

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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TESLA, INC.,  
Petitioner

v.

AUTONOMOUS DEVICES, LLC,  
Patent Owner

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Case: IPR2023-01054  
U.S. Patent No. 10,452,974

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**PATENT OWNER'S CONTINGENT MOTION TO AMEND**

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**TABLE OF EXHIBITS**

| <b>Exhibit</b> | <b>Description</b>                                                                | <b>Previously Submitted</b> |
|----------------|-----------------------------------------------------------------------------------|-----------------------------|
| 2001           | Biography of Blair M. Jacobs                                                      | X                           |
| 2002           | Declaration of Blair M. Jacobs                                                    | X                           |
| 2003           | Supplemental Declaration of Blair M. Jacobs                                       | X                           |
| 2004           | Disclaimer of Claims 1-3, 6, 8-10, 12-13, 16-20                                   | X                           |
| 2005           | District Court Docket                                                             | X                           |
| 2006           | District Court Scheduling Order                                                   | X                           |
| 2007           | Declaration of Dr. Eli Saber                                                      |                             |
| 2008           | Deposition transcript of Dr. Jason Janet dated February 28, 2024 in IPR2023-01054 |                             |
| 2009           | RESERVED                                                                          |                             |
| 2010           | RESERVED                                                                          |                             |
| 2011           | RESERVED                                                                          |                             |
| 2012           | American Heritage Dictionary (1992) Excerpts                                      |                             |
| 2013           | Webster's Third New International Dictionary (2002) Excerpts                      |                             |
| 2014           | RESERVED                                                                          |                             |
| 2015           | Dr. Eli Saber CV                                                                  |                             |

## **I. INTRODUCTION**

Autonomous Devices, LLC (“Patent Owner” or “PO”) submits this motion to amend U.S. Patent No. 10,452,974 (“the ’974 patent”) contingent on the outcome of this trial. In the event the Board finds any of original claims 4, 5, 7, or 11 unpatentable, PO respectfully requests that the Board grant this motion to amend and issue the corresponding substitute claims presented herein. Claims 14 and 15 are hereby cancelled. PO respectfully requests that the Board issue claims 25 and 26 as substitutes for claims 14 and 15, respectively.

## **II. STATEMENT OF REQUESTED RELIEF**

First, PO respectfully requests preliminary guidance on this motion pursuant to the Board’s pilot program. *See* Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019) at 67.

Second, to the extent the Board finds any of original claims 4, 5, 7, or 11 unpatentable in this proceeding, PO respectfully requests that the Board grant this motion with respect to each corresponding substitute claim. The Board should not consider this motion for each of original claims 4, 5, 7, or 11 found patentable.

Third, PO respectfully requests that the Board issue claims 25 and 26 as

substitutes for claims 14 and 15, respectively, which are cancelled.<sup>1</sup>

### **III. THE SUBSTITUTE CLAIMS MEET ALL STATUTORY AND REGULATORY REQUIREMENTS OF 35 U.S.C. § 316 and 37 C.F.R. § 42.121**

A motion to amend must (1) propose a reasonable number of substitute claims, (2) that respond to a ground of unpatentability involved in the trial (3) that do not enlarge the scope of the claims or introduce new matter, and (4) are not shown by a preponderance of the evidence to be unpatentable. *See* Memorandum re: Guidance on Motions to Amend in view of *Aqua Products* (Nov. 21, 2017) at 2; 35 U.S.C. § 316(d); 37 C.F.R. § 42.121. It is Petitioner’s burden to show that the substitute claims are unpatentable. *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 4 (PTAB Feb. 25, 2019) (precedential) (“*Lectrosonics*”).

#### **A. Listing of Proposed Substitute Claims.**

PO submits substitute claims as shown in Appendix A (the “Substitute Claims”) as required by 37 C.F.R. § 42.121(b).

#### **B. The Number of Substitute Claims is Reasonable.**

“There is a rebuttable presumption that a reasonable number of substitute claims per challenged claim is one (1) substitute claim.” *Lectrosonics* at 4. In this proceeding, there are six claims that remain at issue: dependent claims 4, 5, 7, 11,

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<sup>1</sup> Further to the parties’ conference call with the Board February 22, 2024, PO does not condition its request regarding claims 25 and 26 on any condition.

and 14-15. PO proposes six substitute claims, which constitute a one-for-one substitution, which is reasonable and thus satisfies 35 U.S.C. § 316(d)(1)(B) and 37 C.F.R. § 42.121(a)(3). *See Intuitive Surgical, Inc. v. Ethicon LLC*, IPR2018-00933, Paper 31 at 9 (PTAB Dec. 3, 2019); *see also Lectrosonics* at 45-46.

**C. The Substitute Claims Respond to Patentability Grounds Involved in this Trial.**

Proposed Substitute Claims 21-26 respond to the grounds asserted in the Petition (Paper 1). For example, this motion proposes adding certain following limitations (discussed in detail below in Section VII) to those claims to distinguish them from Grotmol (Ex. 1004) (regarding claims 4, 5, 7, 14, and 15 in Ground 1 of the Petition); Grotmol in view of the knowledge of a POSA (regarding claim 11 in Ground 2); and Grotmol in view of Hickman (Ex. 1005) (regarding claims 4 and 11 in Ground 3). This motion seeks to amend those claims to address Petitioner's arguments. *Compare* Pet. and Ex. 1001, *with* Appx. A (Proposed Substitute Claims). And, as explained below in Section VII, these amendments directly overcome the grounds of unpatentability involved in this trial.

**D. The Substitute Claims Do Not Broaden the Claim Scope or Introduce New Subject Matter**

“A motion to amend may not present substitute claims that enlarge the scope of the claims of the challenged patent or introduce new subject matter.” *Lectrosonics*

at 6-8 (citing 35 U.S.C. § 316(d)(3); 37 C.F.R. § 41.121(a)(2)(ii)). PO's proposed claims comply with both of these requirements.

### **1. The Substitute Claims Do Not Broaden Claim Scope**

First, the proposed substitute claims retain all of their original features and only add narrowing elements as outlined in Section III.C above. The proposed amendments rewrite each of claims 4/5/7/11/14/15 in independent form and further limit the method of each of these claims by requiring that the first circumstance representation include a first collection of object representations, and that the second circumstance representation include a second collection of object representations; by requiring that first collection of object representations represent multiple objects detected at a first time or during a first time period, and that the second collection of object representations represent the multiple objects detected at a second time or during a second time period; by requiring that the first and second collections of object representations comprise first and second data structures, respectively, which each include labels indicating types of the multiple objects and also include coordinates indicating locations of the multiple objects; and requiring that the first and second data structures be correlated with the first one or more instruction sets and the second one or more instruction sets, respectively.

Additionally, the amendments to claim 14 (in claim 25) and claim 15 (in claim 26) change “the first circumstance representation includes: one or more object

representations, or one or more collections of object representations” to “the first circumstance representation includes a first collection of object representations” and similarly change (in claim 25) “the second circumstance representation includes: one or more object representations, or one or more collections of object representations” to “the second circumstance representation includes a second collection of object representations. Thus, these amendments narrow the claims by changing OR-combinations in the form “X or Y” to just “Y”).

Each of these additions is made for the purpose of further distinguishing the claims over the prior art raised in the Petition and therefore narrows the claim scope in compliance with 37 C.F.R. § 42.12(a)(2)(ii). *See Lectrosonics* at 7 (noting that “a proposed substitute claim adding a novel and nonobvious feature or combination to avoid the prior art in an instituted ground of unpatentability will not enlarge the scope of the claims.”).

## **2. The Substitute Claims Do Not Introduce New Matter**

As required by 37 C.F.R. § 42.121(b), the proposed substitute claims are supported by the original non-provisional application and thus do not introduce new subject matter as required by 37 C.F.R. § 42.121(a)(2)(ii). The '974 patent issued from U.S. Patent Application No. 15/340,991 (“the '991 Application”), which is

found at pages 5-205 of Exhibit 1007.<sup>2</sup> For the purposes of this motion, PO identifies the following portions of the '991 Application as providing support for the proposed amendments. In addition, PO submits the declaration of Dr. Saber (Ex. 2007, ¶¶ 130-143). Dr. Saber's declaration and the cited portions of the '991 Application show that a person of ordinary skill in the art ("POSA") would have understood, based on the disclosures of the '991 Application, that the inventor possessed the Substitute Claims as of November 2, 2016. Lastly, the written description of the '991 Application is sufficient to inform a POSA how to both make and use the invention as recited in the proposed Substitute Claims.

Exemplary citations for each limitation of the Substitute Claims are summarized below (and detailed in the Declaration of Dr. Saber, *see* Ex. 2007, ¶¶ 131-133). The Substitute Claims essentially rewrite claims 4/5/7/11/14/15 in independent form (with a few additional revisions for claims 14-15), so for convenience, support for base claim 1 (whose limitations are now in each Substitute Claim) is discussed below in Section D.2.a.

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<sup>2</sup> Citations to the '991 Application are to pages of the originally-filed specification or figures—e.g., '991 Application at [1:25-26] refers to Ex. 1007, 46:25-26.

*a) Support Regarding Limitations in Original Claim 1*

The following features are in each Substitute Claim and are also in claim 1, which is the base claim from which claims 4/5/7/11/14/15 depend, and Dr. Saber's testimony confirms that the inventor was in possession of these features (and each claim as a whole) at the time of filing the '991 Application. Ex. 2007, ¶¶ 131-133. The '991 Application discloses "A method implemented using a computing system that includes one or more processor circuits, the method comprising:" See [Title], [Abstract], [Fig. 1], [52:30-32], [53:3-4], [53:22-54:6], [1:25-26], [15:18-19].

The '991 Application discloses "accessing a memory that stores at least a knowledgebase that includes:" See [Fig. 1], [Fig. 12], [53:6], [53:13-15], [54:7-16], [54:17-25], [87:11], [92:7-22.], [Fig. 17].

The '991 Application discloses "a first correlation including a first circumstance representation correlated with a first one or more instruction sets for operating a first device." See [Fig. 13], [89:20-32], [Figs. 14-16], [Fig. 32], [138:24-25], [Figs. 33-37], [Fig. 17].

The '991 Application discloses "and a second correlation including a second circumstance representation correlated with a second one or more instruction sets for operating the first device." See [Fig. 13], [89:20-32], [Figs. 14-16], [14:6-10], [Fig. 32], [138:25-27], [Figs. 33-37], [Fig. 17].

The '991 Application discloses “wherein the first circumstance representation represents a first circumstance detected at least in part by one or more sensors of the first device.” *See* [6:16-17], [135:14-17], [135:27-28], [73:10-14], [Fig. 2], [Figs. 3A-3E], [62:33-63:14], [63:15-64:36], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8].

The '991 Application discloses “and the second circumstance representation represents a second circumstance detected at least in part by the one or more sensors of the first device.” *See* [6:16-17], [135:14-17], [135:27-28], [73:10-14], [Fig. 2], [Figs. 3A-3E], [62:33-63:14], [63:15-64:36], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8].

The '991 Application discloses “and wherein at least a portion of the first correlation and at least a portion of the second correlation are learned in a learning process that includes operating the first device at least partially by a user.” *See* [Fig. 32], [135:14-17], [Fig. 33], [142:37-143:1], [143:9-10], [Fig. 38], [147:19-22].

The '991 Application discloses “generating or receiving a third circumstance representation, wherein the third circumstance representation represents a third circumstance detected at least in part by the one or more sensors of the first device or at least in part by one or more sensors of a second device.” *See* [65:5-7], [146:35-37], [147:25-26], [Fig. 32], [139:13-13], [Fig. 33], [143:12-12], [Figs. 34-37], [136:15-24], [136:24-26], [65:19-22].

The '991 Application discloses “anticipating the first one or more instruction sets for operating the first device learned in the learning process based on at least partial match between the third circumstance representation and the first circumstance representation.” *See* [1:34-37], [Fig. 38], [147:25-37], [Fig. 32], [141:24-27], [Fig. 33], [143:14-16], [113:29-32], [113:36-114:2], [7:26-30], [15:25-28], [16:8-11], [99:33-35], [100:11-12], [Fig. 17].

The '991 Application discloses “at least in response to the anticipating, executing the first one or more instruction sets for operating the first device learned in the learning process, wherein the first device or the second device autonomously performs one or more operations defined by the first one or more instruction sets for operating the first device learned in the learning process.” *See* [1:37-2:2], [15:28-34], [16:11-15], [Fig. 33], [143:18-23].

*b) Support Regarding Limitations in Original Claims*  
*4/5/7/11/14/15*

The following features are in each Substitute Claim and are also in issued claims 4/5/7/11/14/15 (prior to this amendment), corresponding to claims 21-26, and Dr. Saber’s testimony confirms that the inventor was in possession of these features (and each claim as a whole) at the time of filing the '991 Application. Ex. 2007, ¶ 133.

**Substitute Claim 21:** The '991 Application discloses “wherein the learning process includes: generating or receiving the first circumstance representation.” *See* [6:16-

17], [135:14-17], [135:27-28], [73:10-14], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8], [65:5-7], [146:35-37], [147:25-26], [Fig. 32], [139:13-13], [Fig. 33], [143:12-12], [Figs. 34-37], [136:24-26].

The '991 Application discloses “generating or receiving the second circumstance representation.” *See* [6:16-17], [135:14-17], [135:27-28], [73:10-14], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8], [14:6-10], [65:5-7], [146:35-37], [147:25-26], [Fig. 32], [139:13-13], [Fig. 33], [143:12-12], [Figs. 34-37], [136:24-26], [65:19-22].

The '991 Application discloses “obtaining or receiving the first one or more instruction sets for operating the first device.” *See* [1:29-30], [Figs. 13-16], [89:12-13], [75:4-7], [Figs. 32-34], [136:37-37].

The '991 Application discloses “obtaining or receiving the second one or more instruction sets for operating the first device.” *See* [14:8-8], [21:18-19], [1:29-30], [Figs. 13-16], [89:12-13], [75:4-7], [Figs. 32-34], [136:37-37].

The '991 Application discloses “wherein the knowledgebase further includes a fourth correlation including a fourth circumstance representation correlated with a fourth one or more instruction sets for operating the second device.” *See* [Fig. 13], [89:20-32], [Figs. 14-16], [138:25-28], [93:21-23], [86:13-14], [86:20-24], [147:38-148:10], [Fig. 38 – “first device”: Loader 98a], [Fig. 39 – “second device”: Boat 98b], [Fig. 17].

The '991 Application discloses “and wherein the fourth circumstance representation represents a fourth circumstance detected at least in part by the one or more sensors of the second device.” *See* [Fig. 2], [Figs. 3A-3E], [62:33-63:14], [63:15-64:36], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8], [86:13-14], [86:20-24], [147:38-148:10], [Fig. 38 – “first device”: Loader 98a], [146:30-37], [Fig. 39 – “second device”: Boat 98b], [149:39-150:7].

The '991 Application discloses “and wherein at least a portion of the fourth correlation is learned in another learning process that includes:” *See* [86:13-14], [86:20-24], [147:38-148:10], [14:8-10], [Fig. 32 – “learning process”], [135:14-17], [Fig. 33 – “another learning process”], [142:37-143:1], [Fig. 22 – “learning process”], [Fig. 23 – “another learning process”].

The '991 Application discloses “generating or receiving the fourth circumstance representation.” *See* [6:16-17], [135:14-17], [135:27-28], [73:10-14], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8], [14:6-10], [65:5-7], [146:35-37], [147:25-26], [Fig. 32], [139:13-13], [Fig. 33], [143:12-12], [Figs. 34-37], [136:24-26], [65:19-22].

The '991 Application discloses “obtaining or receiving the fourth one or more instruction sets for operating the second device.” *See* [93:21-23], [86:13-14], [86:20-24], [Fig. 38 – “first device”: Loader 98a], [147:11-13 – obtaining/receiving instruction sets for operating a first device Loader 98a], [Fig. 39 – “second device”:

Boat 98b], [150:19-20 – obtaining/receiving instruction sets for operating a second device Boat 98b], [Fig. 13], [89:20-32], [Figs. 14-16], [138:25-28].

**Substitute Claim 22:** The '991 Application discloses “wherein the anticipating the first one or more instruction sets for operating the first device learned in the learning process based on the at least partial match between the third circumstance representation and the first circumstance representation includes: determining that a number of at least partially matching portions of the third circumstance representation and portions of the first circumstance representation exceeds a threshold number, or determining that a percentage of at least partially matching portions of the third circumstance representation and portions of the first circumstance representation exceeds a threshold percentage.” *See* [8:20-22], [101:2-8].

**Substitute Claim 23:** The '991 Application discloses “wherein the knowledgebase further includes a fourth correlation including a fourth circumstance representation correlated with a fourth one or more instruction sets for operating: the first device, the second device, or a third device.” *See* [Fig. 13], [89:20-32], [Figs. 14-16], [138:25-28], [93:21-23], [86:13-14], [86:20-24], [147:38-148:10], [Fig. 38 – “first device”: Loader 98a], [Fig. 39 – “second device”: Boat 98b], [Fig. 17].

The '991 Application discloses “wherein a first connection is generated to connect the first correlation with the second correlation, and wherein a second

connection is generated to connect the second correlation with the fourth correlation.” *See* [93:37-37], [Fig. 18A-18C], [96:3-5], [Figs. 20-22], [14:14-19].

**Substitute Claim 24:** The ’991 Application discloses “wherein the knowledgebase further includes a fourth correlation including a fourth circumstance representation correlated with a fourth one or more instruction sets for operating the second device.” *See* [Fig. 13], [89:20-32], [Figs. 14-16], [138:25-28], [93:21-23], [86:13-14], [86:20-24], [147:38-148:10], [Fig. 38 – “first device”: Loader 98a], [Fig. 39 – “second device”: Boat 98b], [Fig. 17].

The ’991 Application discloses “and wherein the fourth circumstance representation represents a fourth circumstance detected at least in part by the one or more sensors of the second device.” *See* [Fig. 2], [Figs. 3A-3E], [62:33-63:14], [63:15-64:36], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8], [86:13-14], [86:20-24], [147:38-148:10], [Fig. 38 – “first device”: Loader 98a], [146:30-37], [Fig. 39 – “second device”: Boat 98b], [149:39-150:7].

The ’991 Application discloses “and wherein at least a portion of the fourth correlation is learned in another learning process that includes operating the second device at least partially by another user.” *See* [86:13-14], [86:20-24], [147:38-148:10], [14:8-10], [Fig. 32 – “learning process”], [135:14-17], [Fig. 33 – “another learning process”], [142:37-143:1], [Fig. 22 – “learning process”], [Fig. 23 –

“another learning process”], [Fig. 38 – “first device”: Loader 98a], [146:29-30], [148:3-5], [Fig. 39 – “second device”: Boat 98b], [149:38-39].

**Substitute Claim 25:** The '991 Application discloses “wherein the first circumstance representation includes: one or more object representations, or one or more collections of object representations, and wherein the second circumstance representation includes: one or more object representations, or one or more collections of object representations, and wherein the third circumstance representation includes: one or more object representations, or one or more collections of object representations.” *See* [6:16-17], [135:14-17], [135:27-28], [73:10-14], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8], [14:6-10].

**Substitute Claim 26:** The '991 Application discloses “wherein, to correlate the first circumstance representation with the first one or more instruction sets for operating the first device, a determination is made that the first one or more instruction sets for operating the first device temporally correspond to the first circumstance representation.” *See* [89:33-90:23], [3:31-4:8], [137:19-35].

The '991 Application discloses “and wherein the first circumstance representation includes: one or more object representations, or one or more collections of object representations.” *See* [6:16-17], [135:14-17], [135:27-28], [73:10-14], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8], [14:6-10].

*c) Support Regarding Added Limitations Common to Each  
Substitute Claim*

The following features are additions to each Substitute Claim, and Dr. Saber's testimony confirms that the inventor was in possession of these features (and each claim as a whole) at the time of filing the '991 Application. Ex. 2007, ¶ 133. The '991 Application discloses "wherein the first circumstance representation includes a first collection of object representations." *See* [6:16-17], [135:14-17], [135:27-28], [73:10-14], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8].

The '991 Application discloses "and wherein the second circumstance representation includes a second collection of object representations." *See* [6:16-17], [135:14-17], [135:27-28], [73:10-14], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8], [14:6-10], [Figs. 2, 33, 38 – overall system].

The '991 Application discloses "and wherein the first collection of object representations represents multiple objects detected at a first time or during a first time period." *See* [65:14-36], [135:25-30], [135:30-136:3], [24:35-37], [25:12-17], [Figs. 15-16], [91:25:26], [92:3-4].

The '991 Application discloses "and comprises a first data structure that includes: labels indicating types of the multiple objects." *See* [Figs. 4A-4B], [72:31-73:8], [136:6-12], [66:2-6], [66:6-9], [66:27-29].

The '991 Application discloses "and coordinates indicating locations of the multiple objects." *See* [66:2-6], [85:29-30], [136:7-12].

The '991 Application discloses “and wherein the second collection of object representations represents the multiple objects detected at a second time or during a second time period.” *See* [65:14-36], [135:25-30], [135:30-136:3], [24:35-37], [25:12-17], [Figs. 15-16], [91:25:26], [92:3-4].

The '991 Application discloses “and comprises a second data structure that includes: labels indicating types of the multiple objects.” *See* [Figs. 4A-4B], [72:31-73:8], [136:6-12], [66:2-6], [66:6-9], [66:27-29].

The '991 Application discloses “coordinates indicating locations of the multiple objects.” *See* [66:2-6], [85:29-30], [136:7-12].

The '991 Application discloses “the first data structure is correlated with the first one or more instruction sets for operating the first device.” [Fig. 13], [89:20-32], [Figs. 14-16], [Fig. 32], [138:24-25], [Figs. 33-37], [Fig. 17].

The '991 Application discloses “the second data structure is correlated with the second one or more instruction sets for operating the first device.” *See* [Fig. 13], [89:20-32], [Figs. 14-16], [14:6-10], [Fig. 32], [138:25-27], [Figs. 33-37], [Fig. 17].

#### **IV. THE LEVEL OF ORDINARY SKILL IN THE ART**

In this motion, as in the concurrently-filed PO Response, PO and its expert adopt Petitioner’s description of the level of skill of a POSA: at least: (1) a bachelor’s degree in electrical engineering, computer engineering, computer science, systems engineering, or equivalent course work with two to three years of work experience

in computer vision, image/video processing, and/or machine learning; or (2) a master's degree in electrical engineering, computer engineering, computer science, systems engineering, or equivalent course work with a focus in computer vision, image/video processing, and/or machine learning. *See* Ex. 2007, ¶ 45.

## **V. THE SCOPE AND CONTENT OF THE PRIOR ART**

The Petition does not rely on any of the references cited during the original prosecution, and instead relies on grounds involving Grotmol alone or in combination with Hickman. PO presumes Petitioner has set forth what it believed to be the closest prior art in its Petition. As no prior art of record from the original prosecution of the '991 Application is cited by Petitioner as a basis for unpatentability in this IPR proceeding, it is undisputed that such prosecution-related prior art of record does not disclose or suggest the elements of the originally issued claims (as confirmed by the USPTO's issuance of the '974 patent over that prior art). Similarly, no prior art of record (e.g., Grotmol/Hickman) describes or suggests the additional elements recited in the Substitute Claims, as described below.

## **VI. CLAIM CONSTRUCTION**

Under 37 C.F.R. § 42.100, claim terms should be given “their ordinary and customary meaning” as would be understood by a POSA in question at the time of the invention, in light of the claim language, the specification, and the prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005). In this

motion, PO applies the ordinary and customary meaning of the claim terms of the proposed substitute claims. Ex. 2007, ¶ 132. The concurrently-filed PO Response provides a construction for one term (“connection”) in claim 7, and that term appears in amended claim 23. 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). At this stage construction of “connection” in claim 23 is unnecessary because that term does not appear in the added limitations of that claim and so there is not currently a construction-related dispute for that term in the amended claim.

## **VII. THE SUBSTITUTE CLAIMS ARE PATENTABLE OVER THE ART**

Although PO does not bear the burden of persuasion or production regarding the patentability of the substitute claims, PO nevertheless sets forth reasons why the art does not teach or suggest the amended subject matter. *Aqua Products, Inc. v. Matal*, 872 F.3d 1290, 1296 (Fed. Cir. 2017). This motion and Dr. Saber’s declaration (Ex. 2007, ¶¶ 136-143) provide support.

### **A. Independent Substitute Claims 21-26 Are Patentable Over the Instituted Art in this Proceeding.**

Claim 21 (substitute for claim 4): Claim 21 further narrows claim 4, as discussed above in Section III.

*Ground 1*: For claim 4, the Petition relies on anticipation by Grotmol in Ground 1, mapping Grotmol’s image of a scene from a robot vehicle’s operation to

the claimed “first circumstance representation” in base claim 1, from which claim 4 depends. Pet., 3, 13-14. The Petition maps Grotmol’s images 2000/2010 to “object representations” claimed in claim 14, and relies on Grotmol’s images 2000/2010 “compris[ing] representations of visual field that may be obtained at times  $t_1 < t_2$ , respectively.” Pet., 41-42 (citing Ex. 1004, 38:45-46). But Grotmol does not disclose, by such images or any other disclosure, all the features added via amendment—e.g., the first and second circumstance representations including first and second collections of object representations, respectively, wherein (i) the first and second collections comprise specific data structures (comprising labels and coordinates as claimed), **AND** (ii) those data structures are correlated with instruction sets, **AND** (iii) the first collection represents objects detected at a first time or during a first time period and the second collection represents the objects detected at a second time or during a second time period, as recited in claim 21. Ex. 2007, ¶ 137.

Regarding (i), Grotmol does not disclose the first collection of object representations comprises a first data structure including labels indicating types of the multiple objects, and coordinates indicating locations of the multiple objects, much less also disclose the *second* collection of object representations comprises a *second* data structure including labels indicating types of the multiple objects and coordinates indicating locations of the multiple objects. While Grotmol’s images

depict objects, images inherently do not depict or, in any way include, labels indicating the types of the objects and coordinates indicating locations of the objects. An example of a collection of object representations comprising a data structure is shown in Figure 4B of the '974 patent. Ex. 1001, FIG. 4B. Grotmol does not disclose the foregoing claimed features. Ex. 2007, ¶ 138.

Regarding (ii), Additionally, Grotmol does not disclose that the first data structure is correlated with the first one or more instruction sets for operating the first device, and the second data structure is correlated with the second one or more instruction sets for operating the first device, as required by the amended claim. *Id.*, ¶ 139. There is simply no disclosure in Grotmol of such data structures, much less the required correlations. *Id.*

Regarding (iii), Furthermore, Grotmol also does not disclose that its images of scenes from a robot vehicle's operation (mapped by Petitioner to the "[first|second] circumstance representation") include, respectively, a first collection of object representations and a second collection of object representations data structures (that each includes the recited object labels and coordinates), where the first collection of object representations represents multiple objects detected at a first time or during a first time period, and the second collection of object representations represents the multiple objects (i.e., the same objects) detected at a second time or during a second time period. As noted above, the Petition points to Grotmol's

*images* 2000/2010 corresponding to times t1 and t2, but that is very different from the claimed first and second *collections of object representations* comprising data structures (that each includes the recited labels and coordinates) representing multiple objects detected at first/second times or during first/second time periods—this is not disclosed in Grotmol. Ex. 2007, ¶ 140.

Additionally, the Petition maps Grotmol’s *images* to the first/second circumstance representations, so under that mapping (even if accepted) Grotmol cannot (and does not) also disclose that the first/second circumstance representations include first/second collections of object representations as claimed, with the collections comprising specific data structures having the foregoing temporal constraints. *Id.*, ¶ 140.

Grotmol in view of Hickman does not render claim 21 obvious because those references do not disclose or suggest all the elements of the claim in their claimed configuration. *Id.*, ¶ 141. Furthermore, a POSA would not have been motivated or found it predictable to modify Grotmol’s process in view of Hickman to arrive at all the features of amended claim 21. When considering obviousness, the Board must consider the prior art reference(s) and what would have been predictable from the standpoint of a POSA reading the reference(s). Nothing in Grotmol, or in Hickman, shows or suggests a modification of Grotmol’s process to arrive at the amended claim. It would be impermissible hindsight to conclude that Grotmol would have

been predictably combined with Hickman (or any other reference) to arrive at the amended claim.

*Ground 3:* For claim 4, the Petition also relies on obviousness over Grotmol and Hickman in Ground 3. Pet., 4. The Petition only relies on Hickman's shared robot knowledge base for certain limitations of claims 4 and 11, and does not rely on Hickman's disclosure for the claimed first circumstance representation. *Id.*, 58-66. Hickman does not disclose the various limitations (discussed above) added to claim 21, and a POSA would not have been motivated or found it predictable to modify Grotmol's process in view of Hickman to arrive at the amended claim for the reasons discussed above. Ex. 2007, ¶ 142. Therefore, Grotmol in view of Hickman does not render obvious claim 21. *Id.*

Claims 22-26 (substitutes for claims 5/7/11/14/15): Claims 22-26 further narrow claims 5, 7, 11, 14, and 15, respectively. As discussed above in Section III, the amendments limit claims 22-26 by adding the same aforementioned limitations that are also added to claim 21 (in claims 25-26 the phrasing of the claim language is formatted differently, but substantively the same aforementioned narrowing limitations are added). Therefore, for the reasons discussed above regarding claim 21, Grotmol does not disclose all the limitations of claims 22-23 and 25-26 (relevant to Ground 1 as regarding claims 5/7/14/15, *see* Pet., 3) and Grotmol in view of

Hickman does not disclose or suggest all the limitations of any of those claims or claim 24 (relevant to Ground 3 as regarding claim 11, *see id.*, 4).

For claim 11, the Petition also relies on single-reference obviousness over Grotmol in Ground 2. *Id.*, 3. It would not have been obvious to modify Grotmol's process to implement the aforementioned limitations added to claim 24. Ex. 2007, ¶ 143. It was not known and predictable for a POSA to implement the claimed combination of features (added to claim 24), and a POSA would not have had reason or motivation to modify Grotmol's system to implement such features, for at least the reasons discussed above. *Id.*

**B. Independent Substitute Claims 21-26 Are Patentable Over the Art of Record From Prosecution.**

As noted above in Section V, PO presumes Petitioner has set forth in the Petition what it believed to be the closest prior art, and that does not include any prior art of record from prosecution. The original claims were allowed by the Examiner, and the Examiner specifically noted that “[t]here are references that claim the broad spectrum idea, however they do not deal with the specifics of the current claim limitations,” including circumstance representations correlated with instruction sets. Ex. 1007, 352-53. The amended (substitute) claims that further narrow the original claims are also patentable over art from original prosecution. Ex. 2007, ¶ 130.

**C. Independent Substitute Claims 21-26 Are Patentable Over the Art at Issue in Other IPR Petitions.**

The proposed Substitute Claims are also patentable over all prior art identified in the petitions in IPR2023-{01055, 01169, 01172, 01173}, which are other proceedings challenging patents owned by PO. The prior art references in those proceedings do not disclose or suggest all the limitations of amended claims 21-26. Ex. 2007, ¶¶ 130, 136-143. By way of example, and without limitation, none of the prior art references cited by Petitioner in those proceedings disclose or suggest the added limitations regarding the first and second circumstance representations including first and second collections of object representations, respectively, comprising specific data structures (with the claimed labels and coordinates) correlated with instruction sets, and with specific temporal limitations, as recited in amended claims 21-26. To the extent Petitioner disagrees, and given that it is Petitioner's and not PO's burden, PO will respond at the appropriate time.

**VIII. CONCLUSION**

For each original claim among claims {4, 5, 7, 11} that the Board finds unpatentable, PO requests the Board grant this contingent motion to amend as to the corresponding substitute claim. PO further requests that the Board issue claims 25 and 26, as substitutes for claims 14 and 15, which are hereby cancelled.

Date: March 7, 2024

Respectfully submitted,

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**CERTIFICATION OF WORD COUNT**

The undersigned hereby certifies that the above-captioned **PATENT OWNER'S CONTINGENT MOTION TO AMEND** complies with the page limits of § 42.24(a) because it does not contain more than 25 pages. This paper also complies with the typeface requirements of 37 C.F.R. § 42.6(a)(2)(ii) and the type style requirements of 37 C.F.R. § 42.6(a)(2)(iii) and (iv).

Dated: March 7, 2024

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**CERTIFICATION OF SERVICE**

The undersigned hereby certifies that the foregoing **PATENT OWNER'S CONTINGENT MOTION TO AMEND** has been served on Petitioner via email on the following counsel of record for Petitioner:

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**APPENDIX A – SUBSTITUTE CLAIMS**

**Claim 21 (Proposed substitute for claim 4, if found unpatentable)** A method implemented using a computing system that includes one or more processor circuits, the method comprising:

accessing a memory that stores at least a knowledgebase that includes: a first correlation including a first circumstance representation correlated with a first one or more instruction sets for operating a first device and a second correlation including a second circumstance representation correlated with a second one or more instruction sets for operating the first device, wherein the first circumstance representation represents a first circumstance detected at least in part by one or more sensors of the first device and the second circumstance representation represents a second circumstance detected at least in part by the one or more sensors of the first device, and wherein at least a portion of the first correlation and at least a portion of the second correlation are learned in a learning process that includes operating the first device at least partially by a user;

generating or receiving a third circumstance representation, wherein the third circumstance representation represents a third circumstance detected at least in part by the one or more sensors of the first device or at least in part by one or more sensors

of a second device;

anticipating the first one or more instruction sets for operating the first device learned in the learning process based on at least partial match between the third circumstance representation and the first circumstance representation; and

at least in response to the anticipating, executing the first one or more instruction sets for operating the first device learned in the learning process, wherein the first device or the second device autonomously performs one or more operations defined by the first one or more instruction sets for operating the first device learned in the learning process;

wherein the learning process includes:

generating or receiving the first circumstance representation, and

generating or receiving the second circumstance representation; and

obtaining or receiving the first one or more instruction sets for operating the first device, and

obtaining or receiving the second one or more instruction sets for operating the first device, and

wherein the knowledgebase further includes a fourth correlation including a fourth circumstance representation correlated with a fourth one or more instruction sets for operating the second device, and wherein the fourth circumstance representation represents a fourth circumstance detected at least in part by the one

or more sensors of the second device, and wherein at least a portion of the fourth correlation is learned in another learning process that includes:

generating or receiving the fourth circumstance representation; and

obtaining or receiving the fourth one or more instruction sets for operating the second device;

wherein the first circumstance representation includes a first collection of object representations, and the second circumstance representation includes a second collection of object representations;

wherein the first collection of object representations represents multiple objects detected at a first time or during a first time period, and comprises a first data structure that includes: labels indicating types of the multiple objects, and coordinates indicating locations of the multiple objects;

wherein the second collection of object representations represents the multiple objects detected at a second time or during a second time period, and comprises a second data structure that includes: labels indicating types of the multiple objects, and coordinates indicating locations of the multiple objects;

wherein the first data structure is correlated with the first one or more instruction sets for operating the first device; and

wherein the second data structure is correlated with the second one or more instruction sets for operating the first device.

**Claim 22 (Proposed substitute for claim 5, if found unpatentable)** A method implemented using a computing system that includes one or more processor circuits, the method comprising:

accessing a memory that stores at least a knowledgebase that includes: a first correlation including a first circumstance representation correlated with a first one or more instruction sets for operating a first device and a second correlation including a second circumstance representation correlated with a second one or more instruction sets for operating the first device, wherein the first circumstance representation represents a first circumstance detected at least in part by one or more sensors of the first device and the second circumstance representation represents a second circumstance detected at least in part by the one or more sensors of the first device, and wherein at least a portion of the first correlation and at least a portion of the second correlation are learned in a learning process that includes operating the first device at least partially by a user;

generating or receiving a third circumstance representation, wherein the third circumstance representation represents a third circumstance detected at least in part by the one or more sensors of the first device or at least in part by one or more sensors of a second device;

anticipating the first one or more instruction sets for operating the first device

learned in the learning process based on at least partial match between the third circumstance representation and the first circumstance representation; and

at least in response to the anticipating, executing the first one or more instruction sets for operating the first device learned in the learning process, wherein the first device or the second device autonomously performs one or more operations defined by the first one or more instruction sets for operating the first device learned in the learning process;

wherein the anticipating the first one or more instruction sets for operating the first device learned in the learning process based on the at least partial match between the third circumstance representation and the first circumstance representation includes: determining that a number of at least partially matching portions of the third circumstance representation and portions of the first circumstance representation exceeds a threshold number, or determining that a percentage of at least partially matching portions of the third circumstance representation and portions of the first circumstance representation exceeds a threshold percentage;

wherein the first circumstance representation includes a first collection of object representations, and the second circumstance representation includes a second collection of object representations;

wherein the first collection of object representations represents multiple

objects detected at a first time or during a first time period, and comprises a first data structure that includes: labels indicating types of the multiple objects, and coordinates indicating locations of the multiple objects;

wherein the second collection of object representations represents the multiple objects detected at a second time or during a second time period, and comprises a second data structure that includes: labels indicating types of the multiple objects, and coordinates indicating locations of the multiple objects;

wherein the first data structure is correlated with the first one or more instruction sets for operating the first device; and

wherein the second data structure is correlated with the second one or more instruction sets for operating the first device.

**Claim 23 (Proposed substitute for claim 7, if found unpatentable)** A method implemented using a computing system that includes one or more processor circuits, the method comprising:

accessing a memory that stores at least a knowledgebase that includes: a first correlation including a first circumstance representation correlated with a first one or more instruction sets for operating a first device and a second correlation including a second circumstance representation correlated with a second one or more instruction sets for operating the first device, wherein the first circumstance

representation represents a first circumstance detected at least in part by one or more sensors of the first device and the second circumstance representation represents a second circumstance detected at least in part by the one or more sensors of the first device, and wherein at least a portion of the first correlation and at least a portion of the second correlation are learned in a learning process that includes operating the first device at least partially by a user;

generating or receiving a third circumstance representation, wherein the third circumstance representation represents a third circumstance detected at least in part by the one or more sensors of the first device or at least in part by one or more sensors of a second device;

anticipating the first one or more instruction sets for operating the first device learned in the learning process based on at least partial match between the third circumstance representation and the first circumstance representation; and

at least in response to the anticipating, executing the first one or more instruction sets for operating the first device learned in the learning process, wherein the first device or the second device autonomously performs one or more operations defined by the first one or more instruction sets for operating the first device learned in the learning process;

wherein the knowledgebase further includes a fourth correlation including a fourth circumstance representation correlated with a fourth one or more instruction

sets for operating: the first device, the second device, or a third device, and wherein a first connection is generated to connect the first correlation with the second correlation, and wherein a second connection is generated to connect the second correlation with the fourth correlation;

wherein the first circumstance representation includes a first collection of object representations, and the second circumstance representation includes a second collection of object representations;

wherein the first collection of object representations represents multiple objects detected at a first time or during a first time period, and comprises a first data structure that includes: labels indicating types of the multiple objects, and coordinates indicating locations of the multiple objects;

wherein the second collection of object representations represents the multiple objects detected at a second time or during a second time period, and comprises a second data structure that includes: labels indicating types of the multiple objects, and coordinates indicating locations of the multiple objects;

wherein the first data structure is correlated with the first one or more instruction sets for operating the first device; and

wherein the second data structure is correlated with the second one or more instruction sets for operating the first device.

**Claim 24 (Proposed substitute for claim 11, if found unpatentable)** A method implemented using a computing system that includes one or more processor circuits, the method comprising:

accessing a memory that stores at least a knowledgebase that includes: a first correlation including a first circumstance representation correlated with a first one or more instruction sets for operating a first device and a second correlation including a second circumstance representation correlated with a second one or more instruction sets for operating the first device, wherein the first circumstance representation represents a first circumstance detected at least in part by one or more sensors of the first device and the second circumstance representation represents a second circumstance detected at least in part by the one or more sensors of the first device, and wherein at least a portion of the first correlation and at least a portion of the second correlation are learned in a learning process that includes operating the first device at least partially by a user;

generating or receiving a third circumstance representation, wherein the third circumstance representation represents a third circumstance detected at least in part by the one or more sensors of the first device or at least in part by one or more sensors of a second device;

anticipating the first one or more instruction sets for operating the first device

learned in the learning process based on at least partial match between the third circumstance representation and the first circumstance representation; and

at least in response to the anticipating, executing the first one or more instruction sets for operating the first device learned in the learning process, wherein the first device or the second device autonomously performs one or more operations defined by the first one or more instruction sets for operating the first device learned in the learning process;

wherein the knowledgebase further includes a fourth correlation including a fourth circumstance representation correlated with a fourth one or more instruction sets for operating the second device, and wherein the fourth circumstance representation represents a fourth circumstance detected at least in part by the one or more sensors of the second device, and wherein at least a portion of the fourth correlation is learned in another learning process that includes operating the second device at least partially by another user;

wherein the first circumstance representation includes a first collection of object representations, and the second circumstance representation includes a second collection of object representations;

wherein the first collection of object representations represents multiple objects detected at a first time or during a first time period, and comprises a first data structure that includes: labels indicating types of the multiple objects, and

coordinates indicating locations of the multiple objects;

wherein the second collection of object representations represents the multiple objects detected at a second time or during a second time period, and comprises a second data structure that includes: labels indicating types of the multiple objects, and coordinates indicating locations of the multiple objects;

wherein the first data structure is correlated with the first one or more instruction sets for operating the first device; and

wherein the second data structure is correlated with the second one or more instruction sets for operating the first device.

**Claim 25 (Proposed substitute for claim 14)** A method implemented using a computing system that includes one or more processor circuits, the method comprising:

accessing a memory that stores at least a knowledgebase that includes: a first correlation including a first circumstance representation correlated with a first one or more instruction sets for operating a first device and a second correlation including a second circumstance representation correlated with a second one or more instruction sets for operating the first device, wherein the first circumstance representation represents a first circumstance detected at least in part by one or more sensors of the first device and the second circumstance representation

represents a second circumstance detected at least in part by the one or more sensors of the first device, and wherein at least a portion of the first correlation and at least a portion of the second correlation are learned in a learning process that includes operating the first device at least partially by a user;

generating or receiving a third circumstance representation, wherein the third circumstance representation represents a third circumstance detected at least in part by the one or more sensors of the first device or at least in part by one or more sensors of a second device;

anticipating the first one or more instruction sets for operating the first device learned in the learning process based on at least partial match between the third circumstance representation and the first circumstance representation; and

at least in response to the anticipating, executing the first one or more instruction sets for operating the first device learned in the learning process, wherein the first device or the second device autonomously performs one or more operations defined by the first one or more instruction sets for operating the first device learned in the learning process;

wherein the first circumstance representation ~~includes one or more object representations, or one or more~~ includes a first collection[[s]] of object representations, and wherein the second circumstance representation ~~includes one or more object representations, or one or more~~ includes a second collection[[s]] of

object representations, and wherein the third circumstance representation includes:  
one or more object representations, or one or more collections of object  
representations;

wherein the first collection of object representations represents multiple  
objects detected at a first time or during a first time period, and comprises a first data  
structure that includes: labels indicating types of the multiple objects, and  
coordinates indicating locations of the multiple objects;

wherein the second collection of object representations represents the multiple  
objects detected at a second time or during a second time period, and comprises a  
second data structure that includes: labels indicating types of the multiple objects,  
and coordinates indicating locations of the multiple objects;

wherein the first data structure is correlated with the first one or more  
instruction sets for operating the first device; and

wherein the second data structure is correlated with the second one or more  
instruction sets for operating the first device.

**Claim 26 (Proposed substitute for claim 15)** A method implemented using a  
computing system that includes one or more processor circuits, the method  
comprising:

accessing a memory that stores at least a knowledgebase that includes: a first

correlation including a first circumstance representation correlated with a first one or more instruction sets for operating a first device and a second correlation including a second circumstance representation correlated with a second one or more instruction sets for operating the first device, wherein the first circumstance representation represents a first circumstance detected at least in part by one or more sensors of the first device and the second circumstance representation represents a second circumstance detected at least in part by the one or more sensors of the first device, and wherein at least a portion of the first correlation and at least a portion of the second correlation are learned in a learning process that includes operating the first device at least partially by a user;

generating or receiving a third circumstance representation, wherein the third circumstance representation represents a third circumstance detected at least in part by the one or more sensors of the first device or at least in part by one or more sensors of a second device;

anticipating the first one or more instruction sets for operating the first device learned in the learning process based on at least partial match between the third circumstance representation and the first circumstance representation; and

at least in response to the anticipating, executing the first one or more instruction sets for operating the first device learned in the learning process, wherein the first device or the second device autonomously performs one or more

operations defined by the first one or more instruction sets for operating the first device learned in the learning process;

wherein, to correlate the first circumstance representation with the first one or more instruction sets for operating the first device, a determination is made that the first one or more instruction sets for operating the first device temporally correspond to the first circumstance representation, and wherein the first circumstance representation ~~includes: one or more object representations, or one or more~~ includes a first collection[[s]] of object representations, and wherein the second circumstance representation includes a second collection of object representations;

wherein the first collection of object representations represents multiple objects detected at a first time or during a first time period, and comprises a first data structure that includes: labels indicating types of the multiple objects, and coordinates indicating locations of the multiple objects;

wherein the second collection of object representations represents the multiple objects detected at a second time or during a second time period, and comprises a second data structure that includes: labels indicating types of the multiple objects, and coordinates indicating locations of the multiple objects;

wherein the first data structure is correlated with the first one or more instruction sets for operating the first device; and

wherein the second data structure is correlated with the second one or more instruction sets for operating the first device.