

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner

v.

AUTONOMOUS DEVICES, LLC,
Patent Owner

Case: IPR2023-01169
U.S. Patent No. 10,607,134

PATENT OWNER'S PRELIMINARY RESPONSE

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	THE '134 PATENT	1
III.	PERSON OF ORDINARY SKILL IN THE ART	4
IV.	ALLEGED PRIOR ART	4
	A. THOMAS (EX. 1005)	4
	B. BUEHLER (EX. 1006)	5
V.	CLAIM CONSTRUCTION	7
	A. “object representation” (Claims 1-20)	8
	B. “means for generating or receiving...”; “means for determining” “means for executing...” (Claim 19)	12
VI.	PETITIONER HAS NOT ESTABLISHED A REASONABLE LIKELIHOOD THAT THE CITED PRIOR ART RENDERS THE CHALLENGED CLAIMS UNPATENTABLE	12
	A. Ground 1 Fails	12
	1. Claim 1: Thomas Does Not Disclose Object Representations	13
	2. Claims 2-9 and 11-18	22
	3. Claim 10	22
	4. Claims 19-20	22
	B. Ground 2 Fails	22
	C. Ground 3 Fails	23
	1. Claims 1, 3, and 17: Buehler Does Not Disclose Object Representations	23
VII.	INSTITUTION SHOULD BE DENIED UNDER 35 U.S.C. § 314(a)	32

A.	<i>Fintiv</i> Applies To This Proceeding	33
B.	The <i>Fintiv</i> Factors Weigh In Favor of Denying Institution	34
1.	Factor 1: No Motion to Stay has been filed and the district court is unlikely to grant a stay	34
2.	Factor 2 is not dispositive	34
3.	Factor 3: The parties and district court have invested significant time into the district court litigation	35
4.	Factor 4: There is significant overlap between this proceeding and the district court case	36
5.	Factor 5: The parties in both proceedings are the same.....	37
6.	Factor 6: The merits of Petitioner’s petition are not strong.....	38
VIII.	CONCLUSION.....	38

TABLE OF AUTHORITIES

	Page(s)
CASES	
<i>Apple Inc. v. Fintiv Inc.</i> , IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020)	passim
<i>Arendi S.A.R.L. v. Apple Inc.</i> , 832 F.3d 1355 (Fed. Cir. 2016)	21
<i>Autonomous Devices, LLC v. Tesla, Inc.</i> , No. 1:22-cv-01466-MN (D. Del).....	33
<i>DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.</i> , 469 F.3d 1005 (Fed. Cir. 2006)	7
<i>E-One Inc. v. Oshkosh Corp.</i> , IPR2019-00162, Paper 16 (PTAB June 5, 2019)	38
<i>OpenSky Indus., LLC v. VLSI Tech. LLC</i> , IPR2021-01064, Paper 102 (PTAB Oct. 4, 2022).....	33
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005).	7
<i>Samsung Elecs. v. Clear Imaging Research, LLC</i> , IPR2020-01400, Paper 13 (PTAB Feb. 3, 2021).....	37
<i>SK Innovation Co. LTD., v. LG Chem, LTD.</i> , IPR2020-01239, Paper 14 (PTAB Jan. 12, 2021)	37, 38
<i>Snap, Inc. v. SRK Technology LLC</i> , IPR2020-00820, Paper 15 (PTAB Oct. 21, 2020)	34
<i>Sotera Wireless, Inc. v. Masimo Corp.</i> , IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020)	36
<i>Toyota Motor Corp. v. Cellport Systems, Inc.</i> , IPR2015-00633, Paper 11 (Aug. 14, 2015)	7

STATUTES

35 U.S.C. § 313	1
35 U.S.C. § 314(a)	1, 32
35 U.S.C. § 315(e)	37

OTHER AUTHORITIES

37 C.F.R. § 42.107	1
37 C.F.R. § 100(b)	7
Katherine K. Vidal, <i>Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation</i> (June 21, 2022)	32, 33

Exhibit List

Exhibit	Description
2001	Biography of Blair M. Jacobs (previously submitted)
2002	Declaration of Blair M. Jacobs (previously submitted)
2003	Supplemental Declaration of Blair M. Jacobs (previously submitted)
2004	District Court Docket
2005	District Court Scheduling Order
2006	District Court Invalidity Contentions

I. INTRODUCTION

Autonomous Devices, LLC (“Patent Owner” or “Autonomous Devices”) submits this Preliminary Response in accordance with 35 U.S.C. § 313 and 37 C.F.R. § 42.107, responding to the Petition for *Inter Partes* Review (“Petition”) (Paper No. 1) of U.S. Patent No. 10,607,134 (“the ’134 Patent”) filed by Tesla, Inc. (“Petitioner” or “Tesla”).

The Petition challenges claims 1-20 (“Challenged Claims”) of the ’134 patent with three grounds that rely on U.S. Patent No. 8,142,268 (“Thomas”) or U.S. Patent No. 9,434,072 (“Buehler”). The Board should decline institution due to deficiencies in the Petition’s analysis of the prior art relied upon in the grounds. Additionally, the Board should exercise its discretion and deny institution under 35 U.S.C. § 314(a).

II. THE ’134 PATENT

The ’134 patent is titled “Artificially intelligent systems, devices, and methods for learning and/or using an avatar’s circumstances for autonomous avatar operation.” The ’134 patent discloses systems and methods for autonomous operation by learning and using an avatar’s circumstances including detecting objects with various properties along with correlated instruction sets for operating the device in various circumstances. Ex. 1001, Abstract, 1:39-41, 57:57-58:4. The

circumstance and instruction set information is stored in a knowledgebase and used to operate the device autonomously. *Id.*

Prior to the innovations described in the '134 patent, “[c]ommonly employed application and/or avatar operating techniques lack[ed] a way to learn [the] operation of an application and/or avatar and enable autonomous operation of an application and/or avatar.” *Id.*, 1:32-35. The '134 patent solved this problem by utilizing a sophisticated system for learning representations of one or more objects in an avatar's surrounding and corresponding instructions that can be efficiently performed autonomously. *Id.*, 57:57-58:4.

The '134 patent is directed to systems, methods, and computer readable media that store a knowledgebase that correlates avatar operating instruction sets with representations of objects encountered by an avatar, obtain new object representations, match the new object representations with object representations in the knowledgebase, and cause an avatar that detected the new objects to autonomously execute an instruction set correlated to the matched objects. *Id.*, Abstract, 55:1-33, 80:62-83:44.

Referring to Figure 5A (shown below) and the specification's description of Figure 5A, for example, avatar 605 may encounter objects 615a-615c in its surrounding. *Id.*, 80:65-83:44, Fig. 5A, claim 1. Object Processing Unit 140 forms or generates collections of object representations 625a-c representing objects 615a-

c in the avatar's surrounding. *Id.* If an avatar detects a match with a previously learned object representation, the avatar performs autonomous operation using previously learned instructions correlated with the previously learned object representations. *Id.*; *see also id.*, 67:1-46.

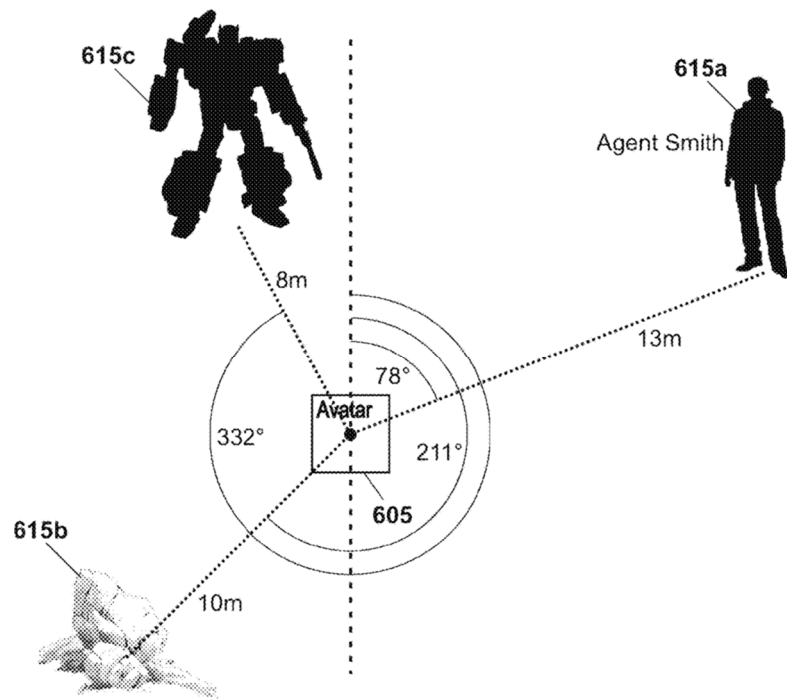


FIG. 5A

Ex. 1001, Fig. 5A.

The '134 patent describes and claims methods and systems implementing its innovative techniques for autonomous operation. For example, one such system is claimed in claim 1. Claim 1 is directed to a system that provides novel data structures involving correlations of object representations and instruction sets to implement autonomous operation. This claim and the other Challenged Claims contain

limitations that the Petition has not established are disclosed or suggested by the cited references.

III. PERSON OF ORDINARY SKILL IN THE ART

For purposes of this stage of the proceeding only, Patent Owner adopts Petitioner's definition of a person of ordinary skill in the art (POSA). Petition, 4.

IV. ALLEGED PRIOR ART

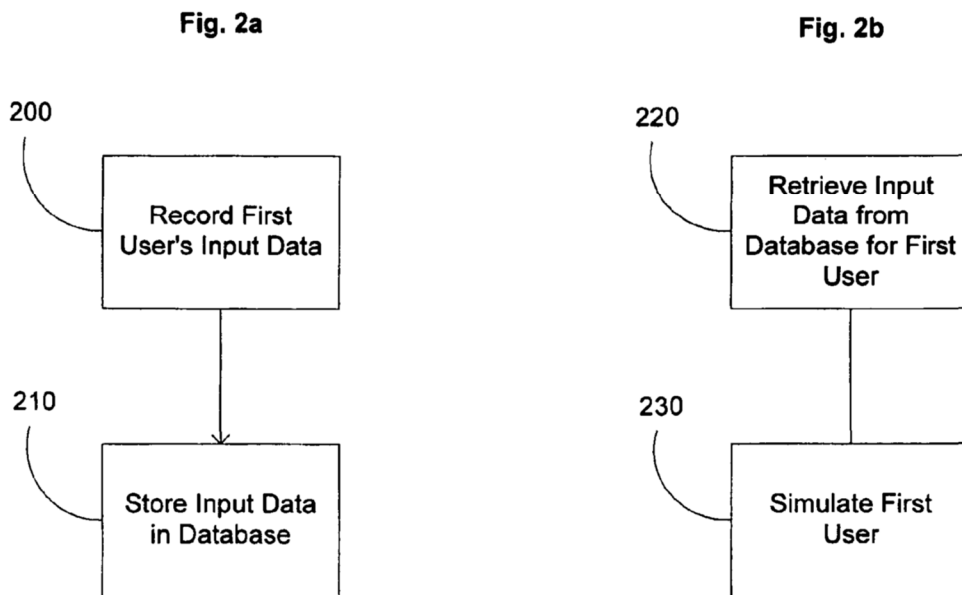
The Petition relies on two references for its unpatentability grounds, and those references are summarized below.

A. THOMAS (EX. 1005)

Thomas discloses a computer program that monitors a “user’s interaction with the computer program for one or more events” and analyzes the situation when the event occurs. Exhibit 1005, Abstract. The computer program creates user profiles, where “[a] user profile can contain a sub-profile related to one or more events 685 and/or situations 655 that occur within the computer program 110 during operation. An event 685 is a particular action occurring, whereas a situation 655 is the surrounding circumstances during which an event 685 may take place.” *Id.*, 4:14-19. If any situation occurs for which the program is not trained (e.g., different events, etc.), the program in Thomas would not know how to handle that situation.

Figures 2a and 2b from Thomas, shown below, disclose the “learn mode” and “simulation mode” discussed in Thomas. *Id.*, 3:52-4:2. During the learn mode shown

in Figure 2a, “if a first user is using the computer program 110, the simulator 120 collects and evaluates” information “about the first user’s input when interacting with the computer program 110 (action block 200).” *Id.*, 3:52-61. Then, during the simulation mode, “if a second user is using the computer program 110 and the second user desires to interact with the first user, but the first user is not available, the simulator 120 will retrieve” information “from the first user, i.e., the first user’s profile, from the database 130.” *Id.*, 3:63-67.



Ex. 1005, Figs. 2a-2b.

B. BUEHLER (EX. 1006)

Buehler relates to robots that “may be trained to perform tasks such as visually detecting and identifying physical objects and/or manipulating objects.” Ex. 1006,

Abstract. Buehler's primitive method uses augmented-reality techniques to facilitate "the robot's simulation of task-execution." *Id.*

Buehler provides a basic method for training a robot, which is shown below in Figure 1A from Buehler. The robot selects an object in the field of view of one of its cameras and then uses a visual model to identify the object. *Id.*, 7:6-10. The robot then determines whether an object-specific manipulation routine is stored in the robot. *Id.*, 7:10-12. If so, the robot executes "the object-specific manipulation routine, and if not," the robot executes "a generic manipulation routine." *Id.*, 7:13-14.

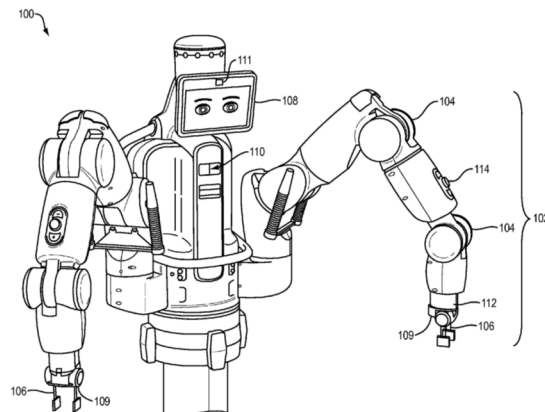


FIG. 1A

Ex. 1006, Fig. 4.

V. CLAIM CONSTRUCTION

The claims in an *inter partes* grant review are construed using the same standard that applies in district court proceedings, as set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 100(b) (2019). Claim terms are afforded “their ordinary and customary meaning,” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312-17). The Board, however, only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Systems, Inc.*, IPR2015-00633, Paper No. 11 at 16 (Aug. 14, 2015) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Patent Owner proposes a construction for one term (“object representation”) that appears in claims 1-20, and that term is discussed below in Section V.A. Additionally, claim terms for which Petitioner proposed a construction (Petition, 4-5) are discussed below in Section V.B.

A. “object representation” (Claims 1-20)

Claims 1-20 recite “object representation” at several instances in describing the data structures that are used to store and process information in the claimed invention. Claim 1 recites in part:

accessing a first correlation including a first one or more **object representations** correlated with a first one or more instruction sets for operating a first avatar of an application, wherein the first one or more **object representations** represent one or more objects of the application; generating or receiving a second one or more **object representations**, wherein the second one or more **object representations** represent one or more objects of the application; determining the first one or more instruction sets for operating the first avatar of the application based on at least partial match between the second one or more **object representations** and the first one or more **object representations**.

Ex. 1001, Claim 1. Claims 2-9 and 11-18 depend from claim 1, and claims 10 and 19-20 also include the claimed object representations. *Id.*, Claims 2-20.

In the context of the ’134 patent, including in light of the claims, specification, and prosecution history, an “object representation” should be construed as a “data structure that includes an object property generated by object processing.” This construction is supported by the claims, specification, drawings, and intrinsic record as a whole. Figure 5B of the ’134 patent makes clear that an object representation is

a data structure that includes an object property generated by object processing:

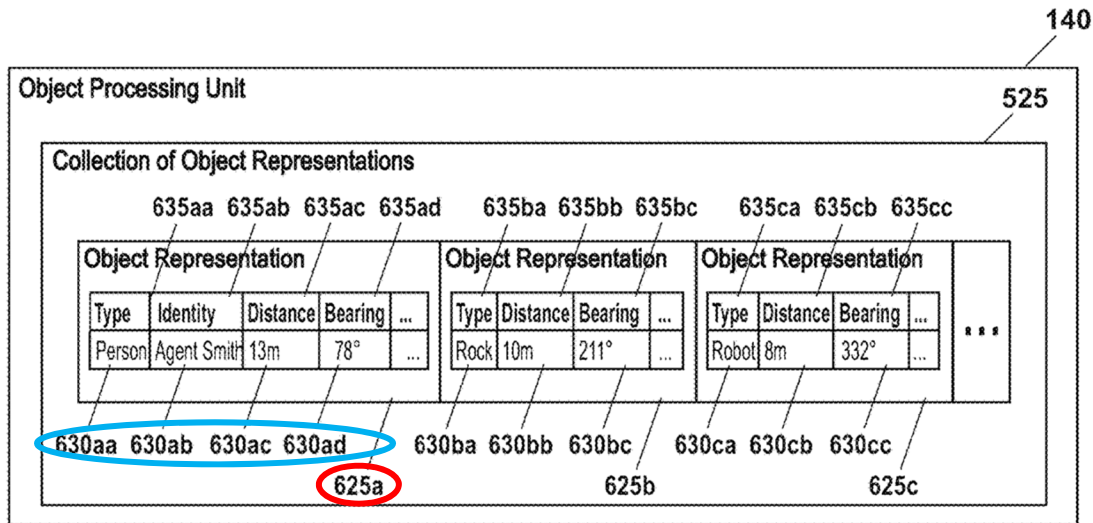


FIG. 5B

Ex. 1001, Figure 5B (annotated to show object representation 625a in red, and object properties 630aa-ac in blue). As shown in the figure, Object Processing Unit 140 “may create or generate Collection of Object Representations 525 including Object Representation 625a representing Object 615a, Object Representation 625b representing Object 615b, and Object Representation 625c representing Object 615c.” *Id.*, 81:37-42. Each of the Object Representations 625a, 625b, and 625c is a data structure that includes an object property generated by object processing. *Id.*, 81:37-82:3. For example, “***Object Representation 625a may include Object Property 630aa ‘Person’ in Category 635aa ‘Type’, Object Property 630ab ‘Agent Smith’ in Category 635ab ‘Identity’, Object Property 630ac ‘13 m’ in Category 635ac ‘Distance’.***” *Id.*, 81:42-46 (emphasis added). Based on this disclosure, it is

apparent that in the context of the '134 patent, an object representation is a data structure that includes an object property generated by object processing.

The '134 patent further explains that each object property included in the object representation data structure is generated by object processing. *Id.*, 70:59-66. “Object Processing Unit 140 can be utilized for obtaining properties of Objects 615 in Avatar’s 605 surrounding.” *Id.*, 70:59-61. Object Processing Unit 140 creates or generates the object representations that include the generated object property. *Id.*, 81:4-46. Thus, the object property in the object representation data structure is not just any property, but rather one that is generated by object processing.

The '134 patent discloses that, after being generated by object processing, object properties are stored in the collection of object representations, confirming that object representations are data structures that include object properties generated by object processing. Figure 2 from the '134 patent shown below discloses that Object Processing Unit 140 (annotated below with red oval) can be used to process, calculate and generate properties of objects in the avatar’s surroundings. *Id.*, 71:53-56, 72:50-59, 81:4-46.

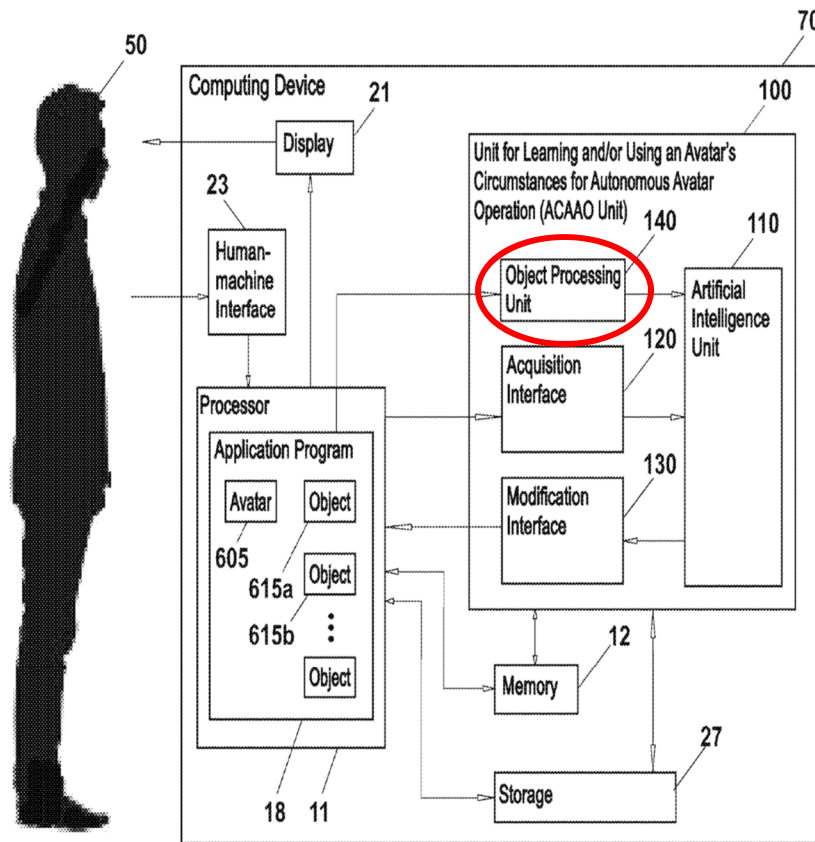


FIG. 2

Id., Figure 2. Object Processing Unit 140 creates or generates a collection of object representations and stores generated object properties in those object representations. *Id.*, 81:4-65. Because the object properties are generated by Object Processing Unit 140 and stored in the object representations, an object representation is a data structure whose object property is generated through object processing.

Patent Owner's construction is confirmed by and consistent with the language of the claims and the various disclosures regarding object representations throughout

the specification. For example, where claim 8 provides that an object representation includes “one or more properties of the one or more objects represented by the first one or more object representations,” this is consistent with Patent Owner’s construction of an object representation as being a data structure including an object property generated by object processing.

As explained above, Patent Owner’s construction of “object representation” should be adopted. Construction of this term is appropriate because there is a dispute regarding this term, in particular with respect to Petitioner’s mapping of prior art, as explained below in Section VI.

**B. “means for generating or receiving...”; “means for determining”
“means for executing...” (Claim 19)**

For the purpose of this stage of the proceeding only, Patent Owner does not dispute Petitioner’s construction of these “means . . .” terms of claim 19.

**VI. PETITIONER HAS NOT ESTABLISHED A REASONABLE
LIKELIHOOD THAT THE CITED PRIOR ART RENDERS THE
CHALLENGED CLAIMS UNPATENTABLE**

A. Ground 1 Fails

Regarding Ground 1, Petitioner fails to show that Thomas anticipates claims 1-20 of the ’134 patent. As explained in the following sections, Petitioner fails to show that Thomas discloses “object representations” as claimed in claim 1, as properly construed. Further, claims 2-9 and 11-18 depend from claim 1 and thus Petitioner has failed to show that Thomas discloses these claims as well. Similarly,

claims 10 and 19-20 include the claimed object representations, and Petitioner has failed to show that Thomas discloses these claims as well.

1. Claim 1: Thomas Does Not Disclose Object Representations

Petitioner fails to show that Thomas anticipates claim 1 of the '134 patent because Thomas does not disclose the claimed “object representations” under the proper construction of that term. As discussed above, in the context of the '134 patent, an “object representation” should be construed as a “data structure that includes an object property generated by object processing.” *Supra* Section V.A. Thomas does not disclose the claimed “object representations” under this construction.

Claim 1 recites in part:

accessing a first correlation including a first one or more **object representations** correlated with a first one or more instruction sets for operating a first avatar of an application, wherein the first one or more **object representations** represent one or more objects of the application; generating or receiving a second one or more **object representations**, wherein the second one or more **object representations** represent one or more objects of the application; determining the first one or more instruction sets for operating the first avatar of the application based on at least partial match between the second one or more **object representations** and the first one or more **object representations**.

Ex. 1001, Claim 1 (emphasis added). Claims 2-9 and 11-18 depend from claim 1, and claims 10 and 19-20 also include the claimed object representations, and these claims are addressed below in Sections VI.A.2-4. *Id.*, Claims 2-20; *infra* Sections VI.A.2-4.

Petitioner’s argument regarding Thomas that “[t]he current circumstances that are stored, such as the spatial position of avatars and the virtual road conditions, includes one or more ‘object representations’ as that term is used in the ’134 Patent,” is incorrect for several reasons. Petition, 12. **First**, stored circumstances such as spatial positions of avatars or virtual road conditions are not, and do not include, “object representations” under the proper construction of that term. Petitioner has not established that these elements are, or include, data structures that include an object property generated by object processing. Thus, Petitioner has not shown that Thomas discloses the claimed “object representations.”

Figure 5B of the ’134 patent makes clear that an object representation (data structure that includes an object property generated by object processing, *see supra* Section V.A) is something entirely different than Thomas’s spatial position of avatars or virtual road conditions, especially when compared with those elements,

e.g., the spatial position of a user's avatar, shown in Figure 4 (both shown below).

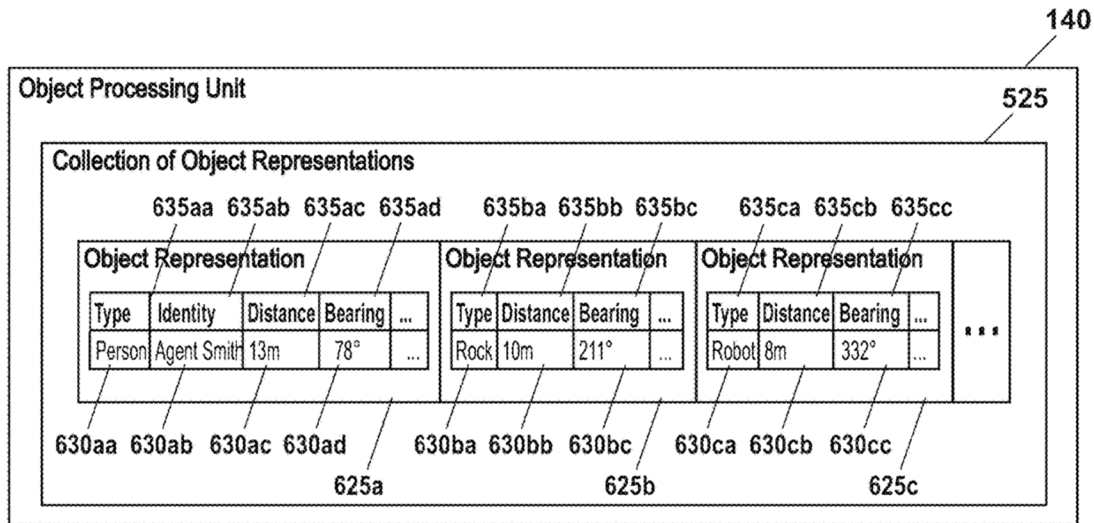
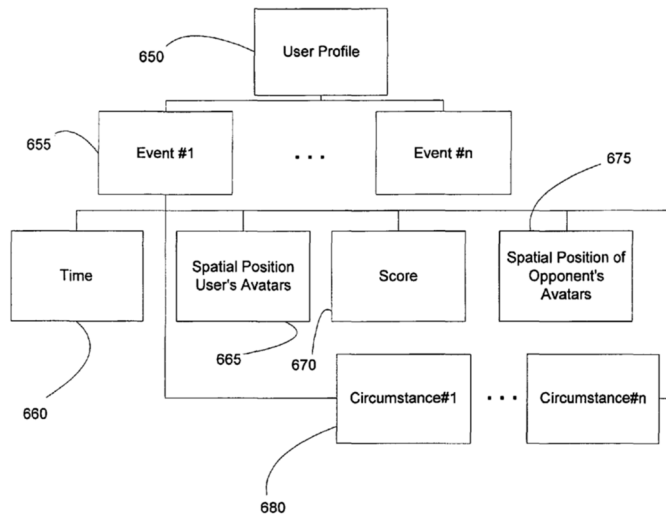


FIG. 5B

Fig. 4



Ex. 1001 ('134 patent), Figure 5B (top); Ex. 1005 (Thomas), Figure 4 (bottom).

As shown in Figure 5B of the '134 patent, Object Processing Unit 140 “may create or generate Collection of Object Representations 525 including Object

Representation 625a representing Object 615a, Object Representation 625b representing Object 615b, and Object Representation 625c representing Object 615c.” Ex. 1001, 81:37-42. Each of the Object Representations 625a, 625b, and 625c is clearly not simply the spatial position of avatars or virtual road conditions but rather is an entirely different thing, namely a data structure that includes an object property generated by object processing. *Id.*, 81:37-82:3. For example, “***Object Representation 625a may include Object Property 630aa ‘Person’ in Category 635aa ‘Type’, Object Property 630ab ‘Agent Smith’ in Category 635ab ‘Identity’, Object Property 630ac ‘13 m’ in Category 635ac ‘Distance’.***” *Id.*, 81:42-46 (emphasis added). These labels and numbers indicating various object properties of interest (and which are only meaningful after the avatar’s surrounding has first been processed into object properties, via object processing) show that an object representation in the ’134 patent is a data structure including a generated object property. That is significantly different from Thomas’s spatial or condition information.

Petitioner states that in Thomas, “the current circumstances that are stored, such as the spatial position of an avatar, and virtual weather and road conditions described by Thomas are information related to an object, and comprise object representations,” Petition, 13. However, object representations are not simply stored information, but rather data structures that include an object property generated by

object processing. Further, the “spatial position of other avatars on the field/court, virtual weather,” and “road conditions,” Petition, 15, are not object representations because they are not data structures that include an object property generated by object processing.

Second, the information disclosed in Thomas is also not an object representation because it fails to include an object property generated by object processing, as required by the proper construction of “object representation.” An object property included in an object representation is generated by object processing and is not merely information like that disclosed in Thomas. Ex. 1001, 81:4-46. The ’134 patent explains that each object property included in the object representation data structure is generated by object processing. *Id.*, 70:59-66. “Object Processing Unit 140 can be utilized for obtaining properties of Objects 615 in Avatar’s 605 surrounding.” *Id.*, 70:59-61. Object Processing Unit 140 creates or generates the object representations that include the generated object property. *Id.*, 81:4-46. Thus, the object property in the object representation data structure is not just any property or information, but rather a property that is generated by object processing.

In addition, examples of object properties provided by the ’134 patent, including type of an object, distance of an object, bearing of an object, and coordinates of an object that can be included in object representation data structures,

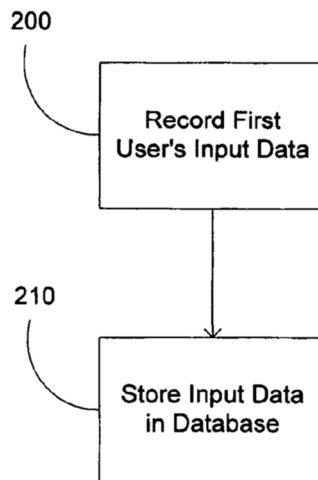
make clear that those properties are generated by object processing, unlike Thomas's spatial information that is not processed to generate object properties that are included in object representation data structures. *Id.*, 81:4-64. Object properties (e.g., type, distance, bearing, coordinates, etc.) included in an object representation are created by processing that includes processing an avatar's surroundings. Object processing, as described in more detail in the previous discussion of Object Processing Unit 140, includes processing to obtain useful object properties such as, for example, type, distance, bearing, coordinates, etc. that are included in an object representation data structure.

To the extent that the Board determines that the positional values or weather information disclosed in Thomas are properties, Thomas nevertheless does not disclose that such information is an *object* property ***generated by object processing that is included in a data structure*** as discussed above. This information is simply situational information that is not processed to generate object properties that are included in object representation data structures.

As shown below in Figure 2a, Thomas's system merely records input data for a first user and stores it in a database and does not discuss data structures that include an object property generated by object processing. Ex. 1005, 3:52-4:2, 9:59-61, 10:12-16. Thomas never discloses that the recorded data is processed into object properties, let alone object representation data structures that include the processed

object properties. Thomas never discloses the claimed “object representations” as properly construed—namely, as data structures that include object properties generated by object processing.

Fig. 2a



Id., Fig. 2a. As shown in Figure 2a above, information is simply stored in a database, whereas the claimed object representation is a data structure that includes object properties including characteristics, labels, and numbers, as shown in Figure 5B of the '134 patent. Therefore, Thomas’s stored information is logically, structurally, and functionally different than the object representation data structure as properly construed.

Thomas does not contemplate an object representation that is a data structure including an object property generated by object processing. Thomas discloses

storing certain information (Ex. 1005, 3:53-61, 9:59-61, 10:12-16), but does not disclose that the information includes an object property generated by object processing. And Petitioner has not shown that Thomas discloses any data structure that includes an object property generated by object processing, either. That is not surprising, because Thomas is not directed to the type of object processing that produces object properties (e.g., distance, bearing, etc. as shown in Fig. 5B of the '134 patent) that are included in a data structure to promote efficient decision making regarding objects like in the '134 patent.

In addition, Thomas's disclosure that during a simulation mode the system accesses stored information to simulate the user's control of the avatar does not mean that Thomas discloses object representations as data structures that include an object property generated by object processing. Petition, 13-14. Thomas's alleged disclosure of accessing certain information during a simulation does not disclose stored object representations that are ***data structures including an object property generated by*** object processing. Further, Petitioner's arguments regarding the alleged matching in Thomas only confirm that Thomas does not disclose the claimed object representations. Petition, 16. Thomas's disclosure of merely "anaylz[ing] the current situation," (Exhibit 1005, 7:41), is not disclosure of matching object representations or data structures with an object property generated by object processing, or any matching for that matter. Petitioner has failed to point to any

disclosure by Thomas that this alleged matching involves matching the claimed object representations as properly construed.

Finally, Petitioner’s statement that “a POSITA would have understood that in Thomas’s system the second object representations (e.g., spatial position of other avatars on the field/court, virtual weather, road conditions) are also received by Thomas’s processor to compare the situation/event generated during simulation mode to the situation/event recorded during learning mode,” Petition, 15, is without support. Thomas fails to disclose the claimed object representations, as discussed above, and it also fails to disclose the claimed second object representations.

Apparently recognizing that Thomas fails to disclose the claimed second object representation, Petitioner claims without support that a POSA would simply understand that the second object representation would be received by the processor in Thomas. Petition, 15. But Petitioner has not pointed to any portions of Thomas that disclose this limitation, and Petitioner cannot fill in the gaps in Thomas with an unsupported reference to the knowledge of a POSA. Further, common knowledge of a POSA may only be used to supply a missing claim limitation when that limitation is “unusually simple and the technology particularly straightforward.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016). Petitioner has not established that the limitations at issue here satisfy those conditions. On the contrary, the claimed invention involves a novel data structure integrated in a sophisticated

artificial intelligence system for autonomous avatars. In sum, Petitioner has failed to carry its burden to show that Thomas discloses each and every claim limitation of the Challenged Claims, and thus Petitioner's arguments should be rejected.

2. Claims 2-9 and 11-18

Claims 2-9 and 11-18 depend from claim 1 and include the claimed "object representations." For the reasons discussed above, Petitioner has failed to show that Thomas discloses these claims including the claimed "object representations."

3. Claim 10

Claim 10 includes the claimed "object representations." For the reasons discussed above, Petitioner has failed to show that Thomas discloses this claim including the claimed "object representations."

4. Claims 19-20

Claims 19-20 include the claimed "object representations." For the reasons discussed above, Petitioner has failed to show that Thomas discloses these claims including the claimed "object representations."

B. Ground 2 Fails

Regarding Ground 2, Petitioner fails to show that Thomas in view of the knowledge of a POSA renders claims 3, 5, and 12-14 obvious. Petitioner fails to show that Thomas in view of the knowledge of a POSA discloses or suggests object representations as required by claims 3, 5, and 12-14 (dependent from claim 1) for

the reasons discussed above with respect to Ground 1, and thus those claims are not obvious over Thomas in view of the knowledge of a POSA.

C. Ground 3 Fails

Regarding Ground 3, Petitioner fails to show that Buehler anticipates claims 1, 3 and 17 of the '134 patent. As explained in the following sections, Petitioner fails to show that Buehler discloses an “object representation” as claimed in claim 1 and properly construed. Further, claims 3 and 17 depend from claim 1, and thus Petitioner has failed to show that Buehler discloses these claims as well.

1. Claims 1, 3, and 17: Buehler Does Not Disclose Object Representations

Petitioner fails to show that Buehler anticipates claims 1, 3 and 17 of the '134 patent because Buehler does not disclose the claimed “object representations” under the proper construction of that term. As discussed above, in the context of the '134 patent, an “object representation” should be construed as a “data structure that includes an object property generated by object processing.” *Supra* Section V.A. Buehler does not disclose the claimed “object representations” under this construction.

Claim 1 recites in part:

accessing a first correlation including a first one or more **object representations** correlated with a first one or more instruction sets for operating a first avatar of an application, wherein the first

one or more **object representations** represent one or more objects of the application; generating or receiving a second one or more **object representations**, wherein the second one or more **object representations** represent one or more objects of the application; determining the first one or more instruction sets for operating the first avatar of the application based on at least partial match between the second one or more **object representations** and the first one or more **object representations**.

Ex. 1001, Claim 1 (emphasis added). Claims 3 and 17 depend from claim 1.

Petitioner's argument that "[t]he 'stored representations' and 'template images' disclosed in Buehler are object representations representing one or more objects of the application," is incorrect for several reasons. Petition, 56. *First*, the stored representations and template images disclosed by Buehler are not "object representations" under the proper construction of that term. Petitioner has not established that these elements are data structures that include an object property generated by object processing.

Figure 5B of the '134 patent makes clear that an object representation (data structure that includes an object property generated by object processing, *see supra* Section V.A) on its face is something entirely different than Buehler's simple general visual representations and images, especially when compared with those elements, e.g., a general visual representation or image, shown in Figure 4 (both

shown below).

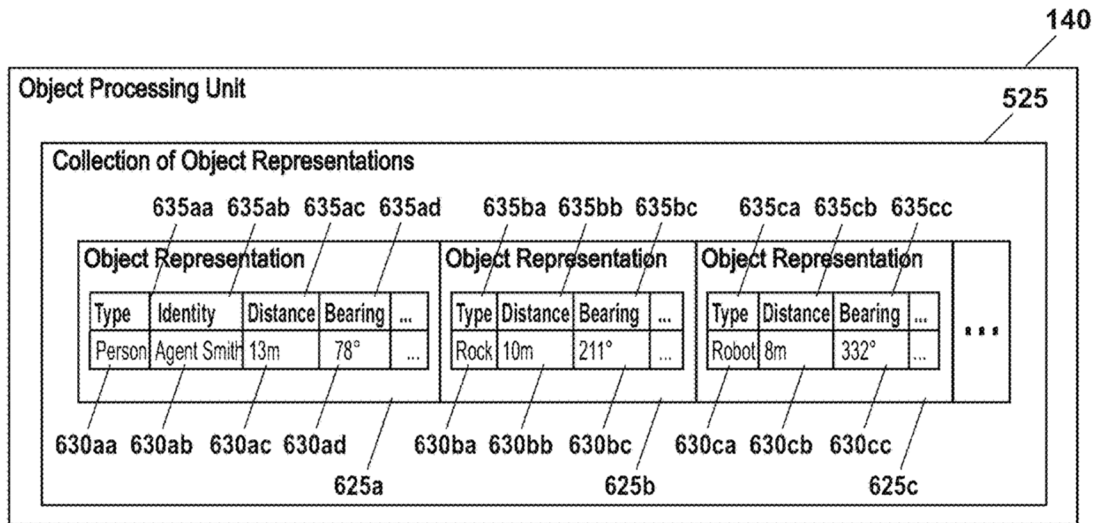


FIG. 5B

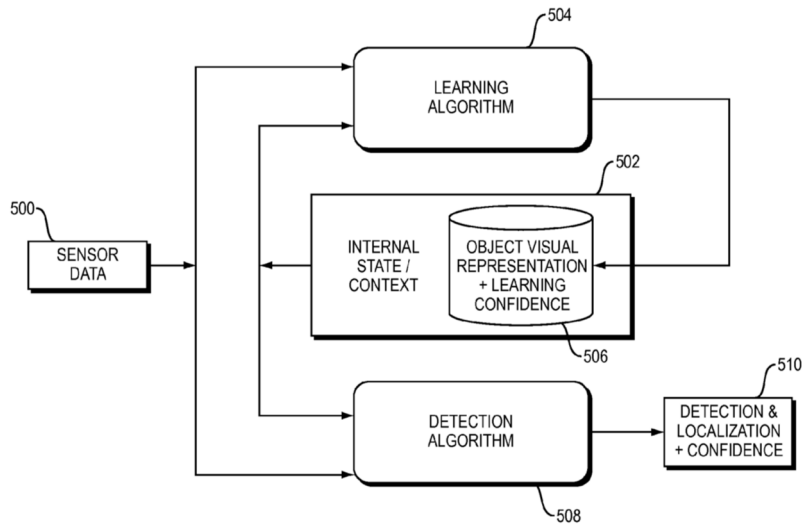


FIG. 5

Ex. 1001 ('134 patent), Figure 5B (top); Ex. 1006 (Buehler), Figure 5 (bottom).

As shown in Figure 5B, Object Processing Unit 140 “may create or generate Collection of Object Representations 525 including Object Representation 625a representing Object 615a, Object Representation 625b representing Object 615b, and Object Representation 625c representing Object 615c.” Ex. 1001, 81:37-42. Each of the Object Representations 625a, 625b, and 625c is not a simple image or visual representation but rather is an entirely different data structure that includes an object property generated by object processing. *Id.*, 81:37-82:3. For example, ***“Object Representation 625a may include Object Property 630aa ‘Person’ in Category 635aa ‘Type’, Object Property 630ab ‘Agent Smith’ in Category 635ab ‘Identity’, Object Property 630ac ‘13 m’ in Category 635ac ‘Distance’.”*** *Id.*, 81:42-46 (emphasis added). These labels and numbers indicating various object properties of interest (and which are only meaningful after the avatar’s surrounding has first been processed into object properties, via object processing) show that an object representation in the ’134 patent is a data structure including a generated object property. That is significantly different from Buehler’s mere image or visual representation.

Petitioner’s argument that the stored representations and template images disclosed in Buehler are object representations “because they represent images that the robot may encounter,” Petition, 56, is incorrect. While Buehler uses the term “representation” at a high level of generality, Ex. 1006, 21:33-50, Buehler never

discloses that its stored representations or template images are anything more than stored information or images. By contrast, the claimed object representations are not simply stored information or images, but rather data structures that include an object property generated by object processing. Further, Petitioner's statement that the stored representations and images are matched "with new images captured by the robot to determine an instruction set for operating an avatar of the robot," Petition, 57, confirms that the representations disclosed by Buehler are merely images and general stored information and not data structures that include an object property generated by object processing.

Second, the visual information and images disclosed in Buehler are also not object representations because they fail to include an object property generated by object processing, as required by the proper construction of "object representation." An object property included in an object representation is generated by object processing and is not merely any available information like that disclosed in Buehler. Ex. 1001, 81:4-46. The '134 patent explains that each object property included in the object representation data structure is generated by object processing. *Id.*, 70:59-66. "Object Processing Unit 140 can be utilized for obtaining properties of Objects 615 in Avatar's 605 surrounding." *Id.*, 70:59-61. Object Processing Unit 140 creates or generates the object representations that include the generated object property.

Id., 81:4-46. Thus, the object property in the object representation data structure is not just any information, but rather a property that is generated by object processing.

In addition, examples of object properties provided by the '134 patent, including type of an object, distance of an object, bearing of an object, and coordinates of an object included in object representations, make clear that those properties are generated by object processing, unlike Buehler's images and visual information that are not processed to generate object properties that are included in object representations. *Id.* Object properties (e.g., type, distance, bearing, coordinates, etc.) included in an object representation are created by processing that includes processing an avatar's surroundings. *Id.* Object processing, as described in more detail in the previous discussion of Object Processing Unit 140, includes processing to obtain useful object properties such as, for example, type, distance, bearing, coordinates, etc., that are included in an object representation. The avatar's surrounding is the input into the object processing and object properties that are then included in an object representation are the output of the object processing. Buehler's images or visual representations fail to even suggest, let alone disclose such processing of an avatar's surrounding to generate such object properties that are then included in object representation data structures.

To the extent that the Board determines that Buehler's images or representations are somehow data structures, Buehler nevertheless does not disclose

that such information is an *object* property *generated by object processing* as discussed above. This information is simply image or other visual information that is not processed to generate object properties that are included in object representations.

Buehler's system creates a simple representation, and Buehler does not discuss data structures that include an object property generated by object processing. Ex. 1006, 17:8-19. Buehler never discloses that visual information or images are processed into object properties, let alone object representation data structures that include processed object properties. Buehler never discloses the claimed "object representations" as properly construed—namely, as data structures that include object properties generated by object processing. Indeed, Buehler discloses that its representation is a very general "data structure representing the object," *id.*, 17:8-19. This general disclosure does not include all data structures representing an object, including the specific, claimed data structure here, as Buehler is limited to what Buehler specifically discloses (i.e. a disclosure of a general car in a prior art reference does not teach all possible cars in the future that may include novel engines such as a nuclear engine, novel propulsion such as jets, etc.). On the other hand, the claimed object representation is a data structure that includes object properties including characteristics, labels, and numbers, that are generated using object processing, as shown in Figure 5B of the '134 patent. Therefore, Buehler's

general representation does not even suggest, let alone disclose the specificity of the claimed object representation.

Buehler does not contemplate an object representation that is a data structure including an object property generated by object processing. Buehler discloses storing certain general information (Ex. 1006, 8:44-65, 17:20-38), but does not disclose that the information includes an object property generated by object processing. And Petitioner has not shown that Buehler discloses any data structure that includes an object property generated by object processing, either. That is not surprising, because Buehler provides minimal disclosure regarding its information processing and storage and is not directed to the type of object processing that produces object properties (e.g., distance, bearing, etc. as shown in Fig. 5B of the '134 patent) that are included in a data structure to promote efficient decision making regarding objects like in the '134 patent.

Finally, Petitioner's argument that Buehler discloses the claimed second object representations and the claimed matching only confirms that Buehler fails to disclose the claimed object representations under the proper construction of that term. Petitioner specifically argues that "newly capture images" are the claimed second object representation and "previously stored template images" are the claimed first object representations. Petition, 58. Indeed, Petitioner repeatedly refers

to images as “object representations.” Petition, 56-60. Petitioner also identifies images of the robot’s environment in Buehler as the second object representations and quotes Buehler’s disclosure of these images to map them to the claimed second object representations: “For example, the robot may use a camera to acquire images of its environment (constituting real-world data), and overlay computer graphics onto the image.” Petition, 58 (quoting Ex. 1006, 2:6-12). Based on the proper construction of “object representations,” however, newly captured images and previously stored template images are not data structures including an object property generated by object processing. As a result, Buehler does not disclose the claimed object representations under the proper construction of that term.

Petitioner’s statement that “Buehler describes comparing newly captured images (i.e., a second object representation) with previously stored template images of an object (i.e., a first object representation), and determining an object specific routine for operating the robot (i.e., an instruction set) upon detecting a match,” Petition, 58-59, confirms that Buehler only discloses comparing images, not object representations as that term is properly construed. Petitioner specifically points out that Buehler discloses that “[t]he detection algorithm 508 compares real-time camera images against the template and determines, based on a similarity metric, whether the realtime image contains the object of interest.” Petition, 59 (quoting Ex. 1006, 18:50-54). Buehler discloses comparing images and never discloses stored object

representations that are *data structures including an object property generated by* object processing, much less comparing such object representations. Petitioner has failed to show that Buehler discloses the specific, claimed object representations as properly construed, and thus Petitioner's arguments should be rejected.

VII. INSTITUTION SHOULD BE DENIED UNDER 35 U.S.C. § 314(a)

Petitioner has failed to carry its burden to show a reasonable likelihood of prevailing on its petition for numerous reasons, as discussed above. Denial of institution is further warranted under the discretion accorded to the Board in 35 U.S.C. §314(a). Petitioner's failure to address the Board's discretion in its petition confirms that the Board should use its discretion to deny institution.

Apple, Inc. v. Fintiv, Inc. provides a multifactor test for the Board to consider when exercising its discretion to deny institution. IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) ("*Fintiv*"). While the Director has identified three circumstances in which denial under *Fintiv* is inappropriate (*see* Katherine K. Vidal, *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation* (June 21, 2022) ("*Fintiv Memo*")), none of those circumstances apply. In addition, the enumerated factors in *Fintiv* favor denial in this case. In view of *Fintiv*, the Board should exercise its discretion to deny institution of this IPR.

A. *Fintiv* Applies To This Proceeding

This proceeding does not implicate any of the circumstances in which *Fintiv* is inapplicable. First, although *Fintiv* would not apply to a co-pending ITC proceeding, *Fintiv* Memo, 7, this exception is not relevant because the co-pending proceeding—*Autonomous Devices, LLC v. Tesla, Inc.*, No. 1:22-cv-01466-MN (D. Del) (the “Delaware Litigation”)—relevant to this proceeding is a district court (not ITC) case. Second, *Fintiv* would be inapplicable if the petition includes a *Sotera*-type stipulation that forecloses from the district court proceeding all grounds that were raised or reasonably could have been raised in an IPR. *Fintiv* Memo, 7. This exception does not apply here because Petitioner made *no* stipulation, let alone a *Sotera* stipulation, in its petition. *See generally* Petition.

Finally, *Fintiv* would not apply where the merits are compelling. *Fintiv* Memo, 4-5. This bar is a higher standard than for institution; it is only met if it is “highly likely that the petitioner would prevail with respect to at least one challenged claim.” *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102 at 49 (PTAB Oct. 4, 2022) (precedential). Here, the merits are not compelling. As discussed above, the cited references suffer from numerous fatal deficiencies. In light of these deficiencies, the Petition is not likely to succeed with respect to any remaining claim and thus *Fintiv* is applicable here.

B. The *Fintiv* Factors Weigh In Favor of Denying Institution

Fintiv provides a six-factor test to guide the Board’s discretion in whether to grant or deny institution. As discussed below, the *Fintiv* factors favor denial.

1. Factor 1: No Motion to Stay has been filed and the district court is unlikely to grant a stay

Factor 1 asks “whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted.” *Fintiv*, 6. This factor favors denial of institution because presently there is no stay in the district court proceeding, and there is a low likelihood of a stay. The advanced stage of the underlying litigation disfavors a stay and a stay is unlikely to simplify the issues in the underlying litigation. Thus, factor 1 weighs against institution.

2. Factor 2 is not dispositive

The projected statutory deadline for a final written decision in this IPR is January 2025—barely 5 months prior to the June 23, 2025 district court trial date. Ex. 2005 (district court scheduling order). To the extent this factor may favor institution, no single factor is dispositive, *see Snap, Inc. v. SRK Technology LLC*, IPR2020-00820, Paper 15 at 19 (PTAB Oct. 21, 2020), and the other *Fintiv* factors favor denial.

3. Factor 3: The parties and district court have invested significant time into the district court litigation

Factor 3 strongly favors denial because the parties have invested and will continue to invest significant resources in the parallel district court litigation. The Board weighs “the amount and type of work already completed in the parallel litigation by the court and the parties at the time of the institution decision.” *Fintiv*, 9.

The Board will decide whether to institute this IPR on or around January 10, 2024. By that time, the district court and the parties will have completed the following: motion to dismiss briefing, exchanged preliminary infringement and invalidity contentions, exchanged list of claim terms and proposed constructions, and substantially completed document production. *See* Ex. 2004 (showing the district court docket); Ex. 2005 (district court scheduling order). Moreover, fact discovery closes on February 23, 2024. Patent Owner has spent hundreds of hours reviewing Tesla’s technical production and the parties have exchanged thousands of documents. Further, by January 2024 (the institution decision deadline), the parties will have likely begun deposition discovery. Finally, Petitioner waited over seven months after the parallel district court litigation was filed to file its petition. *See* Ex. 2004 (showing the district court docket and filing of complaint on November 7,

2022); Petition, 65 (showing Petition filed on June 30, 2023). This unreasonable delay counsels against institution.

As discussed above, the parties have invested and will continue to invest significant resources in the parallel district court litigation, and accordingly, this factor favors denial.

4. Factor 4: There is significant overlap between this proceeding and the district court case

Factor 4 assesses the overlap between the issues raised in the petition and in the parallel proceeding. *Fintiv*, 11. The Board should deny institution because Petitioner has not stipulated to limit its ability to challenge the '134 patent claims in the district court case with prior art similar to that asserted in this proceeding. Further, Petitioner has not filed a stipulation in the district court, giving Petitioner the opportunity to avail itself of duplicative efforts between the district court proceeding and the Board. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18-19 (PTAB Dec. 1, 2020).

Petitioner appears to be positioning itself to be able to reassert in the district court case, following the conclusion of the IPR process, some or all of the very same references that it has petitioned the Board to review or that it reasonably could have raised before the Board. For example, in Petitioner's invalidity contentions it has identified the petitioned references with various other references. See Ex. 2006

(Petitioner’s district court invalidity contentions). These invalidity theories rely on the exact same art asserted in this IPR. *See Samsung Elecs. v. Clear Imaging Research, LLC*, IPR2020-01400, Paper 13 at 20-21 (PTAB Feb. 3, 2021) (finding that the petition included sufficient overlap of issues with the parallel district court where the petitioner relied on “substantially identical prior art” in both proceedings). Thus, Petitioner will argue the same references, using the same evidence and likely the same expert at the district court level—which will greatly overlap the issues in this IPR and the district court case.

Petitioner’s failure to provide a stipulation regarding prior art that it will not pursue in the district court case leaves open the possibility of parallel litigation for the same claims using printed publications and various system combinations not asserted in the Petition. A meaningful stipulation would be broad, tracking the estoppel language of 35 U.S.C. § 315(e), and would be filed in the parallel district court proceeding. Accordingly, efficiency would not be served in the present IPR by allowing Petitioner to challenge the ’134 patent claims with the same prior art references, after expending considerable resources in the district court. *See Fintiv*, 13.

5. Factor 5: The parties in both proceedings are the same

“If a petitioner is unrelated to a defendant, the Board has weighed this fact against exercising discretion to deny institution under *NHK*.” *SK Innovation Co.*

LTD., v. LG Chem, LTD., IPR2020-01239, Paper 14 at 20-21 (PTAB Jan. 12, 2021).

However, when the parties are the same in a parallel proceeding and the IPR, as they are here, “Factor 5 weighs in favor of exercising discretion to deny.” *Id.* Accordingly, Factor 5 weighs in favor of denial of institution.

6. Factor 6: The merits of Petitioner’s petition are not strong

This factor favors denial of institution given the Petition’s weakness on the merits. *E-One Inc. v. Oshkosh Corp.*, IPR2019-00162, Paper 16 at 13-20 (PTAB June 5, 2019). “[I]f the merits of the grounds raised in the petition are a closer call, then that fact has favored denying institution when other factors favor denial are present.” *Fintiv*, 15. As analyzed in the preceding sections, the merits of the Petition are weak in light of at least Petitioner’s failure to demonstrate that the cited references disclose all of the limitations of the claims discussed above in Section VI. Accordingly, this factor weighs in favor of denial.

VIII. CONCLUSION

Accordingly, for at least the reasons set forth above, institution of *inter partes* review should be denied.

Dated: October 10, 2023

Respectfully submitted,

/Arvind Jairam/

Arvind Jairam

Reg. No. 62,759

AJairam@mckoolsmith.com

Blair M. Jacobs (*pro hac vice*)

BJacobs@mckoolsmith.com

Christina Ondrick

Reg. No. 46,198

COndrick@mckoolsmith.com

John Holley

Reg. No. 65,683

JHolley@mckoolsmith.com

Stuart McCommas

Reg. No. 71,834

SMccommas@mckoolsmith.com

MCKOOL SMITH, P.C.

1999 K St. NW, Suite 600

Washington, DC 20006

Telephone: (202) 370-8300

Facsimile: (202) 370-8344

George Fishback

Reg. No. 76,345

GFishback@mckoolsmith.com

McKool Smith, P.C.

303 Colorado Street, Suite 2100

Austin, TX 78701

Telephone: (512) 692-8700

Facsimile: (512) 692-8744

Counsel for Patent Owner

CERTIFICATION OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned **PATENT OWNER'S PRELIMINARY RESPONSE** specified in 37 C.F.R. § 42.24 have 7,204 words, in compliance with the 14,000 word limit set forth in 37 C.F.R. §42.24(b)(1). This word count was prepared using Microsoft Word 2016.

Dated: October 10, 2023

By: /Arvind Jairam/
Arvind Jairam, Reg. No. 62,759

CERTIFICATION OF SERVICE

The undersigned hereby certifies that a copy of this **PATENT OWNER'S PRELIMINARY RESPONSE** has been served on Petitioner via email on the following counsel of record for Petitioner:

Anish Desai
Ian Moore
Weil, Gotshal & Manges LLP
767 Fifth Ave.
New York, NY 10153
anish.desai@weil.com
ian.moore@weil.com

Adrian Percer
Weil, Gotshal & Manges LLP
201 Redwood Shores Parkway
Redwood Shores, CA 94065
adrian.percer@weil.com

Christopher Pepe
Matthew Sieger
Taylor J. Lawrence
Allison D. Herzig
Weil, Gotshal & Manges LLP
2001 M Street NW, Suite 600
Washington, DC 20036
christopher.pepe@weil.com
matthew.sieger@weil.com
taylor.lawrence@weil.com
allison.herzig@weil.com

Dated: October 10, 2023

By: /Arvind Jairam/
Arvind Jairam, Reg. No. 62,759