

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.,
Petitioner,

v.

THALES VISIONIX, INC.,
Patent Owner.

IPR2022-01308
Patent 7,725,253 B2

Before WILLIAM V. SAINDON, HYUN J. JUNG, and
JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

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

I. INTRODUCTION

Meta Platforms, Inc., (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting institution of *inter partes* review of all claims (1–9) of U.S. Patent No. 7,725,253 B2 (Ex. 1003, “the ’253 patent”). Thales Visionix, Inc., (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). As authorized, Petitioner filed a Preliminary Reply (Paper 8) and Patent Owner filed a Preliminary Sur-Reply (Paper 9). Pursuant to 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a), we have authority to determine whether to institute review.

An *inter partes* review may not be instituted unless “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For the reasons set forth below, we conclude that Petitioner has shown a reasonable likelihood it will prevail in establishing the unpatentability of at least one challenged claim, and we institute *inter partes* review.

A. REAL PARTIES IN INTEREST

Petitioner identifies itself and Meta Platforms Technologies, LLC, as the real parties in interest. Pet. 1. Patent Owner identifies itself and licensee Gentex Corporation as the real parties in interest. Paper 3, 1 (Patent Owner’s Mandatory Notices).

B. RELATED MATTERS

The parties identify the following related litigation: *Gentex Corp. et al. v. Facebook, Inc., Meta Platforms, Inc. et al.*, No. 5:22-cv-03892 (N.D. Cal.). Pet. 2; Paper 3, 1.

Patent Owner also identifies Office proceedings IPR2022-01304 and IPR2022-01305 as involving a patent related to the '253 patent. Paper 3, 1.

C. THE '253 PATENT

The '253 patent is titled “Tracking, Auto-Calibration, and Map-Building System.” Ex. 1003, Code (54). It issued from an application filed June 8, 2005, as a continuation of an application filed August 11, 2003 (now Pat. No. 6,922,632), which claims the benefit of a provisional application filed August 9, 2002. *Id.*, codes (63), (60), 1:7–10. The '253 patent relates to a navigation or motion-tracking system. *Id.*, code (57).

The '253 patent describes that “Navigation system 90 . . . includes sensors 103 that provide measurement data and a data processing unit 190 that processes data provided by the sensors.” *Id.* at 11:49–52. It states that “navigation system 90 tracks the position and the orientation (together referred to as the 6-dimensional ‘pose’) of vehicle 100 based on both inertial measurements as well as sensor measurements between sensing devices or targets in the vehicle 100 and sensing devices or targets that are fixed in the environment 106.” *Id.* at 11:55–60. The '253 patent refers to “sensors and targets fixed to the vehicle or fixed in the environment,” collectively, as “pose sensing elements” (PSE). *Id.* at 12:50–52. Figure 2 is reproduced below:

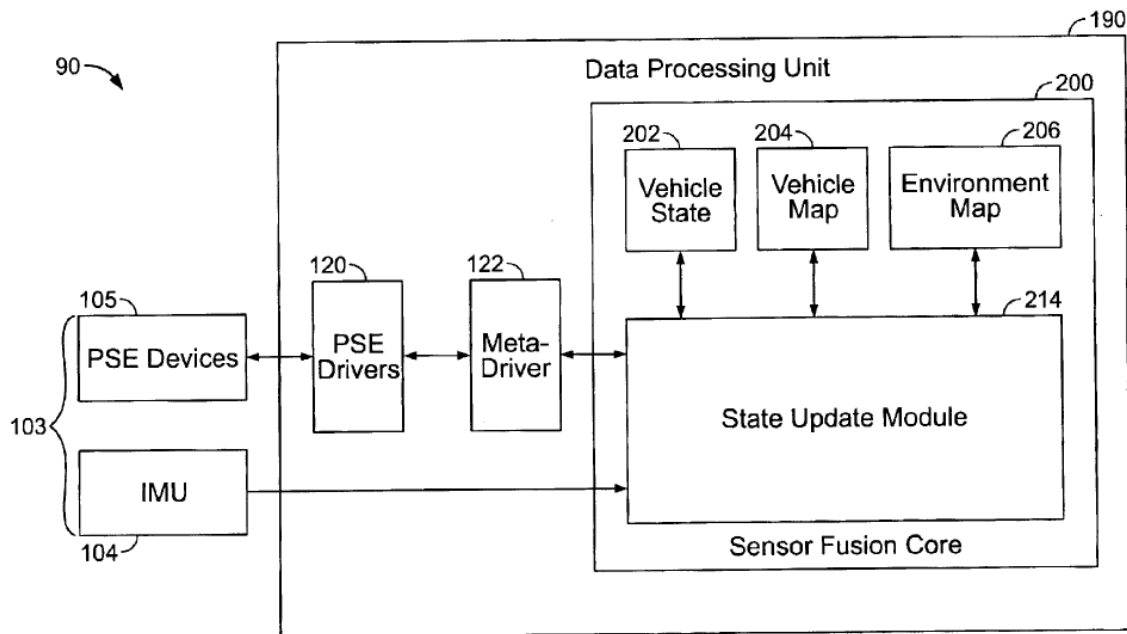


FIG. 2

Figure 2 is a block diagram of a navigation system. *Id.* at 11:26. It depicts sensors 103 including PSE devices 105 and inertial measurement unit (IMU)¹ 104 providing data to data processing unit 190, which includes PSE drivers 120 and meta-driver 122, which provide an interface to sensor fusion core 200. *Id.* at 15:51–16:22.

The specification explains that “PSE drivers 120 are software modules, which may be written by manufacturers of PSE devices 105 independently of the specific implementation of the sensor fusion core” and “include information and interfaces that are specific to the PSE devices 105, and data and code needed for computation of the linearized observation matrices, observation noise covariance matrices, and expected sensor measurements.” *Id.* at 16:22–31. It also explains that, when navigation

¹ Ex. 1003, 12:22–23.

system 90 is powered up, measurement management unit (MMU) 304 “calls the meta-driver 122 and requests that the meta-driver enumerate the sensing hardware,” and then “[m]eta-driver 122 loads available PSE drivers, such as 308 and 309, from a driver database 310.” *Id.* at 18:13–17. The ’253 patent states that, “[b]y using meta-driver 122 to enumerate the PSEs available upon power-up of navigation system 90, the navigation system is able to automatically reconfigure itself.” *Id.* at 18:42–44.

D. CHALLENGED CLAIMS

Challenged claim 1 is independent and is reproduced below:

1. A tracking system comprising:
 - an estimation subsystem; and
 - a sensor subsystem coupled to the estimation subsystem and configured to provide configuration data to the estimation subsystem and to provide measurement information to the estimation subsystem for localizing an object;wherein the estimation subsystem is configured to update a location estimate for the object based on configuration data and measurement information accepted from the sensor subsystem.

Id. at 46:4–13. Claims 2–5 depend, directly or indirectly, from claim 1. *Id.* at 46:14–26. Claim 6 is independent and is reproduced below:

6. A method comprising:
 - enumerating sensing elements available to a tracking system that includes an estimation subsystem that estimates a position or orientation of an object; and
 - providing parameters specific to the enumerated sensing elements to the tracking system to enable the estimation subsystem to be configured based on the parameters specific to the enumerated sensing elements to enable

the estimation subsystem to estimate the position or orientation of the object.

Id. at 46:27–36. Claims 7–9 depend, directly or indirectly, from claim 6. *Id.* at 46:37–49.

E. PRIOR ART AND ASSERTED GROUNDS

Petitioner asserts the following grounds of unpatentability:

Claims Challenged	35 U.S.C. §	References/Basis
1, 2, 6–9	103	Welch 2001 ² , Welch 1997 ³
3–5	103	Welch 2001, Welch 1997, Harris ⁴
3, 4	103	Welch 2001, Welch 1997, Reitmayr ⁵
1–9	103	Horton ⁶
7–9	103	Horton, Welch 1997

Pet. 6. Petitioner also relies on the Declaration of Dr. Ulrich Neumann.
Ex. 1005.

² Greg Welch & Gary Bishop, *SCAAT: Incremental Tracking with Incomplete Information* (1997) (Ex. 1008).

³ Greg Welch et al., *High-Performance Wide-Area Optical Tracking*, PRESENCE TELEOPERATORS AND VIRTUAL ENVIRONMENTS, Feb. 2001 (Ex. 1007).

⁴ US Pat. No. 5,307,289, iss. Apr. 26, 1994 (Ex. 1011).

⁵ Gerhard Reitmayr & Dieter Schmaistieg, *An Open Software Architecture for Virtual Reality Interaction* (Nov. 2001) (Ex. 1016).

⁶ US Pat. No. 5,615,132, iss. Mar. 25, 1997 (Ex. 1010).

II. ANALYSIS

A. 35 U.S.C. § 314(a)

Patent Owner argues that we should deny institution under § 314(a) in light of district-court litigation between the parties. Prelim. Resp. 61–64.

Petitioner argues that most of the factors of *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential), 2020 WL 2126495, *2–3 (“*Fintiv*”) weigh against exercising our discretion under § 314(a) to deny the Petition. Pet. 8–10. According to Petitioner, only factors 1 and 4 are neutral. *Id.* at 8, 9. Patent Owner responds that trial in the related litigation will take place in late January 2024, before a Final Written Decision is expected in this proceeding. Prelim. Resp. 62–63. Patent Owner also argues that factors 4–6 weigh in favor of discretionary denial. *Id.* at 63. With our authorization, the parties filed a Preliminary Reply and Preliminary Sur-Reply that elaborate on the arguments summarized above. Papers 8, 9.

Fintiv instructs us to consider whether to deny institution in certain circumstances when there is parallel district court litigation, upon consideration of six factors:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and

6. other circumstances that impact the Board’s exercise of discretion, including the merits.

Fintiv, Paper 11 at 6.

Our analysis of *Fintiv* is guided by the USPTO Director’s Memorandum issued on June 21, 2022, titled “Interim Procedure for Discretionary Denials in AIA Post Grant Proceedings with Parallel District Court Litigation” (“Director’s Memo”).⁷ We turn to the *Fintiv* factors.

1. Factor 1: Stay

Neither party has moved for a stay of the district court proceeding. Pet. 8; Paper 8, 2; Paper 9, 5. This factor is, thus, neutral. *See Fintiv*, Paper 15 at 12 (“We decline to infer . . . how the District Court would rule should a stay be requested by the parties in the parallel case here.”).

2. Factor 2: Proximity to Trial Date

The parallel litigation began in the U.S. District Court for the Western District of Texas, but was transferred to the U.S. District Court for the Northern District of California. Pet. 8; Prelim. Resp. 62. No trial date has been set. Pet. 8. Patent Owner argues that we should deny institution based on the expected trial date using the median time to trial from when the case was filed in the Western District of Texas. *See, e.g.*, Prelim. Resp. 63; *Fintiv*, Paper 11, 2.

Fintiv factor 2 discusses consideration of a *trial date*. The Director’s Memo states that it may be useful to compare a trial date with evidence of a median time to trial. Director’s Memo 8. The purpose of doing so is in order to ascertain the likelihood of the scheduled trial date actually occurring on or

⁷ Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf

around that date. *Id.* at 8 (“Stakeholders correctly noted that scheduled trial dates are unreliable and often change[,]” and a “scheduled trial date . . . is not by itself a good indicator of [when] the district court trial will occur.”). The Director’s Memo does not state that median time-to-trial statistics are themselves a trial date, or otherwise replace consideration of a trial date under *Fintiv* factor 2. And, in the circumstances here, where the case was transferred from the Western District of Texas, the usefulness of the median time to trial statistics is less clear. Ultimately, though, we will not speculate on when a trial may be scheduled. Accordingly, factor 2 favors not exercising our discretion to deny institution.

3. *Factor 3: Investment in Parallel Proceeding*

Patent Owner argues that “[t]he parties have fully briefed claim construction and exchanged infringement and invalidity contentions, and are almost eight months into general fact discovery.” Prelim. Resp. 62. Petitioner argues that “the most burdensome parts of the case still remain,” for example fact discovery does not close for several months, and expert discovery has yet to begin. Paper 8, 3. Petitioner also notes that there have not been any claim construction rulings. *Id.* Patent Owner responds that “Petitioner has proposed that all document production be substantially complete by March 16, 2023.” Paper 9, 4 (citing Ex. 2003, 1).

We determine that factor 3 does not favor discretionary denial. Although there has been work completed, as Petitioner points out, “the most burdensome parts of the case still remain.” Paper 8, 3; *see also* Ex. 1031 (Case Management and Pretrial Order).

4. Factors 4: Overlap with Parallel Proceeding

Petitioner offers to file a *Sand Revolution* type of stipulation, indicating that it will not pursue the grounds raised in this proceeding in the parallel litigation if we institute trial. Paper 8, 3–4; *Sand Revolution II, LLC v. Cont’l Intermodal Grp. Trucking LLC*, IPR2019-01393, Paper 24 at 11–12 (PTAB June 16, 2020) (informative) (finding that a stipulation not to pursue the same grounds in the parallel litigation “mitigates to some degree the concerns of duplicative efforts”). Patent Owner argues that such a narrow stipulation does not mitigate the concerns of overlap. Paper 9, 4–5.

We are not aware of any precedent that *Sand Revolution*-type stipulations are no longer valid or not entitled to weight in the *Fintiv* analysis. We recognize that *Sand Revolution* stipulations are narrower in scope than *Sotera*-type stipulations, and perhaps may require a different result in a case with different facts. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential as to § II.A) (finding that a broad stipulation not to pursue any ground raised or that could have been reasonably raised in the parallel litigation weighs strongly toward institution). Here, Petitioner’s stipulation still eliminates specific overlap with the parallel proceeding. As in *Sand Revolution*, we weigh this factor as marginally favoring not exercising our discretion to deny institution. *Sand Revolution*, Paper 24 at 12.

5. Factor 5: Whether Petitioner and Defendant are the Same Party

“If a petitioner is unrelated to a defendant in an earlier court proceeding, the Board has weighed this fact against exercising discretion to deny institution” *Fintiv*, Paper 11 at 13. Petitioner is also a defendant in the related district court litigation. *See* Pet. 2; Prelim. Resp. 61. Thus, this

factor weighs marginally in favor of exercising our discretion to deny institution. *Sotera*, Paper 12 at 19.

6. Factor 6: Merits and Other Considerations

Patent Owner argues that Petitioner does not make out a compelling case on the merits. Prelim. Resp. 63. As specified in the Director’s Memo, “compelling, meritorious challenges will be allowed to proceed at the PTAB even where district court litigation is proceeding in parallel.” Director’s Memo 4. Accordingly, the Director’s Memo states that the *Fintiv* analysis will not lead to discretionary denial if it can be established that a case presents compelling merits. *Id.* at 4–5. But, the Director’s Memo does not require a Petitioner to establish compelling merits to avoid discretionary denial.

Additionally, the Director recently clarified the Interim Procedure, stating that “[t]he Board should first assess *Fintiv* factors 1–5; if that analysis supports discretionary denial, the Board should engage the compelling merits question.” *CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 6 (PTAB Feb. 27, 2023) (precedential). Here, we determine that, on balance, *Fintiv* factors 1–5 do not favor exercising our discretion to deny institution and, therefore, there is no need to determine whether the Petition establishes compelling merits.

7. Conclusion on *Fintiv* Factors

Based on a holistic analysis of the *Fintiv* factors taking into consideration “whether efficiency and integrity of the system are best served by denying or instituting review” (*Fintiv*, Paper 11 at 6), we decline to exercise our discretion under 35 U.S.C. § 314(a) to deny institution of *inter partes* review.

B. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner proposes that a person of ordinary skill in the art “would have had a Bachelor’s degree in Computer Science, or an equivalent field, and three to five years of experience working with computer implemented tracking systems.” Pet. 17 (citing Ex. 1005 ¶¶ 36–37). Patent Owner accepts that definition for purposes of institution. Prelim. Resp. 10.

We adopt Petitioner’s proposed level of ordinary skill as it appears to be consistent with the level of skill reflected by the specification and in the asserted prior-art references.

C. CLAIM CONSTRUCTION

For an *inter partes* review petition filed after November 13, 2018, we construe claim terms “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).” 37 C.F.R. § 42.100(b) (2021).

Petitioner submits that no claims require express construction for institution. Pet. 17–18. Patent Owner does not request any express constructions. *See generally* Prelim. Resp. Based on our analysis of the issues in dispute at this stage of the proceeding, we conclude that no claim term requires express construction at this time. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

D. OBVIOUSNESS OVER WELCH 2001 AND WELCH 1997

Welch 2001 is an article titled “High-Performance Wide-Area Optical Tracking” and presents “a complete description of our most recent electro-optical system, the HiBall Tracking System.” Ex. 1007, 1. Welch 2001’s Figure 6 is reproduced below:

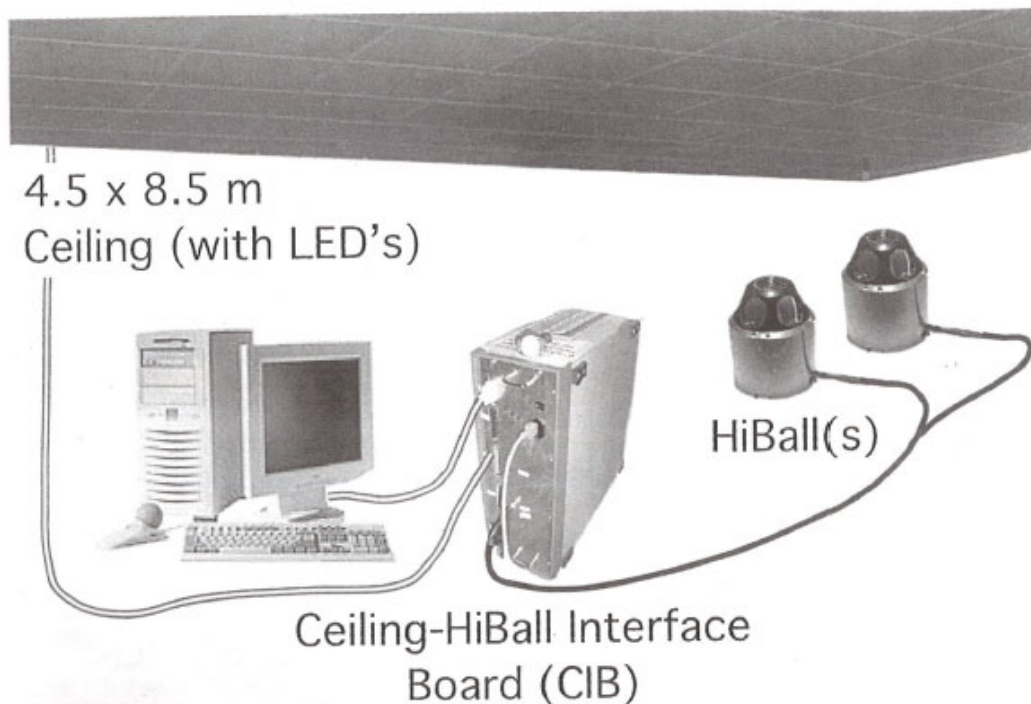


Figure 6.

Id. at 6. Figure 6 shows that the “HiBall Tracking System consists of three main components.” Ex. 1007, 5. “An outward-looking sensing unit” called the HiBall “is fixed to each user to be tracked” and “observes a subsystem of fixed-location infrared LEDs” called the Ceiling. *Id.*; *see also id.* at 4 (explaining that the system uses “an *inside-looking-out* configuration, in which the optical sensors are on the (moving) user and the landmarks (for instance, the LEDs) are fixed in the laboratory,” and a “corresponding *outside-looking-in* alternative would be to place the landmarks on the user and to fix the optical sensors in the laboratory”), Fig. 4 (showing the HiBall unit and the unit on a person), Fig. 5 (depicting the outside-looking-in and inside-looking-out configurations).

“Communication and synchronization between the host computer and these subsystems is coordinated by the *Ceiling-HiBall Interface Board* (CIB).” Ex. 1007, 5–6. “Each HiBall observes LEDs through multiple

sensor-lens views that are distributed over a large solid angle.” *Id.* at 6.
“LEDs are sequentially flashed (one at a time) such that they are seen via a diverse set of views for each HiBall,” and “[i]nitial acquisition is performed using a brute-force search through LED space, but, once initial lock is made, the selection of LEDs to flash is tailored to the views of the active HiBall units.” *Id.* “Pose estimates are maintained using a Kalman-filter-based prediction-correction approach known as *single-constraint-at-a-time* (SCAAT) tracking” that “has been extended to provide self-calibration of the ceiling, concurrent with HiBall tracking.” *Id.*

Welch 1997 is a paper titled “SCAAT: Incremental Tracking with Incomplete Information.” Ex. 1008, 1. It “present[s] a promising new mathematical method for tracking a user’s pose (position and orientation)” that is referred to as “single-constraint-at-a-time or SCAAT tracking.” *Id.* (Abstract).

Petitioner provides contentions for how Welch 2001 and Welch 1997 disclose claim 1, 2, and 6–9’s limitations. Pet. 24–42. Those contentions rely largely on Welch 2001, with Welch 1997 used for certain limitations. *See* Pet. 25–34. Petitioner asserts that Welch 2001 incorporates by reference Welch 1997. Pet. 19 (citing Ex. 1007, 11).

1. The Petition’s specificity

Patent Owner contends that the Petition is deficient because it “purports to require a combination of Welch 2001 and Welch 1997,” but does not identify limitations where Welch 1997’s teachings are required. Prelim. Resp. 12–13. We do not agree that the Petition presents unclear challenges. It cites Welch 1997’s disclosures as relevant to claim 1’s

preamble and final limitation, and to claim 6. Pet. 25, 32, 36–38. Patent Owner’s argument does not show a flaw with the Petition.

2. *Failure to incorporate arguments for dependent claims*

Patent Owner contends that the Petition is deficient because it “addresses only the new limitations appearing in each [dependent] claim, without incorporating or even referring to any arguments as to the independent claims from which these claims depend.” Prelim. Resp. 16. We do not agree that the Petition presents unclear challenges. Other than as addressed below, Patent Owner has not identified any substantive inconsistency with Petitioner’s challenges, and we decline to impose a requirement that the Petition formally incorporate independent-claim contentions to the dependent-claim challenges. Patent Owner’s argument does not show a flaw with the Petition.

3. *Claims 1 and 2*

a. *“sensor subsystem coupled to the estimation subsystem”*

Claim 1 recites “an estimation subsystem; and a sensor subsystem coupled to the estimation subsystem.” Ex. 1003, 46:5–6. Petitioner points to Welch 2001’s “Ceiling-HiBall Interface Board (CIB),” asserting it “couples LED targets and HiBall sensors (the claimed ‘sensor subsystem’) with the host computer (the claimed ‘estimation subsystem’).” Pet. 29. Patent Owner contends that Petitioner fails to identify a “sensor subsystem coupled to the estimation subsystem.” Prelim. Resp. 18–19. Welch 2001 discloses sensor subsystems including the “outward-looking sensing unit” called the “HiBall” and “fixed-location infrared LEDs” called the “Ceiling.” Ex. 1007, 5. It discloses that “Communication and synchronization between the host

computer and these subsystems is coordinated by the Ceiling-HiBall Interface Board (CIB).” *Id.* at 5–6; *accord id.* at 9 (“The Ceiling-HiBall Interface Board (CIB) (figure 11) provides communication and synchronization between a host personal computer, the HiBall (section 4.1), and the ceiling (section 4.2).”). Patent Owner implies that “this attenuated connection” fails to meet the “coupled to” limitation but does not offer a construction that would support such an argument. Prelim. Resp. 18. The plain language of “coupled to” includes indirect connections, such as one that includes an interface device like Welch 2001’s CIB. Accordingly, the present record supports that Welch 2001 discloses that its sensor subsystem is “coupled to” its estimation subsystem.

b. “configuration data” provided “to the estimation subsystem”

Claim 1 requires the sensor subsystem by “configured to provide configuration data to the estimation subsystem.” Ex. 1003, 46:6–8.

Petitioner relies on Welch 2001’s “offline calibration procedure” as disclosing configuration information provided from the sensor modules to the estimation subsystem. Pet. 31–32. In that procedure, Welch 2001 discloses taking measurements to form “a table mapping real image-plane coordinates to ideal image-plane coordinates.” Ex. 1007, 9–10.

Patent Owner contends that Petitioner fails to show that Welch 2001’s system is “configured to provide configuration data to the estimation subsystem.” Prelim. Resp. 20–23. Patent Owner first contests whether “calibration measurements from the sensor subsystem would constitute ‘configuration data’.” *Id.* at 20 (quoting Pet. 32). As Petitioner points out, however, the ’253 patent’s specification describes that “Providing configuration information from the sensor modules includes providing

information characterizing one or more calibration parameters of a sensor associated with a sensor module.” Ex. 1003, 7:14–17; *see* Pet. 31.

The plain language of “configuration data,” in light of the specification, includes measurements taken to form a calibration table. Indeed, such measurements appear to fall within “information characterizing one or more calibration parameters” as the specification describes. Ex. 1003, 7:14–17. And Patent Owner has not proposed a construction for “configuration data” that would exclude such measurements. Accordingly, the present record supports Petitioner’s contention that the offline calibration measurements are “configuration data.”

Petitioner asserts further that the calibration tables developed from the calibration measurements are also provided to the estimation subsystem (Welch 2001’s host computer) so that it can “convert the measured sensor coordinates to ‘ideal coordinates’ using the calibration tables.” Pet. 32 (quoting Ex. 1007, 10). In Patent Owner’s view, Welch 2001 supports, at most, that its host computer generates the calibration tables and therefore cannot support that the sensor subsystem “provides” the tables to the estimation subsystem. Prelim. Resp. 21–22. Because we agree with Petitioner that Welch 2001’s offline calibration measurements are “configuration data,” the sensor subsystem providing those measurements to the host computer would satisfy the claim’s requirement that configuration data be provided to the estimation subsystem. To the extent Petitioner relies on the calibration tables themselves, however, it is not clear from the present record that Welch 2001’s sensor subsystem provides the tables to the host computer. This issue presents a factual dispute best resolved through trial. At this stage, Petitioner’s contentions are sufficient for institution.

Patent Owner does not otherwise contest Petitioner's contentions for claim 1. We have reviewed Petitioner's contentions and conclude they demonstrate a reasonable likelihood Petitioner will prevail with respect to obviousness of claim 1 over Welch 2001 and Welch 1997.

Patent Owner challenges the contentions for claim 2 only as suffering from the deficiencies asserted for claim 1's contentions. Prelim. Resp. 23. Having reviewed the record and as discussed above, we determine Petitioner's contentions show a reasonable likelihood that Petitioner will prevail with respect to obviousness of claim 2 over Welch 2001 and Welch 1997.

4. Claims 6 and 8

Claim 6 recites "enumerating sensing elements available to a tracking system." Ex. 1003, 46:28–30. Petitioner contends that Welch 2001's system includes six LEPD⁸ sensing elements in each HiBall sensor unit and allows for multiple HiBalls connected to the CIB. Pet. 36–37 (citing Ex. 1007, 6, 9, Fig. 6). In light of those multiple sensors and multiple sensor units, Petitioner contends that Welch 1997 describes enumerating the sensing elements because its SCAAT method implements a device filter "for each source or sensor to be calibrated" during autocalibration. Pet. 37 (quoting Ex. 1008, 6 (§ 3.2)). According to Petitioner, "[t]hese device filters enumerate each source and sensor available by initializing and calibrating the parameters used for each device" and "[d]evices that are not used are not calibrated." *Id.*; accord Ex. 1007, 6 (§ 3.2.1) ("For each device (source,

⁸ Lateral-Effect Photo Diode. Ex. 1007, 6.

sensor, landmark, etc.) we create a distinct device filter”), 7 (§ 3.2.2) (“If a device is never used, it is never calibrated.”).

Patent Owner contends that because Welch 2001 does not disclose “that the number of HiBall sensors or LEPDs can vary in any given embodiment, . . . there is no reason for the system to perform any enumeration of those sensors.” Prelim. Resp. 24–25. Considering Welch 1997, Patent Owner asserts that it “discloses initializing parameters for sensors that are already known” and “does not [determine] which sensors can be used—*i.e.*, enumerating the sensing elements available.” *Id.* at 25. Thus, Patent Owner appears to argue that “enumerating” requires determining which sensors can be used. But Patent Owner does not support that construction with record evidence. We decline to limit the claims at this stage, and Petitioner’s contentions regarding Welch 1997’s calibration sufficiently justify institution.

Patent Owner does not otherwise contest Petitioner’s contentions for claim 6. We have reviewed Petitioner’s contentions and conclude they demonstrate a reasonable likelihood Petitioner will prevail with respect to obviousness of claim 6 over Welch 2001 and Welch 1997.

Patent Owner challenges the contentions for claim 8 only as suffering from the deficiencies asserted for claim 6’s contentions. Prelim. Resp. 27. Having reviewed the record and as discussed above, we determine Petitioner’s contentions show a reasonable likelihood Petitioner will prevail with respect to obviousness of claim 8 over Welch 2001 and Welch 1997.

5. Claim 7

Claim 7 depends from claim 6 and recites “selecting a pair of sensing elements . . . having a highest expected utility of a measurement among the

sequence of candidates.” Ex. 1003, 46:37–44. Petitioner relies on Welch 2001’s description of “recursive pose estimation,” in which the HiBall system chooses a single view of the 26 available in a HiBall unit, then selects an LED to test the sensor corresponding to the chosen view. Pet. 39–40 (citing Ex. 1007, 13–14, 17). Welch 2001 discloses that “[o]ne of the candidate LEDs is then chosen in a least-recently-used fashion to ensure a diversity of constraints.” Ex. 1007, 13 (§ 5.3).

Patent Owner contends that even selecting an LED based on “least-recently-used fashion” does not satisfy the requirement for “a highest expected utility of a measurement” because that term “refers to ‘the utility (or usefulness) of a [sensor] measurement’ in estimating the pose of tracked objects.” Prelim. Resp. 26 (citing Ex. 1003, 19:4–12, 25:64–26:50, 40:56–41:5). To the extent Patent Owner proposes a construction limiting the “highest expected utility,” it is unclear whether “the utility in estimating the pose of tracked objects” would exclude Welch 2001’s selection performed “to ensure a diversity of constraints.” Patent Owner contends also that “diversity of constraints” would not support selecting an LED with the “highest” expected utility (Prelim. Resp. 26–27), but Welch 2001’s disclosure of selecting the “least-recently-used” LED appears to contradict that argument.

Based on the present record, the claim language sufficiently reads on Welch 2001’s disclosures to support institution. During trial, Patent Owner may propose a limiting construction and explain why it does not read on Welch 2001’s disclosures.

6. Claim 9

Claim 9 depends from claim 8 and requires that “the set of sensing elements” includes a target that “comprises a natural feature in an environment.” Ex. 1003, 46:48–49. Petitioner relies on Welch 2001’s statement that its system could “evolve” to use “natural features” Pet. 41–42 (quoting Ex. 1007, 4–5 (“The system can evolve from using dense active landmarks to fewer, lower signal-to-noise ratio, passive, and some day natural features for a Self-Tracker that operates entirely without explicit landmark infrastructure.”))).

Patent Owner argues that because Welch 2001 “did not use natural features as targets” and merely suggested they could be used in the future, it falls short of satisfying the claim language. Prelim. Resp. 27–28 (emphasis omitted). Patent Owner cites *In re Cyclobenzaprine Hydrochloride*, 676 F.3d 1063, 1074 (Fed. Cir. 2012), for the proposition that “knowledge of the goal” does not prove obviousness. But in that case, the court noted that, “while there might have been a desire for an extended-release formulation, there is no evidence that skilled artisans would have known how to achieve it.” *Cyclobenzaprine*, 676 F.3d at 1074. Here, Petitioner offers testimony that “[i]t was well-known at the time of the ’253 Patent that natural features could be used as targets in optical tracking systems such as the HiBall system.” Pet. 42 (citing Ex. 1003, 1:55–59; Ex. 1014; Ex. 1005 ¶ 76). Accordingly, Petitioner has made a showing sufficient for institution.

E. OBVIOUSNESS OVER WELCH 2001, WELCH 1997, AND HARRIS

Claim 3 depends from claim 2 and further recites that “the interface [for interacting with a corresponding set of one or more sensing elements] enables the sensor module to perform computations independently of an

implementation of the estimation subsystem.” Ex. 1003, 46:18–20. Claim 4 depends from claim 2 and recites a similar limitation as claim 3, but requires the interface enable the estimation subsystem to perform computations independently of the sensor modules. *Id.* at 46:21–23. Claim 5 depends from claim 1 and further recites “a navigation subsystem to navigate the object in an environment based on the location estimate for the object.” *Id.* at 46:24–26.

Petitioner relies on teachings from Harris in combination with Welch 2001 and Welch 1997. Pet. 42–53. Harris describes a tracking system using local nodes with independent processing capabilities. Ex. 1011, 8:19–21, Fig. 8. Harris notes that “[t]he fusion system architecture shown in FIG. 8 is well suited for those applications where it is desirable to distribute the processing load and/or minimize communications requirements.” *Id.* at 10:36–39.

Petitioner reasons that the Welch references’ HiBall sensors already include a Field Programmable Gate Array (FPGA) controller, and skilled artisans would understand that “an FPGA could be programmed to perform computations independent of an implementation of the estimation subsystem.” Pet. 42 (citing Ex. 1005 ¶ 77). In light of Harris’s distributed processing and instruction of benefits from that arrangement, Petitioner reasons that “implementing a distributed system would allow for increased processing speed, reduced need for communication between processors, the ability to balance the computational load on each processor, and smaller required memory or storage bandwidth and size.” Pet. 43 (citing Ex. 1005 ¶ 79). Petitioner reasons additionally that adopting Harris’s distributed

configuration in Welch 2001’s system would “avoid communicating large amounts of data at high data rates.” *Id.*

Petitioner submits that skilled artisans would have a reasonable expectation of success in the combination, because Welch 2001 and Welch 1997 suggest an application where HiBall units are “daisy-chained together for . . . pose-aware input devices.” Pet. 44 (quoting Ex. 1007, 4). Such an arrangement would require processing in the sensor modules, supporting that the HiBall units would accommodate the proposed combination.

1. Motivation to combine

Patent Owner challenges Petitioner’s reasons for the combination. Prelim. Resp. 29–32. According to Patent Owner, the configuration “would require the HiBall units to contain more memory and storage, not less.” *Id.* at 31. Patent Owner reasons additionally that Welch 2001 sought to minimize the sensor size, and the proposed modification would undermine that goal. *Id.* (citing Ex. 1007, 4, 7–8). Patent Owner argues further that the algorithm used with Welch’s HiBall units reduces algorithmic complexity, and the communication protocol is simple, precluding any need to distribute processing load. *Id.* at 31–32 (citing Ex. 1007, 7, 11).

Petitioner’s stated motivations for the combination are sufficient on the present record. Patent Owner’s arguments at most raise factual disputes best resolved at trial, and we will address arguments raised during the trial based on the full record.

2. Reasonable expectation of success

Patent Owner challenges whether skilled artisans had a reasonable expectation of success with the proposed combination. Prelim. Resp. 32–33. According to Patent Owner, Petitioner fails to explain which of Harris’s capabilities would be relevant to the HiBall system or how those capabilities would be tied to the claim scope at issue. We do not agree. Petitioner explains that Harris’s distributed-processing configuration offers a benefit to Welch’s system and addresses the limitations of claims 3–5. Pet. 42–53. Patent Owner’s arguments do not identify a flaw in Petitioner’s position on the present record.

Based on the present record, we conclude Petitioner has shown a reasonable likelihood it will prevail with respect to obviousness of claims 3–5 over Welch 2001, Welch 1997, and Harris.

F. OBVIOUSNESS OVER WELCH 2001, WELCH 1997, AND REITMAYR

Reitmayr describes a software architecture that addresses various aspects of tracking input devices. Ex. 1016, 1. Petitioner relies on Reitmayr’s description of “source nodes that receive their data values from external sources, filter nodes, and encapsulate a device driver that accesses a particular tracking device such as a Polhemus or Ascension tracker connected to a serial interface.” Pet. 54 (citing Ex. 1016, 3⁹). Such source nodes, according to Petitioner, “rely on data from the external sources to compute their own data.” *Id.* (citing Ex. 1016, 5).

Petitioner reasons that Welch 2001 and Welch 1997’s HiBall units could implement a distributed system, and that doing so would provide the

⁹ We use the exhibit page number, not Reitmayr’s original page numbers.

same benefits discussed above regarding combination with Harris. Pet. 55 (citing Ex. 1005 ¶ 92). Petitioner reasons that skilled artisans would have a reasonable expectation of success with such a combination for the reasons discussed above. *Id.* (citing Ex. 1007, 4). Petitioner relies further on Reitmayr’s description that its distributed architecture “‘gives instant access to [a] wide range of tracking related functionality for any application’ and allows the steps of ‘the whole data manipulation’ process to be broken up and distributed in a ‘data flow network.’” *Id.* at 50 (quoting Ex. 1016, 2).

1. Motivation to combine

Patent Owner challenges whether Petitioner establishes a sufficient motivation for the asserted combination with Reitmayr. Prelim. Resp. 35–37. Patent Owner’s argument mirror those discussed above regarding the combination with Harris, and we reach the same conclusion for the combination with Reitmayr.

2. Reasonable expectation of success

Patent Owner challenges whether skilled artisans would have had a reasonable expectation of success with the Reitmayr combination, raising the same arguments discussed above for the Harris combination. Prelim. Resp. 37–38. We reach the same conclusion for the Reitmayr combination.

Patent Owner argues also that Petitioner fails to account for the additional features disclosed by Reitmayr. Prelim. Resp. 38. But Petitioner need not account for all aspects of Reitmayr, only those aspects involved in the proposed combination. Patent Owner’s argument therefore does not identify a flaw with Petitioner’s proposed combination.

Based on the present record, we conclude Petitioner has shown a reasonable likelihood it will prevail with respect to obviousness of claims 3–5 over Welch 2001, Welch 1997, and Reitmayr.

G. OBVIOUSNESS OVER HORTON

Horton describes a “three-dimensional position and orientation tracking system” to generate position and orientation information for an object such as a head-mounted display unit. Ex. 1010, code (57). Horton’s tracking processor uses a feedback process such that it can correct the calculated position and orientation with additional data from other sensors, such as a radar-based tracking system. *Id.*

Horton depicts its basic hardware components in Figure 1, reproduced below:

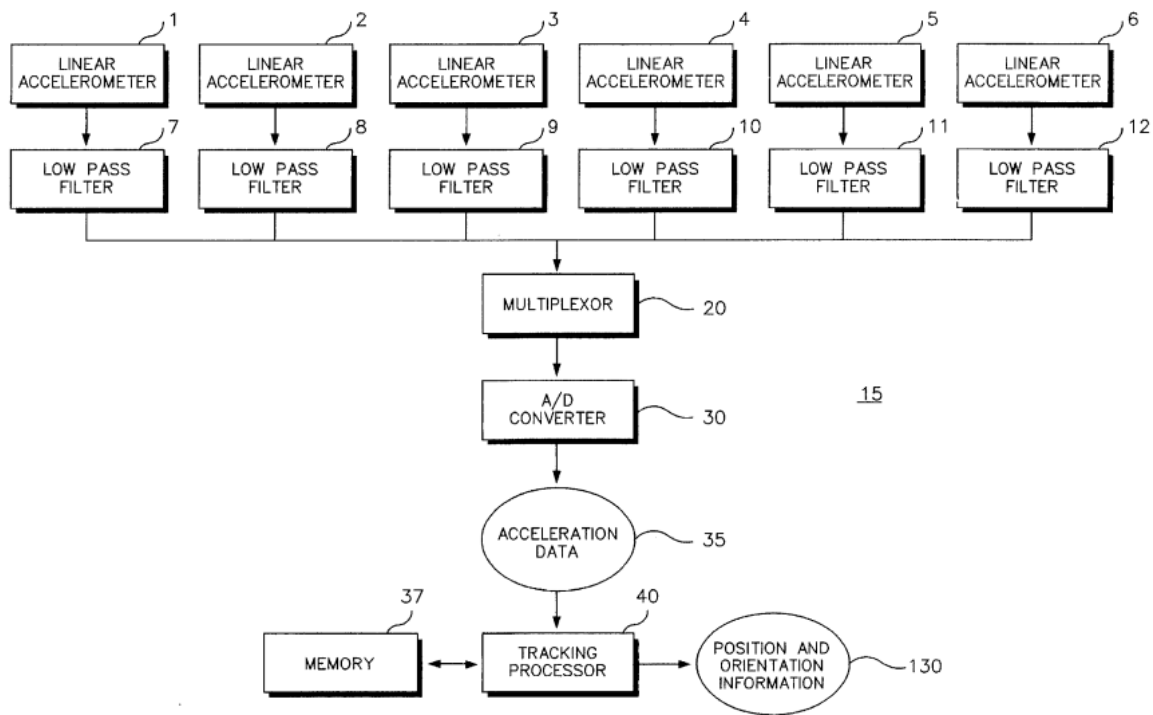


FIGURE 1

Id., Fig. 1. Figure 1 depicts accelerometers 1–6, each with corresponding low pass filter 7–12, providing acceleration data 35 to tracking processor 40 though multiplexor 20 and A/D converter 30. *Id.* at 3:27–4:40. Tracking processor 40 outputs position and orientation information 130. *Id.* at 4:40–46. Horton’s Figure 3 is reproduced below:

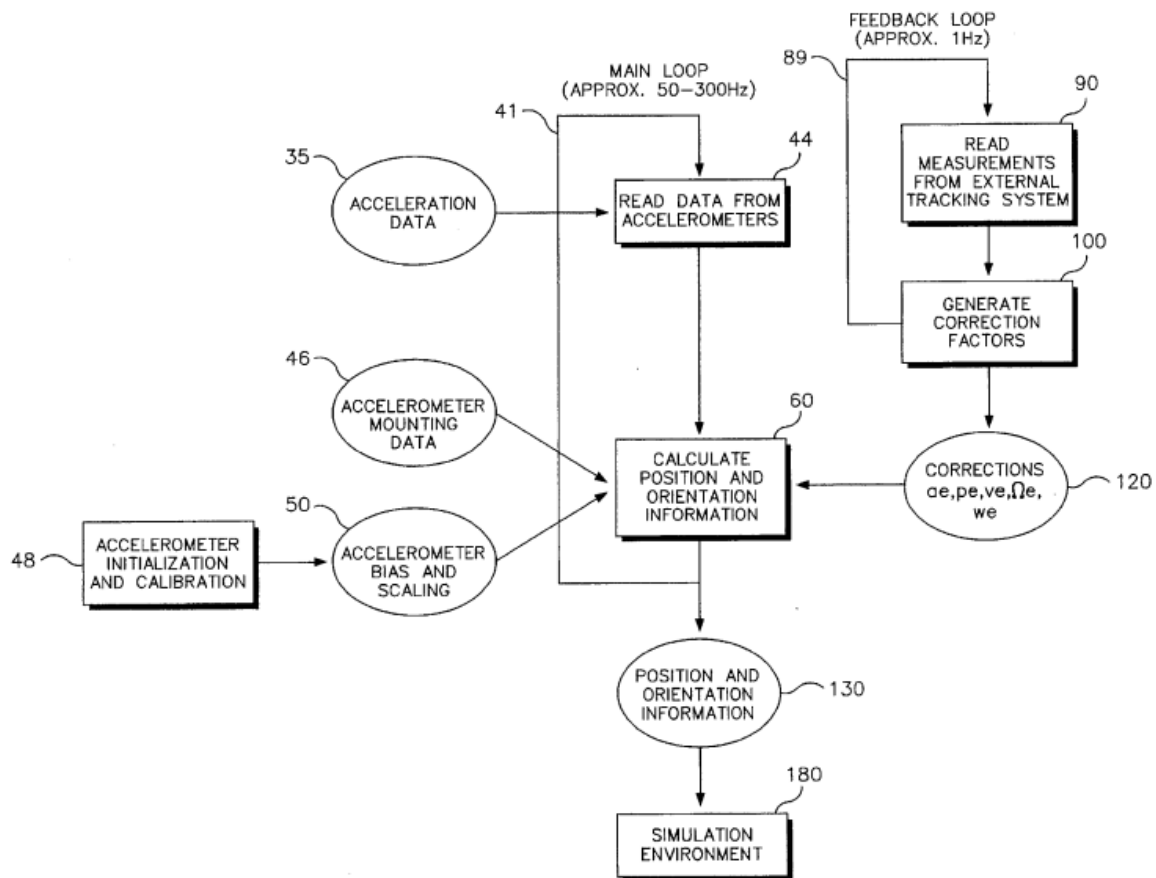


FIGURE 3

Id., Fig. 3. Figure 3 depicts a simplified flow chart of Horton's tracking system 15 as implemented on tracking processor 40. *Id.* at 5:59–60. Main loop 41 reads acceleration data 35 and calculates position and orientation information. *Id.* at 6:25–27. Accelerometer initialization and calibration 48 uses initial measurements with a stationary tracked object to determine initial bias and scale factors 50, which are provided to main loop 41 to calculate position and orientation information 130. *Id.*, Fig. 3. Feedback loop 89, implemented as a Kalman filter, uses measurements from external tracking system 170 to generate corrections 120, which are used in main loop 41 to calculate position and orientation information 130. *Id.* at 6:34–42.

Petitioner relies on Horton’s tracking processor 40 implementing main loop 41 and feedback loop 89 as the claimed “estimation subsystem.” Pet. 58–60. In that regard, Petitioner relies on Horton’s disclosure that, “[i]n a preferred embodiment, calculation 60 also performs an estimation of position and orientation 130 one ‘frame delay’ into the future.” Ex. 1010, 7:56–58; Pet. 59. Petitioner relies on Horton’s accelerometers, initialized using calibration routine 48 and providing acceleration data 35 to the tracking processor, as the sensor subsystem. Pet. 60–62. Petitioner identifies acceleration data generated during calibration measurements as “configuration data” provided to the estimation subsystem, and acceleration data generating during live measurements as “measurement information” provided to the estimation subsystem. Pet. 60–62.

1. 35 U.S.C. § 325(d)

Patent Owner argues that we should deny institution under § 325(d) because the applicant identified Horton on an IDS. Prelim. Resp. 39–41. Because the grounds based on Welch 2001 and Welch 1997 do not suffer from this potential defect, we conclude that Patent Owner has not identified a sufficient reason to deny institution, even if we agreed that the Office had not erred in considering Horton. We decline to exercise discretion under § 325(d) to deny institution.

2. The Petition’s specificity

Patent Owner argues that the Petition fails to adequately identify the challenge under Horton, because Petitioner does not explain the “the distinction, if any, between each limitation and what precisely Horton discloses.” Prelim. Resp. 41. We do not agree that the Petition presents

unclear challenges. It identifies Horton’s teachings that correspond to each claim limitation. Pet. 58–72.

3. Claims 1 and 5

a. *Horton’s distinct “sensor subsystem” and “estimation subsystem”*

Claim 1 recites “an estimation subsystem; and a sensor subsystem coupled to the estimation subsystem.” Ex. 1003, 46:5–6. Patent Owner contends that Petitioner fails to identify a “sensor subsystem” separate from the “estimation subsystem.” Prelim. Resp. 44–47. We do not agree.

Petitioner identifies “accelerometers 1-6 that are initialized using calibration routine 48 and provide acceleration data 35 to the estimation subsystem” as the sensor subsystem. Pet. 60. And Petitioner identifies “main loop 41 and the Kalman Filter (i.e., feedback loop 89) executed by the tracking processor 40” as the estimation subsystem. Pet. 58–59. Patent Owner criticizes Petitioner for not adequately identifying “software modules each associated with one or more” accelerometer, but does not explain how the claim requires that element, which Patent Owner cites from the specification. Prelim. Resp. 46 (quoting Ex. 1003, 2:50–56). Further, Petitioner relies on Horton’s Figure 3, which depicts “accelerometer bias and scaling 50” and “accelerometer mounting data 46,” which Horton describes as calculated “for each accelerometer 1–6.” Ex. 1010, 6:5–12; *accord id.* at 7:6–33.

Additionally, Patent Owner has not proposed or supported constructions for the sensor subsystem and estimation subsystem that require complete independence. Patent Owner may do so during the instituted trial.

We conclude that Petitioner’s contentions are adequate for institution.

*b. Horton's distinct "configuration data" and
"measurement information"*

Claim 1 requires that the sensor subsystem be configured to provide both "configuration data" and "measurement information" to the estimation subsystem. Ex. 1003, 46:7–9. Patent Owner contends that Petitioner fails to identify separate "configuration data" and "measurement information" provided to the estimation subsystem. Prelim. Resp. 47–49. We do not agree.

As discussed above, Petitioner identifies measurements made during the calibration procedure as "configuration data," and identifies measurements after that procedure as "measurement information." Pet. 60–62. According to Patent Owner, Horton's calibration procedure does not involve collecting acceleration measurements (Prelim. Resp. 48) but Horton belies that contention. Horton discloses that, during calibration, "[p]osition and orientation 130 are calculated according to the present invention as specified herein." Ex. 1010, 6:3–5. That statement refers to the method for calculating position and orientation from acceleration data, and therefore teaches collecting acceleration measurements during calibration.

Patent Owner criticizes the Petition for not explaining how accelerometer biases and mounting data are provided to the estimation subsystem. It is not clear that resolving obviousness requires accounting for that step, in light of Petitioner's contention that acceleration measurements during calibration are "configuration data" provided to the estimation subsystem. *See* Pet. 62. To the extent we must resolve Horton's teachings about how accelerometer biases and mounting data are provided to its tracking processor, we leave that determination for trial.

Patent Owner does not otherwise contest Petitioner’s contentions for claim 1. We have reviewed Petitioner’s contentions and conclude they demonstrate a reasonable likelihood Petitioner will prevail with respect to obviousness of claim 1 over Horton.

Claim 5 depends from claim 1. Ex. 1003, 46:24–26. Patent Owner challenges Petitioner’s showing for claim 5 only for the same reasons discussed for claim 1. Prelim. Resp. 52. We have reviewed Petitioner’s contentions (Pet. 66–67) and determine they support institution.

4. Claims 2–4

Claim 2 depends from claim 1 and further recites “the sensor subsystem includes one or more sensor modules, each providing an interface for interacting with a corresponding set of one or more sensing elements.” Ex. 1003, 46:14–17. Claims 3 and 4 each depend from claim 2. *Id.* at 46:18–23. Petitioner asserts that Horton’s accelerometers or alternative tracking sensors are the claimed sensor modules. Pet. 63–64 (citing Ex. 1010, 3:41–46, 6:48–54; Ex. 1005 ¶ 106). Petitioner contends that Horton’s tracking processor, executing main loop 41, reads acceleration data 35 from each accelerometer 1–6, and by therefore coupling the accelerometers to the estimation subsystem and using bias and scaling factors for each accelerometer, the main loop includes a sensor interface through “software modules with interfaces for interacting with each accelerometer.” Pet. 64 (citing Ex. 1005 ¶ 107).

Patent Owner challenges those assertions, asserting that Horton lacks sensor modules that each provide an interface for interacting with the sensing elements. Prelim. Resp. 50–51. In Patent Owner’s view, “Horton teaches that sensor data—specifically, measurements from accelerometers—

is fed directly into the main loop, without any interceding software components.” *Id.* at 51 (citing Ex. 1010, 7:6–7). We agree with Patent Owner that Horton’s Figure 4 supports that its tracking processor reads acceleration data from the accelerometers before any software applying bias and scaling, and before any transformations using the accelerometer-mounting data. Ex. 1010, Fig. 4. It appears that, to the extent the main loop’s software for coupling each accelerometer to the estimation subsystem comprises an “interface,” the interface would not be “for interacting with a corresponding set of one or more sensing elements” as claimed. We leave this dispute for resolution at trial. Although we question Petitioner’s showing for obviousness of claims 2–4 over Horton, that does not undermine the other bases for institution.

5. Claim 6

Independent claim 6 recites a method including “enumerating sensing elements available to a tracking system” and “providing parameters specific to the enumerated sensing elements to the tracking system.” Ex. 1003, 46:27–36. Petitioner asserts that Horton discloses those limitations through its initialization and calibration procedure performed for each accelerometer before system use. Pet. 68–69 (citing Ex. 1010, 2:25–30, 2:41–44, 3:41–51, 5:60–6:11, 6:34–42, 7:56–64; Ex. 1005 ¶¶ 113–115).

Patent Owner challenges those assertions, arguing that Horton “does not suggest that the *same* implementation could operate with differing numbers of accelerometers.” Prelim. Resp. 53. Patent Owner, however, has not proposed or supported a construction for “enumerating” that would require as much. Patent Owner may do so during the instituted trial. Based on the plain language, Horton’s description of individually initializing and

calibrating each accelerometer supports Petitioner’s contention that Horton renders claim 6 obvious. *See* Ex. 1010, 5:60–6:24.

Patent Owner does not otherwise contest Petitioner’s contentions for claim 6. We have reviewed Petitioner’s contentions and conclude they demonstrate a reasonable likelihood Petitioner will prevail with respect to obviousness of claim 6 over Horton.

6. Claim 7

Claim 7 depends from claim 6 and further recites “selecting a pair of sensing elements from a sequence of candidates of pairs of sensing elements, . . . the selected pair having a highest expected utility of a measurement among the sequence of candidates.” Ex. 1003, 46:37–44. Petitioner contends first that Horton discloses that limitation through its disclosure of alternative, external tracking sensors. Pet. 70 (citing Ex. 1010, 6:48–54; Ex. 1005 ¶ 116). According to Petitioner, “an optical tracker would utilize a pair of sensing elements (i.e., a camera and a target) for measurement of position and orientation.” *Id.*

Petitioner contends also that Horton discloses claim 7’s limitation through using two accelerometers to track an object in one-dimensional space. *Id.* (citing Ex. 1010, 3:49–51 (“Fewer accelerometers (e.g., four) could be used to track the object, for example, in a two-dimensional space or one-dimensional space (e.g., two accelerometers).”); Ex. 1005 ¶ 117).

Patent Owner does not address Petitioner’s contentions based on external tracking, but asserts that Horton’s two-accelerometer embodiment refers to a system with *only* two accelerometers, which would not permit selecting that pair of accelerometers. Prelim. Resp. 54–55.

It is not clear on the present record whether Petitioner has identified sufficient teachings in Horton to support claim 7's obviousness. The parties may further develop the record during trial, including the appropriate scope of claim 7's limitations, to allow resolving any factual disputes.

7. Claims 8 and 9

Claim 8 depends from claim 6 and further recites that “the set of sensing elements comprises at least one sensor and at least one target, the sensor making a measurement with respect to the target.” Ex. 1003, 46:45–47. Petitioner contends that Horton's disclosure of optional, external tracking satisfies the limitation. Pet. 71 (citing Ex. 1010, 6:48–54, 9:7–15; Ex. 1005 ¶ 118).

Patent Owner challenges that contention, arguing that Petitioner relies on Horton's accelerometers for the sensing elements in claim 6, but relies on a separate sensor embodiment using external tracking for the same sensing elements.¹⁰ Prelim. Resp. 56. We agree with Patent Owner that Petitioner appears to rely on Horton's “a set of accelerometers” as claim 6's sensing elements. Pet. 68. Additionally, Horton's disclosure of “external tracking system 170” appears related to its “feedback loop 89,” used to generate correction factors applied when calculating position and orientation from the accelerometer data. Ex. 1010, 6:34–54. It is not clear whether Petitioner has

¹⁰ Claim 8 recites “the set of sensing elements” while claim 6 does not provide express antecedent basis for that phrase. *Compare* Ex. 1003, 46:27–36, *with id.* at 46:45–47. Patent Owner asserts that “the ‘set of sensing elements’ recited in claim 8 finds its antecedent basis in claim 6,” but does not further explain. Prelim. Resp. 56. While the disparity appears to be a clerical error that might be remedied through claim construction, the parties should address this disparity during trial.

adequately accounted for claim 8’s limitations, including how those limitations relate to claim 6’s limitations. This potential deficiency does not undermine the bases we discuss for institution, and we leave the issue for resolution through trial. We reach the same conclusion for claim 9, which depends from claim 8. *See* Prelim. Resp. 56–57.

H. OBVIOUSNESS OVER HORTON AND WELCH 1997

Petitioner submits that skilled artisans had reason to use Welch 1997’s camera-based tracking system as the external tracking system in Horton. Pet. 72–73. Petitioner relies on Horton’s disclosure that external measurements from an external tracking system are used for feedback “[i]f the volume in which object 300 moves is relatively large compared to the size of [the] object” (Ex. 1010, 6:43–44) and Welch 1997’s disclosure of applicability to “a large (wide-area) tracking system” (Ex. 1008, 3 (§ 2.1)). Pet. 72–73. Petitioner also relies on Horton’s disclosure of using “a conventional tracking system” for its external tracking system. *Id.* at 72 (citing Ex. 1010, 6:48–51).

1. Claim 7

Claim 7 depends from claim 6 and further recites “selecting a pair of sensing elements from a sequence of candidates of pairs of sensing elements, . . . the selected pair having a highest expected utility of a measurement among the sequence of candidates.” Ex. 1003, 46:37–44. Petitioner contends that Horton’s conventional external tracking systems include optical tracking, such as disclosed in Welch 1997. Pet. 73. According to Petitioner, skilled artisans would have understood that “position and orientation can also be determined for particular sensors/targets (e.g., a particular

sensor/target pair in the external tracking system described in Welch 1997) in a particular sequence based on the utility of measurement from each sensor/target.” *Id.* at 73–74 (citing Ex. 1005 ¶ 123).

Patent Owner contends that neither Horton nor Welch 1997 discloses a “sequence of candidates of pairs of sensing element” as claimed. Prelim. Resp. 58. The record at this stage is insufficient to support a conclusion on this dispute, and we leave its resolution for trial.

2. Claims 8 and 9

Claim 8 depends from claim 6 and further recites that “the set of sensing elements comprises at least one sensor and at least one target, the sensor making a measurement with respect to the target.” Ex. 1003, 46:45–47. Petitioner relies on Welch 1997’s disclosures, which describe “an optical tracking system wherein a camera (sensor) observes ‘known scene points’ (targets).” Pet. 74 (citing Ex. 1008, 2 (§ 1.2)).

As with Petitioner’s contentions for Horton alone, Patent Owner challenges whether Petitioner may properly rely on Horton’s accelerometers for claim 6’s sensing elements, but rely on an external tracking system for claim 8’s “set of sensing elements” Prelim. Resp. 59–60. As above, it is not clear whether Petitioner has adequately accounted for claim 8’s limitations, including how those limitations relate to claim 6’s limitations. This potential deficiency does not undermine the bases we discuss for institution, and we leave the issue for resolution through trial. We reach the same conclusion for claim 9, which depends from claim 8. *See* Prelim. Resp. 60.

3. Motivation to combine

Patent Owner challenges whether Petitioner adequately explains why skilled artisans would use Welch 1997's system with Horton's system. Prelim. Resp. 60–61. According to Patent Owner, Horton's approach of tracking with accelerometers and Welch 1997's approach of optical tracking "are too diverse for a POSITA to look to, much less combine these references." Prelim. Resp. 61. But Patent Owner's argument ignores that Petitioner asserts Welch 1997's teachings as applicable to Horton's external tracking system, which Horton expressly states may be an optical system. Ex. 1010, 6:48–51. Accordingly, Patent Owner's argument is not persuasive on the present record.

I. SECONDARY CONSIDERATIONS

Patent Owner asserts that the Petition provides evidence of commercial success, by identifying current and former licensees of the '253 patent. Prelim. Resp. 61 (citing Pet. 2). We do not agree that Patent Owner's assertion provides sufficient information on which we could reach any conclusion regarding secondary considerations. Patent Owner may develop the record supporting such an assertion during trial.

III. CONCLUSION

For the reasons discussed above, we conclude Petitioner has shown a reasonable likelihood of prevailing with respect to at least one claim. We have evaluated all of the parties' submissions and determine that the record supports institution.

Our determination at this stage of the proceeding is based on the evidentiary record currently before us. This decision to institute trial is not a

final decision as to patentability of any claim for which *inter partes* review has been instituted. Our final decision will be based on the full record developed during trial.

IV. ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), *inter partes* review of claims 1–9 of the '253 patent is instituted on the grounds set forth in the Petition;

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

IPR2022-01308
Patent 7,725,253 B2

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