from the vehicle ECU, Levesque describes its gaming system more broadly and is not limited to only use in a vehicle.

Next Patent Owner argues that a combination of teachings with Ronzani would not result in a self-contained, head-mounted display for use with Levesque’s gaming system. Prelim. Resp. 24. Rather, a person of ordinary skill in the art would have recognized, according to Patent Owner, that removing unnecessary components from a user’s head enables the device to be less intrusive so the head is not weighed down. *Id.* Levesque’s head-up display is already lightweight and adding weight to a vehicle would pose safety risks. *Id.* We do not agree. Patent Owner urges us to consider a balance of the pros and cons of using a self-contained, head mounted display in Levesque’s gaming system. That there may be drawbacks from the proffered combination of teachings does not necessarily show a lack of motivation to combine teachings. *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 (Fed. Cir. 2000). The Board must weigh the benefits and drawbacks of the modification against each other, to determine whether there would be a motivation to combine. *Id.* at 1349 n.8. And at this juncture, we are presented with sufficient advantages that enable use of the modified Levesque heads-up display with other vehicles or even without a

vehicle. *See* Pet. 21–22 (citing Ex. 1003 ¶¶ 8, 24 (describing different vehicles), Ex. 1004 ¶ 5 (display for “entertainment purposes”), Cooperstock Decl. ¶¶ 111–112). Patent Owner’s bare argument to the contrary—characterizing cost, time and additional weight on the user’s head as “significant downsides”—do not undermine Petitioner’s showing of stated benefits, at this juncture.

Further, Patent Owner argues that mounting the Levesque gaming unit to the user’s head-mounted display would require a substantial redesign, because the gaming unit is connected to various sensors and ports on a vehicle, and interfaces with “multiple independent heads-up displays.” Prelim. Resp. 27–28. Patent Owner posits that the required redesign is unusable and dangerous because players would be moving around on vehicles while their heads are connected to each other via cables. *Id.* at 28. First, this is bare attorney argument that is not currently supported by evidence of record. Second, Levesque describes that each gaming unit includes wireless communication, so that a gaming unit may communicate with other central gaming units. Ex. 1003 ¶ 22. There would be no need for a video interface if Levesque’s gaming unit is in a self-contained, head-mounted display; so, it is not clear that a redesign requires cables connecting each self-contained gaming unit in the head-mounted display of the combination. Furthermore, Levesque describes multiple heads-up displays connected to a video interface of the gaming unit as optional. Ex. 1003 ¶ 24.

Finally, Patent Owner argues that Ronzani and Levesque are from different fields and a person of ordinary skill in the art would not look to Ronzani to modify Levesque. Prelim. Resp. 29 (arguing that a “passing

reference to ‘entertainment’ . . . is an insufficient basis to look to Ronzani to implement a video gaming system like Levesque’s.”). We do not agree. This argument presents a legally and factually erroneous test for analogous art.

A reference that is in the same field of endeavor as the claimed invention is analogous art,⁵ and such a qualification means that one of ordinary skill in the art is presumed to have been aware of the reference and thus the reference properly may be considered if it predates the claimed invention. *See Circuit Check Inc. v. QXQ Inc.*, 795 F.3d 1331, 1335 (Fed. Cir. 2015). Petitioner contends that the field of endeavor of the claims of the ’243 patent is “the field of portable user-worn devices for providing location based-entertainment.” Pet. 19–20. According to that description of the relevant field of endeavor, Petitioner argues that both Levesque and Ronzani are analogous to the ’243 patent. *Id.* Patent Owner appears to argue that the field of endeavor is “video games.” Prelim. Resp. 29–30. This is not the correct field of endeavor because although the claim recites a location based game system, the claims considerably focus on the head-mounted device. Indeed, for claim 1 all the structural elements claimed involve or are placed in the head-mounted device. Thus, “video games” generally is not an appropriate field of endeavor, as it is too broad and ignores the significant focus of the claims of the ’243 patent. Petitioner’s statement of the field of endeavor is, therefore, more indicative of the correct field of endeavor involved here. And as such, it is unpersuasive to argue that Ronzani does not belong to the field merely because it is not solely focused on video

⁵ *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

games. We agree with Petitioner that both Levesque and Ronzani are in the same field of endeavor as the '243 patent.

4. *Whether Levesque's heads-up display is a "portable device"*

Petitioner asserts that Levesque's heads-up display is a portable device because Levesque describes its system as a "mobile electronic video gaming device" and a person uses the system as the person operates a "moving vehicle." Pet. 34. Finally, Petitioner offers testimony from Dr. Cooperstock that a person of ordinary skill in the art would have considered Levesque's mobile video gaming system to be a portable device. Cooperstock Decl. ¶ 130. Petitioner also argues that to the extent "portable device" is a device that a person can hold or wear as a person walks around, it would have been obvious to implement Levesque's system as a standalone head-mounted device in light of Ronzani. Pet. 35.

Patent Owner disagrees, relying primarily on a proffered definition of "portable" as discussed above in Section II.B. We have not adopted Patent Owner's proposed construction; but find that under Patent Owner's understanding of a "portable device," Levesque's heads-up display, in light of Ronzani's teachings, would be a device that can be untethered, or unplugged and moved. Levesque describes the heads-up display as an off-the shelf unit that can be plugged into video interface 38, and may be in the form of a monocular or binocular viewer, even part of a helmet visor. Ex. 1003 ¶¶ 20, 28. These descriptions paint the picture of a device that can be unplugged and moved. Patent Owner introduced evidence of an embodiment that appears to be mentioned in Levesque as a heads-up display, the Video Viewer manufactured by MicroOptical Corporation.

Ex. 1003 ¶ 28; Ex. 2014. Such a device, pictured in Patent Owner’s exhibit, clearly shows the pluggability and portability of the device. Ex. 2014 (describing it as a “lightweight, sleek system that is easily clipped to a belt or carried in a pocket” and comprising a “conventional RCA connector—the same connector found on most cameras and video equipment or a BNC adaptor can be used.”). At this juncture, this evidence is sufficient to show that Levesque, even if it were connected during gaming to a vehicle, describes a heads-up display designed to be unpluggable and carried around as a portable device. Furthermore, Petitioner has explained sufficiently at this juncture that the combination of teachings with Ronzani, which is a self-contained head-mounted display, would yield a heads-up display for use in Levesque’s system that is also self-contained and as portable as Ronzani’s display. Pet. 18–25.

5. *Whether Petitioner has shown sufficiently the “direction and pitch” required by the claim*

Patent Owner contends that Petitioner’s evidence is insufficient to show “that the game is displayed based on both direction and pitch.” Prelim. Resp. 33. Patent Owner argues that “at most” Petitioner’s evidence “only shows that Levesque’s sensors can detect a user’s head motion of some sort, but not that any specific detected direction and pitch both affect how the game is played.” *Id.* We do not agree.

The ’243 patent describes location devices for determining the direction that a visor is pointing and pitch at which the visor is pointed in to determine the “user’s perspective of the physical environment such that a corresponding perspective may be generated and subsequently displayed to the user.” Ex. 1001, 14:55–64. This is the same functionality as Levesque’s

determination of a “user’s line of sight,” using sensors 18 to sense the tilt and rotation of the head, and the evidence of record shows these sensors would have been accelerometer or gyroscopes, which are used to detect these types of movement and direction. Ex. 1003 ¶¶ 26, 42; Cooperstock Decl. ¶¶ 126, 134. We are persuaded that Levesque’s tilt and rotation movements describe the claimed direction and pitch. For instance, when a head tilts downward, say a user’s looking at the ground, Levesque would detect the pitch and direction of the user’s gaze correspondingly. Levesque’s game system would then display the game based on this downward gaze information to present the simulated environment in which the game is played or the scenery is presented. Ex. 1003 ¶¶ 34; 40, 42.

F. Remaining Challenges

Because we find Petitioner has demonstrated a reasonable likelihood of showing at least one challenged claim is unpatentable as obvious over Randall, we need not review all of Petitioner’s challenges. See 35 U.S.C. § 314(a) (“The Director may not authorize an inter partes review to be instituted unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”).

III. CONCLUSION

We have reviewed the Petition and Patent Owner’s Preliminary Response, and have considered all of the evidence and arguments presented by Petitioner and Patent Owner. We find, at this stage of the proceeding, that Petitioner has demonstrated a reasonable likelihood of showing at least one claim of the ’243 patent is unpatentable. Accordingly, we institute *inter partes* review of all claims on all grounds raised in the Petition.

The Board has not yet made a final determination with respect to any claim construction issue, priority issue, or the patentability of any challenged claim.

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, 6–10, 14, 17, 24–28, and 30 of the '243 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '243 patent shall commence on the entry date of this Decision, and notice is hereby given of the institution of a trial.

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Patent 11,904,243 B2

FOR PETITIONER:

Heidi Keefe
Phillip Morton
Andrew Mace
PAUL HASTINGS LLP
hkeefe@cooley.com
pmorton@cooley.com
amace@cooley.com

FOR PATENT OWNER:

Peter Snell
Brad Scheller
Michael Dokhanchy
MINTZ, LEVIN, COHN, FERRIS,
GLOVSKY AND POPEO, P.C.
pfsnell@mintz.com
bmscheller@mintz.com
rdokhanchy@mintz.com