

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner

v.

AUTONOMOUS DEVICES, LLC,
Patent Owner

Case: IPR2023-01055
U.S. Patent No. 11,238,344

PATENT OWNER'S CONTINGENT MOTION TO AMEND

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TABLE OF EXHIBITS

Exhibit	Description	Previously Submitted
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 29, 2024 in IPR2023-01055	
2009	RESERVED	
2010	Institution Decision in IPR2023-01054	
2011	U.S. Patent No. 10,452,974	
2012	American Heritage Dictionary (1992) Excerpts	
2013	Webster's Third New International Dictionary (2002) Excerpts	
2014	File history of U.S. Patent No. 10,452,974	
2015	Dr. Eli Saber CV	

I. INTRODUCTION

Autonomous Devices, LLC (“PO”) submits this motion to amend the ’344 patent contingent on the outcome of this trial. In the event the Board finds any of original claims 6, 7, 10, 11, 12, or 16 unpatentable, PO respectfully requests that the Board grant this motion to amend and issue the corresponding substitute claims presented herein. Claims 4, 5, and 9 are hereby cancelled. PO respectfully requests that the Board issue claims 21, 22, and 25 as substitutes for claims 4, 5, and 9, respectively.

II. STATEMENT OF REQUESTED RELIEF

First, PO requests preliminary guidance on this motion pursuant to the Board’s pilot program. *See Consolidated Trial Practice Guide* (Nov. 2019) at 67. **Second**, to the extent the Board finds any of original claims 6, 7, 10, 11, 12, or 16 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 6, 7, 10, 11, 12, or 16 found patentable. **Third**, PO respectfully requests that the Board issue claims 21, 22, and 25 as substitutes for claims 4, 5, and 9, respectively, which are cancelled.¹

¹ Further to the parties’ conference call with the Board February 22, 2024, PO does not condition its request regarding claims 21, 22, and 25 on any condition.

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, sixteen claims (dependent claims 3-18) remain at issue. PO proposes six substitute claims, which is reasonable (due to being fewer than the number of challenged claims) 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 21-29 respond to the Petition's grounds. For example, this motion proposes adding certain following limitations to those claims to distinguish them from Grotmol (Ex. 1004) (regarding claims 4, 5, 7, 9, and 16 in Ground 1 of the Petition); Grotmol in view of the knowledge of a POSA (regarding claims 10 and 11 in Ground 2); and Grotmol in view of Hickman (Ex. 1005) (regarding claims 6, 11, and 12 in Ground 3). This motion seeks to amend those claims to address Petitioner's arguments. *Compare* Petition and Ex. 1001, *with* Appendix A (Proposed Substitute Claims). And these amendments directly overcome the asserted grounds.

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

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 4/5/6/7/9/10/11/12/16 in independent form and further limit the system of each of these claims by requiring that the first one or more

object representations of the first circumstance representation comprise first and second object representations that include first and second data structures, respectively, which are each generated at least by processing one or more digital pictures to detect a type, a location, and a size of the first (or second) object, and in response to the processing, generating the first (or second) data structure that includes a label indicating the detected type of the first (or second) object, a coordinate indicating the detected location of the first (or second) object, and a computer model indicating the detected size of the first (or second) object, wherein the first and second data structures are correlated with the first one or more instruction sets for operating the first device. Each of these additions is made to further distinguish 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 '344 patent issued from U.S. Patent Application No. 16/540,972 (“the '972 Application”), which is

found at pages 1-168 of Exhibit 1007.² For the purposes of this motion, PO identifies the following portions of the '972 Application as providing support for the proposed amendments. In addition, PO submits the declaration of Dr. Saber (Ex. 2007). These show that a person of ordinary skill in the art ("POSA") would have understood, based on the disclosures of the '972 Application, that the inventor possessed the Substitute Claims as of November 2, 2016, which is the earliest claimed priority date (the filing date of the '991 Application). Lastly, the written description of the '972 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, ¶¶ 160-162). The Substitute Claims essentially rewrite claims 4/5/6/7/9/10/11/12/16 (each depends from claim 3, which depends from claim 1) in independent form, so for convenience, support for claims 1 and 3 (whose limitations are now in each Substitute Claim) is discussed below.

² The '344 patent is a continuation of U.S. Patent Application No. 15/340,991 ("the '991 Application"), which issued as U.S. Patent No. 10,452,974 ("the '974 patent") (Ex. 2012). Citations are provided herein to the originally-filed '972 and '991 Applications (Ex. 1007 and Ex. 2013)—e.g., '972 Application at [1:32-33] refers to Ex. 1007, 8:32-33, and '991 Application, [1:25-26] refers to Ex. 2013, 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 claim 3 depends (claims 4, 5, 6, 7, 9, 10, 11, 12, and 16 depend from claim 3), 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, ¶ 162. The '972 Application discloses elements [21.pre] and [21.1].³ See [Title], [Abstract], [Fig. 1], [52:30-32], [53:3-4], [53:21-54:5], [1:32-33], [15:24-25]; *see also* '991 Application, [Title], [Abstract], [Fig. 1], [52:30-32], [53:3-4], [53:22-54:6], [1:25-26], [15:18-19]. The '972 Application discloses "accessing a memory that stores at least a knowledgebase that includes." See [Fig. 1], [Fig. 12], [53:6-7], [53:13-15], [54:6-14], [54:15-22], [86:37-39], [91:32-92:8], [Fig. 17]; *see also* '991 Application, [Fig. 1], [Fig. 12], [53:6-7], [53:13-15], [54:7-16], [54:17-25], [87:10-12], [92:7-22], [Fig. 17]. The '972 Application discloses "a first circumstance representation correlated with a first one or more instruction sets for operating a first device." See [Fig. 13], [89:6-18], [Figs. 14-16], [Fig. 32], [138:7-8], [Figs. 33-37], [Fig. 17]; *see also* '991 Application, [Fig.

³ The elements of the Substitute Claims are labeled in Appendix A. Certain claim elements present in each Substitute Claim by virtue of being in base claims 1 or 3 are discussed herein with a prefix [21.*] with respect to claim 21 for convenience.

13], [89:20-32], [Figs. 14-16], [Fig. 32], [138:24-25], [Figs. 33-37], [Fig. 17]. The '972 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* [Figs. 4A-4B], [72:4-37], [6:23-24], [134:36-39], [135:10-11], [72:39-73:1], [Fig. 2], [Figs. 3A-3E], [62:27-63:8], [63:9-64:30], [64:36-66:13]; *see also* '991 Application, [Figs. 4A-4B], [72:14-73:8], [6:16-17], [135:14-17], [135:27-28], [73:10-11], [Fig. 2], [Figs. 3A-3E], [62:33-63:14], [63:15-64:36], [65:3-66:20]. The '972 Application discloses "and wherein at least a portion of the first circumstance representation or at least a portion of the first one or more instruction sets for operating the first device is learned in a learning process that includes operating the first device at least partially by a user." *See* [Fig. 33], [142:21-24], [142:32-33], [Fig. 38], [147:3-6]; *see also* '991 Application, [Fig. 33], [142:37-143:1], [143:9-10], [Fig. 38], [147:19-22]. The '972 Application discloses element [21.3]. *See* [146:19-21], [147:9-10], [Fig. 32], [138:35], [Fig. 33], [142:35], [Figs. 34-37], [136:7-9], [65:13-16], [Figs. 4A-4B], [72:4-37], [Fig. 2], [Figs. 3A-3E], [62:27-63:8], [63:9-64:30], [135:37-136:8], [64:36-66:13]; *see also* '991 Application, [146:35-37], [147:25-27], [Fig. 32], [139:13], [Fig. 33], [143:12], [Figs. 34-37], [136:24-26], [65:19-22], [Figs. 4A-4B], [72:14-73:8], [Fig. 2], [Figs. 3A-3E], [62:33-63:14], [63:15-64:36], [136:15-25], [65:3-66:20]. The '972 Application discloses element [21.4]. *See* [87:9-13], [2:2-5], [Fig. 38], [147:9-20], [Fig. 33], [142:37-143:1],

[113:11-14], [113:18-23], [7:33-37], [15:31-34], [16:15-18], [99:20-22], [99:37-38], [Fig. 17]; *see also* '991 Application, [87:22-26], [1:34-37], [Fig. 38], [147:25-37], [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 '972 Application discloses element [21.5]. *See* [2:5-10], [15:34-16:2], [16:18-23], [Fig. 33], [143:3-8]; *see also* '991 Application, [1:37-2:3], [15:28-34], [16:11-16], [Fig. 33], [143:18-23].

b) Support Regarding Limitations in Original Claim 3

The following features are in each Substitute Claim and also in claim 3, which is the base claim for claims 4, 5, 6, 7, 9, 10, 11, 12, and 16, 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, ¶ 162. The '972 Application discloses element [21.6]. *See* [64:38-65:6], [Figs. 4A-4B], [72:21-23], [135:4-6], [14:12-14], [14:18-19]; *see also* '991 Application, [65:5-12], [Figs. 4A-4B], [72:32-33], [135:21-23], [14:6-8]; [14:12-14].

*c) Support Regarding Limitations in Original Claims
4/5/6/7/9/10/11/12/16*

The following features are in each Substitute Claim and are also in issued claims 4/5/6/7/9/10/11/12/16 (prior to this amendment), corresponding to claims 21-29 and Dr. Saber's testimony confirms that the inventor was in possession of these features at the time of filing the '991 Application. Ex. 2007, ¶ 162.

Substitute Claim 21: The '972 App. discloses “wherein the second circumstance representation represents the second circumstance detected at least in part by the one or more sensors of the first device.” *See* [Figs. 4A-4B], [72:4-37], [146:19-21], [65:13-16], [Figs. 2, 3A-3E], [62:27-63:8], [63:9-64:30], [135:37-136:8], [64:36-66:13]; *see also* '991 App., [Figs. 4A-4B], [72:14-73:8], 146:35-37], [65:19-22], [Fig. 2, Figs. 3A-3E], [62:33-63:14], [63:15-64:36], [136:15-25], [65:3-66:20]. The '972 App. discloses “and wherein the first device autonomously performs the one or more operations defined by the first one or more instruction sets for operating the first device.” *See* [2:5-10], [15:34-16:2], [16:18-23], [Fig. 33], [143:3-8]; *see also* '991 App., [1:37-2:3], [15:28-34], [16:11-16], [Fig. 33], [143:18-23].

Substitute Claim 22: The '972 Application discloses “wherein the second circumstance representation represents the second circumstance detected at least in part by the one or more sensors of the second device.” *See* [Figs. 4A-4B], [72:4-37], [146:19-21], [65:13-16], [Fig. 2], [Figs. 3A-3E], [62:27-63:8], [63:9-64:30], [135:37-136:8], [64:36-66:13], [85:38-86:7], [147:21-32], [Fig. 38 – “first device”: Loader 98a], [146:14-21], [Fig. 39 – “second device”: Boat 98b], [149:21-28]; *see also* '991 App., [Figs. 4A-4B], [72:14-73:8], [146:35-37], [65:19-22], [Fig. 2], [Figs. 3A-3E], [62:33-63:14], [63:15-64:36], [136:15-25], [65:3-66:20], [86:12-20], [147:38-148:10], [Fig. 38], [146:30-37], [Fig. 39], [149:39-150:7]. The '972 Application discloses “and wherein the second device autonomously performs the

one or more operations defined by the first one or more instruction sets for operating the first device.” *See* [2:5-10], [15:34-16:2], [16:18-23], [Fig. 33], [143:3-8], [85:38-86:7], [Fig. 38 – “first device”: Loader 98a], [147:9-20], [Fig. 39 – “second device”: Boat 98b], [150:14-27]; *see also* ’991 App., [1:37-2:3], [15:28-34], [16:11-16], [Fig. 33], [143:18-23], [86:12-20], [Fig. 38], [147:25-37], [Fig. 39], [150:32-151:6].

Substitute Claim 23: The ’972 Application discloses element [23.7] *See* [Fig. 10], [85:38-86:22], [147:21-32], [93:7-9], [Fig. 38 – “first device”: Loader 98a], [Fig. 39 – “second device”: Boat 98b]; *see also* ’991 Application, [Fig. 10], [86:12-35], [147:38-148:10], [93:21-23], [Figs. 38-39].

Substitute Claim 24: The ’972 Application discloses elements [24.7]-[24.8]. *See* [9:18-21], [11:8-11], [11:14-18], [87:32-36], [73:7-9], [87:16-17], [141:25], [Figs. 2, 9-12 – modification interface 130], [125:34-36], [130:29-31]; *see also* ’991 Application, [9:11-14], [11:1-4], [11:8-11], [88:6-10], [73:17-19], [87:29-30], [142:2], [Figs. 2, 9-12], [126:12-14], [131:7-9]. The ’972 Application discloses element [24.9]. *See* [87:9-13], [2:2-5], [Fig. 38], [147:9-20], [Fig. 33], [142:37-143:1], [113:11-14], [113:18-23], [7:33-37], [15:31-34], [16:15-18], [99:20-22], [99:37-38], [Fig. 17]; *see also* ’991 Application, [87:22-26], [1:34-37], [Fig. 38], [147:25-37], [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 ’972 Application discloses element [24.10]. *See* [131:5-7], [132:34], [2:5-10], [15:34-16:2], [16:18-23], [Fig.

33], [143:3-8]; *see also* '991 Application, [131:22-24], [133:12], [1:37-2:3], [15:28-34], [16:11-16], [Fig. 33], [143:18-23].

Substitute Claim 25: The '972 Application discloses element [25.7]. *See* [Fig. 13], [89:6-18], [Figs. 14-16], [138:8-11], [Fig. 17]; *see also* '991 Application, [Fig. 13], [89:20-32], [Figs. 14-16], [138:25-28], [Fig. 17]. The '972 Application discloses element [25.8]. *See* [Fig. 2], [Figs. 3A-3E], [62:27-63:8], [63:9-64:30], [64:36-66:13], [Figs. 4A-4B], [72:4-37]; *see also* '991 Application, [Fig. 2, 3A-3E], [62:33-63:14], [63:15-64:36], [65:3-66:20], [Figs. 4A-4B], [72:14-73:8]. The '972 Application discloses element [25.9]. *See* [14:14-16], [Fig. 38], [147:3-6], [Fig. 32 – “learning process”], [134:36-39], [Fig. 33 – “another learning process”], [142:21-24], [Fig. 22 – “learning process”], [Fig. 23 – “another learning process”]; *see also* '991 Application, [14:8-10], [Fig. 38], [147:19-22], [Fig. 32], [135:14-17], [Fig. 33], [142:37-143:1], [Fig. 22], [Fig. 23].

Substitute Claim 26: The '972 Application discloses element [26.7]. *See* [Fig. 13], [89:6-18], [Figs. 14-16], [138:8-11], [Fig. 17]; *see also* '991 Application, [Fig. 13], [89:20-32], [Figs. 14-16], [138:25-28], [Fig. 17]. The '972 Application discloses element [26.8] *See* [Figs. 2, 3A-3E, 4A-4B], [62:27-63:8], [63:9-64:30], [64:36-66:13], [72:4-37]; *see also* '991 Application, [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 '972 Application discloses element [26.9]. *See* [86:7-11], [14:14-16], [147:25-27], [Fig. 32 – “learning

process”], [134:36-39], [Fig. 33 – “another learning process”], [142:21-24], [Fig. 22 – “learning process”], [Fig. 23 – “another learning process”]; *see also* ’991 Application, [86:20-24], [14:8-10], [148:3-5], [Fig. 32], [135:14-17], [Fig. 33], [142:37-143:1], [Figs. 22-23].

Substitute Claim 27: The ’972 Application discloses element [27.7]. *See* [Fig. 13], [89:6-18], [Figs. 14-16], [138:8-11], [93:7-9], [85:39-86:1], [86:7-11], [147:21-32], [Fig. 38 – “first device”: Loader 98a], [Fig. 39 – “third device”: Boat 98b], [Fig. 17]; *see also* ’991 Application, [Fig. 13], [89:20-32], [Figs. 14-16], [138:25-28], [93:21-23], [86:13-14], [86:20-24], [147:38-148:10], [Figs. 38-39], [Fig. 17]. The ’972 Application discloses element [27.8]. *See* [Fig. 2], [Figs. 3A-3E], [62:27-63:8], [63:9-64:30], [64:36-66:13], [Figs. 4A-4B], [72:4-37], [85:39-86:1], [86:7-11], [147:21-32], [Fig. 38 – “first device”: Loader 98a], [146:14-21], [Fig. 39 – “third device”: Boat 98b], [149:21-28]; *see also* ’991 Application, [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], [146:30-37], [Fig. 39], [149:39-150:7]. The ’972 Application discloses element [27.9]. *See* [86:7-11], [14:14-16], [147:25-27], [Fig. 32 – “learning process”], [134:36-39], [Fig. 33 – “another learning process”], [142:21-24], [Fig. 22 – “learning process”], [Fig. 23 – “another learning process”], [85:39-86:1], [147:21-32], [Fig. 38 – “first device”: Loader 98a], [146:13-14], [Fig. 39 – “second device”: Boat 98b], [149:20-21]; *see*

also '991 Application, [86:20-24], [14:8-10], [148:3-5], [Fig. 32], [135:14-17], [Fig. 33], [142:37-143:1], [Figs. 22-23], [86:13-14], [147:38-148:10], [Fig. 38], [146:29-30], [Fig. 39], [149:38-39].

Substitute Claim 28: The '972 Application discloses element [28.7]. *See* [Fig. 13], [89:6-18], [Figs. 14-16], [138:8-11], [93:7-9], [85:39-86:1], [86:7-11], [147:21-32], [Fig. 38 – “first device”: Loader 98a], [Fig. 39 – “third device”: Boat 98b], [Fig. 17]; *see also* '991 Application, [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], [Fig. 17]. The '972 Application discloses element [28.8]. *See* [Fig. 2], [Figs. 3A-3E], [62:27-63:8], [63:9-64:30], [64:36-66:13], [Figs. 4A-4B], [72:4-37], [85:39-86:1], [86:7-11], [147:21-32], [Fig. 38 – “first device”: Loader 98a], [146:14-21], [Fig. 39 – “third device”: Boat 98b], [149:21-28]; *see also* '991 Application, [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], [146:30-37], [Fig. 39], [149:39-150:7]. The '972 Application discloses elements [28.9]-[28.10]. *See* [64:39-65:1], [146:19-21], [147:9-10], [Fig. 32], [138:35], [Fig. 33], [142:35], [Figs. 34-37], [136:7-9], [65:13-16], [Fig. 2], [Figs. 3A-3E], [62:27-63:8], [63:9-64:30], [135:37-136:8], [64:36-66:13], [Figs. 4A-4B], [72: 4-37]; *see also* '991 Application, [65:6-7], [146:35-37], [147:25-27], [Fig. 32], [139:13], [Fig. 33], [143:12], [Figs. 34-37], [136:24-26], [65:19-22], [Fig. 2], [Figs. 3A-3E], [62:33-63:14], [63:15-64:36],

[136:15-25], [65:3-66:20]. The '972 Application discloses element [28.11]. *See* [87:9-13], [2:2-5], [147:9-20], [Fig. 33], [142:37-143:1], [113:11-14], [113:18-23], [7:33-37], [15:31-34], [16:15-18], [99:20-22], [99:37-38], [85:38-86:11], [147:21-32], [Fig. 38 – “first device”: Loader 98a], [147:9-20], [Fig. 39 – “third device”: Boat 98b], [150:14-25], [Fig. 17]; *see also* '991 App., [87:22-26], [1:34-37], [147:25-37], [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], [86:12-24], [147:38-148:10], [Fig. 38], [147:25-37], [Fig. 39], [150:32-151:4], [Fig. 17]. The '972 Application discloses element [28.12]. *See* [2:5-10], [Fig. 33], [143:3-8], [85:38-86:11], [147:21-32], [Fig. 38 – “first device”: Loader 98a], [147:9-20], [Fig. 39 – “third device”: Boat 98b], [150:14-25], [73:27-28]; *see also* '991 App., [1:37-2:3], [Fig. 33], [143:18-23], [86:12-24], [147:38-148:10], [Fig. 38], [147:25-37], [Fig. 39], [150:32-151:4], [73:37-38].

Substitute Claim 29: The '972 App. discloses element [29.7]. *See* [Figs. 13-16, 17 – Connection 853], [93:19-24]; *see also* '991 App., [Figs. 13-17], [93:33-38].

d) 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, ¶ 162. The '972 Application discloses “wherein the first one or more object representations of

the first circumstance representation comprise: a first object representation, and a second object representation.” *See* [64:38-65:6], [Figs. 4A-4B], [72:21-23], [135:4-6], [14:12-14], [Figs. 2, 33, 38 – overall system]; *see also* ’991 Application, [65:5-12], [Figs. 4A-4B], [72:32-33], [135:21-23], [14:6-8], [Figs. 2, 33, 38]. The ’972 Application discloses “and wherein the first object representation includes a first data structure generated at least by:” *See* [64:38-65:6], [Figs. 4A-4B], [72:21-23], [136:7-8]; *see also* ’991 Application, [65:5-12], [Figs. 4A-4B], [72:32-33], [136:24-26]. The ’972 Application discloses “processing one or more digital pictures to detect:” *See* [Fig. 3A], [66:14-22], [64:37-38], [72:14-17]; *see also* ’991 Application, [Fig. 3A], [66:21-29], [65:4-5], [72:24-27]. The ’972 Application discloses “a type of the first object, a location of the first object, and a size of the first object.” *See* [Fig. 3A], [66:18-22], [135:29-34], [65:34-38]; *see also* ’991 Application, [Fig. 3A], [66:25-29], [136:7-12], [66:2-6]. The ’972 Application discloses “and in response to the processing, generating the first data structure that includes:” *See* [64:38-65:6], [Figs. 4A-4B], [72:21-23], [136:7-8]; *see also* ’991 Application, [65:5-12], [Figs. 4A-4B], [72:32-33], [136:24-26]. The ’972 Application discloses “a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating the detected size of the first object.” *See* [66:18-22], [135:29-34], [65:34-38], [Figs. 4A-4B], [72:23-24]; *see also* ’991 Application, [66:25-29], [136:7-12],

[66:2-6], [Figs. 4A-4B], [72:33-34]. The '972 Application discloses "and wherein the second object representation includes a second data structure generated at least by:" *See* [64:38-65:6], [Figs. 4A-4B], [72:21-23], [136:7-8]; *see also* '991 Application, [65:5-12], [Figs. 4A-4B], [72:32-33], [136:24-26]. The '972 Application discloses "processing one or more digital pictures to detect:" *See* [Fig. 3A], [66:14-22], [64:37-38], [72:14-17]; *see also* '991 Application, [Fig. 3A], [66:21-29], [65:4-5], [72:24-27]. The '972 Application discloses "a type of the second object, a location of the second object, and a size of the second object." *See* [Fig. 3A], [66:18-22], [135:29-34], [65:34-38]; *see also* '991 Application, [Fig. 3A], [66:25-29], [136:7-12], [66:2-6]. The '972 Application discloses "and in response to the processing, generating the second data structure that includes:" *See* [64:38-65:6], [Figs. 4A-4B], [72:21-23], [136:7-8]; *see also* '991 Application, [65:5-12], [Figs. 4A-4B], [72:32-33], [136:24-26]. The '972 Application discloses "a label indicating the detected type of the second object, a coordinate indicating the detected location of the second object, and a computer model indicating the detected size of the second object." *See* [66:18-22], [135:29-34], [65:34-38], [Figs. 4A-4B], [72:23-24]; *see also* '991 Application, [66:25-29], [136:7-12], [66:2-6], [Figs. 4A-4B], [72:33-34]. The '972 Application discloses "wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first device." *See* [Fig. 13], [89:6-18], [Figs. 14-16], [Fig. 32], [138:8-

10], [Figs. 33-37], [Fig. 17]; *see also* '991 Application, [Fig. 13], [89:20-32], [Figs. 14-16], [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 that 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 '972 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 '344 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, ¶ 161. The concurrently-filed PO Response provides a construction for one term (“connections”) in claim 16, and that term appears in amended claim 29. 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 “connections” in claim 29 is unnecessary because that term does not appear in the added limitations and so there is not a 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, ¶¶ 165-172) provide support.

A. Independent Substitute Claims 21-29 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. 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 ultimately depends (claim 4 depends from claim 3, and claim 3 depends from claim 1, which has been disclaimed). Pet., 3, 13-14. The Petition maps Grotmol’s images 2000/2010 to “object representations” claimed in claim 3, 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., 24 (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 one or more object representations comprising first and second object representations wherein (i) the first and second object representations include respective specific data structures (comprising labels, coordinates, and computer models as claimed), **AND** (ii) those data structures are correlated with instruction sets, **AND** (iii) those data structures are generated in the claimed manner, as recited in claim 21. Ex. 2007, ¶ 166.

Regarding (i) and (iii), Grotmol does not disclose that the first object representation includes a first data structure generated at least by processing one or more digital pictures to detect: a type of the first object, a location of the first object, and a size of the first object, and in response to the processing, generating the first data structure that includes: a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating the detected size of the first object. *Id.*, ¶ 167. The Petition states that “objects shown within [Grotmol’s] images 2000 and 2010” are mapped to the claimed “object representations” for claim 3, from which claim 7 depends. Pet., 24. The Petition points to Grotmol’s “tree 2002, a rectangle, a ball 2008 and/or other objects” as examples of objects. *Id.* (citing Ex. 1004, 38:56-65). Even if Grotmol’s objects shown within images 2000/2010 are mapped to the claimed “object representations,” Grotmol does not disclose that one of those objects includes a first ***data structure*** generated in the claimed manner. Ex. 2007, ¶ 167. Petitioner has also not established that Grotmol discloses processing a digital picture to detect a type, location, and size of the first object, and in response to the processing, generating the first data structure that includes the claimed label, coordinate, and computer model that indicate the detected type, location, and size, respectively, of the first object. *Id.* Further, Grotmol does not disclose a ***second*** object

representation including a *second* data structure generated in the claimed manner.

Id.

Additionally, regarding (ii), given that Grotmol does not disclose the claimed first and second data structures, Grotmol also does not disclose the first and second data structures are *correlated with* Grotmol's motor control indication ("first one or more instruction sets for operating the first device," *see* Pet., 13). Ex. 2007, ¶ 168.

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. Ex. 2007, ¶ 169. Further, a POSA would not have been motivated or found it predictable to modify Grotmol in view of Hickman to arrive at claim 21. For 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 system 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.

Claims 22, 24, 25, and 29 (substitutes for claims 5/7/9/16): Claims 22, 24, 25, and 29 further narrow claims 5, 7, 9, and 16, respectively. As discussed in Section III, the amendments limit claims 5, 7, 9, and 16 by adding the same limitations that are also added to claim 21. Therefore, for the reasons discussed above regarding

claim 21, Grotmol does not disclose all the limitations of claims 22, 24, 25, and 29 (relevant to Ground 1 as regarding claims 5, 7, 9, and 16, *see* Pet., 4) and Grotmol in view of Hickman does not disclose or suggest all the limitations, either. Ex. 2007, ¶ 170.

Claims 26 and 27 (substitute for claims 10/11): Claims 26 and 27 further narrow claims 10 and 11, respectively. As discussed above in Section III, the amendments limit claims 26-27 by adding the same aforementioned limitations that are also added to claim 21. Therefore, for the reasons discussed above regarding claim 21, Grotmol does not disclose all the limitations of claims 26-27. For claims 10-11, the Petition relies on single-reference obviousness over Grotmol, instead of anticipation by Grotmol. It would not have been obvious to modify Grotmol's system to implement the aforementioned limitations added to claims 26-27. Ex. 2007, ¶ 171. It was not known and predictable for a POSA to implement the claimed combination of features (added to claims 26-27), 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.*

Claims 23, 27, and 28 (substitute for claims 6/11/12): Claims 23, 27, and 28 further narrow claims 6, 11, and 12, respectively. As discussed above in Section III, the amendments limit claims 23, 27, and 28 by adding the same aforementioned limitations that are also added to claim 21. Therefore, for the reasons discussed

above regarding claim 21, Grotmol does not disclose all the limitations of claims 23, 27, and 28. For claims 6, 11, and 12, the Petition relies on obviousness over Grotmol in view of Hickman in Ground 3. Pet., 4. The Petition only relies on Hickman's shared robot knowledge base for certain limitations of claim 6, 11, and 12, and does not rely on Hickman's disclosure for the claimed first circumstance representation. *Id.*, 55-65. Hickman does not disclose the various limitations (discussed above) added to claims 23, 27, and 28, and a POSA would not have been motivated or found it predictable to modify Grotmol's system in view of Hickman to arrive at the amended claims for the reasons discussed above. Ex. 2007, ¶ 172.

B. Independent Substitute Claims 21-29 Are Patentable Over the Art of Record From Prosecution.

As noted 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, 396. The amended (substitute) claims that further narrow the original claims are also patentable over art from original prosecution. Ex. 2007, ¶ 159.

C. Independent Substitute Claims 21-29 Are Patentable Over the Art at Issue in Other IPR Petitions.

The Substitute Claims are also patentable over all prior art identified in the petitions in IPR2023-{01054, 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 21-29. Ex. 2007, ¶ 159. By way of example, none of the prior art references cited by Petitioner in those proceedings disclose or suggest the added limitations regarding the first and second object representations including specific data structures (with the claimed labels, coordinates, and computer models) correlated with instruction sets, and generated in the claimed manner, as recited in claims 21-29. To the extent Petitioner disagrees, and given it is Petitioner's burden, PO will respond at the appropriate time.

VIII. CONCLUSION

For each original claim among claims {6, 7, 10, 11, 12, 16} 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 21, 22, and 25 as substitutes for claims 4, 5, and 9, 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** and supporting exhibits have 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) [21.pre]A

system comprising:

[21.1]one or more processors configured to perform at least:

[21.2]accessing a memory that stores at least a knowledgebase that includes a first circumstance representation correlated with a first one or more instruction sets for operating a 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 wherein at least a portion of the first circumstance representation or at least a portion of the first one or more instruction sets for operating the first device is learned in a learning process that includes operating the first device at least partially by a user;

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

[21.4]anticipating the first one or more instruction sets for operating the first device based on at least partial match between the second circumstance representation and the first circumstance representation; and

[21.5]at least in response to the anticipating, executing the first one or more instruction sets for operating the first device, 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;

[21.6]wherein the first circumstance representation includes a first one or more object representations, and wherein the second circumstance representation includes a second one or more object representations;

[21.7]wherein the second circumstance representation represents the second circumstance detected at least in part by the one or more sensors of the first device, and wherein the first device autonomously performs the one or more operations defined by the first one or more instruction sets for operating the first device;

[21.8]wherein the first one or more object representations of the first circumstance representation comprise a first object representation and a second object representation;

[21.9]wherein the first object representation includes a first data structure generated at least by:

[21.10]processing one or more digital pictures to detect: a type of a first object, a location of the first object, and a size of the first object; and

[21.11]in response to the processing, generating the first data structure that includes: a label indicating the detected type of the first object, a coordinate

indicating the detected location of the first object, and a computer model indicating the detected size of the first object;

[21.12]wherein the second object representation includes a second data structure generated at least by:

[21.13]processing one or more digital pictures to detect: a type of a second object, a location of the second object, and a size of the second object; and

[21.14]in response to the processing, generating the second data structure that includes: a label indicating the detected type of the second object, a coordinate indicating the detected location of the second object, and a computer model indicating the detected size of the second object;

[21.15]wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first device.

Claim 22 (Proposed substitute for claim 5, if found unpatentable) [22.pre]A system comprising:

[22.1]one or more processors configured to perform at least:

[22.2]accessing a memory that stores at least a knowledgebase that includes a first circumstance representation correlated with a first one or more instruction sets for operating a 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 wherein at least a portion of the first circumstance representation or at least a portion of the first one or more instruction sets for operating the first device is learned in a learning process that includes operating the first device at least partially by a user;

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

[22.4]anticipating the first one or more instruction sets for operating the first device based on at least partial match between the second circumstance representation and the first circumstance representation; and

[22.5]at least in response to the anticipating, executing the first one or more instruction sets for operating the first device, 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;

[22.6]wherein the first circumstance representation includes a first one or more object representations, and wherein the second circumstance representation includes a second one or more object representations;

[22.7]wherein the second circumstance representation represents the second circumstance detected at least in part by the one or more sensors of the second

device, and wherein the second device autonomously performs the one or more operations defined by the first one or more instruction sets for operating the first device;

[22.8]wherein the first one or more object representations of the first circumstance representation comprise a first object representation and a second object representation;

[22.9]wherein the first object representation includes a first data structure generated at least by:

[22.10]processing one or more digital pictures to detect: a type of a first object, a location of the first object, and a size of the first object; and

[22.11]in response to the processing, generating the first data structure that includes: a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating the detected size of the first object;

[22.12]wherein the second object representation includes a second data structure generated at least by:

[22.13]processing one or more digital pictures to detect: a type of a second object, a location of the second object, and a size of the second object; and

[22.14]in response to the processing, generating the second data structure that includes: a label indicating the detected type of the second object, a

coordinate indicating the detected location of the second object, and a computer model indicating the detected size of the second object;

[22.15]wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first device.

Claim 23 (Proposed substitute for claim 6, if found unpatentable) [23.pre]A system comprising:

[23.1]one or more processors configured to perform at least:

[23.2]accessing a memory that stores at least a knowledgebase that includes a first circumstance representation correlated with a first one or more instruction sets for operating a 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 wherein at least a portion of the first circumstance representation or at least a portion of the first one or more instruction sets for operating the first device is learned in a learning process that includes operating the first device at least partially by a user;

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

[23.4]anticipating the first one or more instruction sets for operating the first device based on at least partial match between the second circumstance representation and the first circumstance representation; and

[23.5]at least in response to the anticipating, executing the first one or more instruction sets for operating the first device, 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;

[23.6]wherein the first circumstance representation includes a first one or more object representations, and wherein the second circumstance representation includes a second one or more object representations;

[23.7]wherein the system further comprising: a server that receives from the first device at least one of: the first circumstance representation, or the first one or more instruction sets for operating the first device, and wherein the second device receives from the server at least one of: the first circumstance representation, or the first one or more instruction sets for operating the first device, and wherein the second device autonomously performs the one or more operations defined by the first one or more instruction sets for operating the first device;

[23.8]wherein the first one or more object representations of the first circumstance representation comprise a first object representation and a second object representation;

[23.9]wherein the first object representation includes a first data structure generated at least by:

[23.10]processing one or more digital pictures to detect: a type of a first object, a location of the first object, and a size of the first object; and

[23.11]in response to the processing, generating the first data structure that includes: a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating the detected size of the first object;

[23.12]wherein the second object representation includes a second data structure generated at least by:

[23.13]processing one or more digital pictures to detect: a type of a second object, a location of the second object, and a size of the second object; and

[23.14]in response to the processing, generating the second data structure that includes: a label indicating the detected type of the second object, a coordinate indicating the detected location of the second object, and a computer model indicating the detected size of the second object;

[23.15]wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first device.

Claim 24 (Proposed substitute for claim 7, if found unpatentable) [24.pre]A

system comprising:

[24.1]one or more processors configured to perform at least:

[24.2]accessing a memory that stores at least a knowledgebase that includes a first circumstance representation correlated with a first one or more instruction sets for operating a 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 wherein at least a portion of the first circumstance representation or at least a portion of the first one or more instruction sets for operating the first device is learned in a learning process that includes operating the first device at least partially by a user;

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

[24.4]anticipating the first one or more instruction sets for operating the first device based on at least partial match between the second circumstance representation and the first circumstance representation; and

[24.5]at least in response to the anticipating, executing the first one or more instruction sets for operating the first device, 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;

[24.6]wherein the first circumstance representation includes a first one or more object representations, and wherein the second circumstance representation includes a second one or more object representations;

[24.7]wherein the one or more processors are further configured to perform at least:

[24.8]modifying the first one or more instruction sets for operating the first device, or a copy of the first one or more instruction sets for operating the first device, and

[24.9]wherein the anticipating the first one or more instruction sets for operating the first device based on the at least partial match between the second circumstance representation and the first circumstance representation includes: anticipating the modified first one or more instruction sets for operating the first device based on the at least partial match between the second circumstance representation and the first circumstance representation, or anticipating the modified copy of the first one or more instruction sets for operating the first device based on the at least partial match between the second circumstance representation and the first circumstance representation, and

[24.10]wherein the executing the first one or more instruction sets for operating the first device includes: executing the modified first one or more

instruction sets for operating the first device, or executing the modified copy of the first one or more instruction sets for operating the first device, and wherein the autonomously performing, by the first device or by the second device, the one or more operations defined by the first one or more instruction sets for operating the first device includes: autonomously performing, by the first device or by the second device, one or more operations defined by the modified first one or more instruction sets for operating the first device, or autonomously performing, by the first device or by the second device, one or more operations defined by the modified copy of the first one or more instruction sets for operating the first device;

[24.11] wherein the first one or more object representations of the first circumstance representation comprise a first object representation and a second object representation;

[24.12] wherein the first object representation includes a first data structure generated at least by:

[24.13] processing one or more digital pictures to detect: a type of a first object, a location of the first object, and a size of the first object; and

[24.14] in response to the processing, generating the first data structure that includes: a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating

the detected size of the first object;

[24.15]wherein the second object representation includes a second data structure generated at least by:

[24.16]processing one or more digital pictures to detect: a type of a second object, a location of the second object, and a size of the second object; and

[24.17]in response to the processing, generating the second data structure that includes: a label indicating the detected type of the second object, a coordinate indicating the detected location of the second object, and a computer model indicating the detected size of the second object;

[24.18]wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first device.

Claim 25 (Proposed substitute for claim 9, if found unpatentable) [25.pre]A system comprising:

[25.1]one or more processors configured to perform at least:

[25.2]accessing a memory that stores at least a knowledgebase that includes a first circumstance representation correlated with a first one or more instruction sets for operating a 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 wherein at least a portion of the first circumstance

representation or at least a portion of the first one or more instruction sets for operating the first device is learned in a learning process that includes operating the first device at least partially by a user;

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

[25.4]anticipating the first one or more instruction sets for operating the first device based on at least partial match between the second circumstance representation and the first circumstance representation; and

[25.5]at least in response to the anticipating, executing the first one or more instruction sets for operating the first device, 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;

[25.6]wherein the first circumstance representation includes a first one or more object representations, and wherein the second circumstance representation includes a second one or more object representations;

[25.7]wherein the knowledgebase further includes a third circumstance representation correlated with a second one or more instruction sets for operating the first device, and

[25.8]wherein the third circumstance representation represents a third circumstance detected at least in part by the one or more sensors of the first device, and

[25.9]wherein at least a portion of the third circumstance representation or at least a portion of the second one or more instruction sets for operating the first device is learned in another learning process that includes operating the first device at least partially by the user;

[25.10]wherein the first one or more object representations of the first circumstance representation comprise a first object representation and a second object representation;

[25.11]wherein the first object representation includes a first data structure generated at least by:

[25.12]processing one or more digital pictures to detect: a type of a first object, a location of the first object, and a size of the first object; and

[25.13]in response to the processing, generating the first data structure that includes: a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating the detected size of the first object;

[25.14]wherein the second object representation includes a second data structure generated at least by:

[25.15]processing one or more digital pictures to detect: a type of a second object, a location of the second object, and a size of the second object; and

[25.16]in response to the processing, generating the second data structure that includes: a label indicating the detected type of the second object, a coordinate indicating the detected location of the second object, and a computer model indicating the detected size of the second object;

[25.17]wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first device.

Claim 26 (Proposed substitute for claim 10, if found unpatentable) [26.pre]A system comprising:

[26.1]one or more processors configured to perform at least:

[26.2]accessing a memory that stores at least a knowledgebase that includes a first circumstance representation correlated with a first one or more instruction sets for operating a 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 wherein at least a portion of the first circumstance representation or at least a portion of the first one or more instruction sets for operating the first device is learned in a learning process that includes operating the first device at least partially by a user;

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

[26.4]anticipating the first one or more instruction sets for operating the first device based on at least partial match between the second circumstance representation and the first circumstance representation; and

[26.5]at least in response to the anticipating, executing the first one or more instruction sets for operating the first device, 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;

[26.6]wherein the first circumstance representation includes a first one or more object representations, and wherein the second circumstance representation includes a second one or more object representations;

[26.7]wherein the knowledgebase further includes a third circumstance representation correlated with a second one or more instruction sets for operating the first device, and

[26.8]wherein the third circumstance representation represents a third circumstance detected at least in part by the one or more sensors of the first device, and

[26.9]wherein at least a portion of the third circumstance representation or at least a portion of the second one or more instruction sets for operating the first device is learned in another learning process that includes operating the first device at least partially by another user;

[26.10]wherein the first one or more object representations of the first circumstance representation comprise a first object representation and a second object representation;

[26.11]wherein the first object representation includes a first data structure generated at least by:

[26.12]processing one or more digital pictures to detect: a type of a first object, a location of the first object, and a size of the first object; and

[26.13]in response to the processing, generating the first data structure that includes: a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating the detected size of the first object;

[26.14]wherein the second object representation includes a second data structure generated at least by:

[26.15]processing one or more digital pictures to detect: a type of a second object, a location of the second object, and a size of the second object; and

[26.16]in response to the processing, generating the second data

structure that includes: a label indicating the detected type of the second object, a coordinate indicating the detected location of the second object, and a computer model indicating the detected size of the second object;

[26.17]wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first device.

Claim 27 (Proposed substitute for claim 11, if found unpatentable) [27.pre]A system comprising:

[27.1]one or more processors configured to perform at least:

[27.2]accessing a memory that stores at least a knowledgebase that includes a first circumstance representation correlated with a first one or more instruction sets for operating a 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 wherein at least a portion of the first circumstance representation or at least a portion of the first one or more instruction sets for operating the first device is learned in a learning process that includes operating the first device at least partially by a user;

[27.3]generating or receiving a second circumstance representation, wherein the second circumstance representation represents a second circumstance detected at least in part by: the one or more sensors of the first device, or one or more

sensors of a second device;

[27.4]anticipating the first one or more instruction sets for operating the first device based on at least partial match between the second circumstance representation and the first circumstance representation; and

[27.5]at least in response to the anticipating, executing the first one or more instruction sets for operating the first device, 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;

[27.6]wherein the first circumstance representation includes a first one or more object representations, and wherein the second circumstance representation includes a second one or more object representations;

[27.7]wherein the knowledgebase further includes a third circumstance representation correlated with a second one or more instruction sets for operating a third device, and

[27.8]wherein the third circumstance representation represents a third circumstance detected at least in part by one or more sensors of the third device, and

[27.9]wherein at least a portion of the third circumstance representation or at least a portion of the second one or more instruction sets for operating the third device is learned in another learning process that includes operating the third

device at least partially by: the user, or another user;

[27.10]wherein the first one or more object representations of the first circumstance representation comprise a first object representation and a second object representation;

[27.11]wherein the first object representation includes a first data structure generated at least by:

[27.12]processing one or more digital pictures to detect: a type of a first object, a location of the first object, and a size of the first object; and

[27.13]in response to the processing, generating the first data structure that includes: a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating the detected size of the first object;

[27.14]wherein the second object representation includes a second data structure generated at least by:

[27.15]processing one or more digital pictures to detect: a type of a second object, a location of the second object, and a size of the second object; and

[27.16]in response to the processing, generating the second data structure that includes: a label indicating the detected type of the second object, a coordinate indicating the detected location of the second object, and a computer model indicating the detected size of the second object;

[27.17]wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first device.

Claim 28 (Proposed substitute for claim 12, if found unpatentable) [28.pre]A system comprising:

[28.1]one or more processors configured to perform at least:

[28.2]accessing a memory that stores at least a knowledgebase that includes a first circumstance representation correlated with a first one or more instruction sets for operating a 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 wherein at least a portion of the first circumstance representation or at least a portion of the first one or more instruction sets for operating the first device is learned in a learning process that includes operating the first device at least partially by a user;

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

[28.4]anticipating the first one or more instruction sets for operating the first device based on at least partial match between the second circumstance

representation and the first circumstance representation; and

[28.5]at least in response to the anticipating, executing the first one or more instruction sets for operating the first device, 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;

[28.6]wherein the first circumstance representation includes a first one or more object representations, and wherein the second circumstance representation includes a second one or more object representations;

[28.7]wherein the knowledgebase further includes a third circumstance representation correlated with a second one or more instruction sets for operating a third device, and

[28.8]wherein the third circumstance representation represents a third circumstance detected at least in part by one or more sensors of the third device, and

[28.9]wherein the one or more processors are further configured to perform at least:

[28.10]generating or receiving a fourth circumstance representation, wherein the fourth circumstance representation represents a fourth circumstance detected at least in part by one or more sensors of a fourth device;

[28.11]anticipating the second one or more instruction sets for operating the

third device based on at least partial match between the fourth circumstance representation and the third circumstance representation; and

[28.12]at least in response to the anticipating the second one or more instruction sets for operating the third device, executing the second one or more instruction sets for operating the third device, wherein the fourth device autonomously performs one or more operations defined by the second one or more instruction sets for operating the third device;

[28.13]wherein the first one or more object representations of the first circumstance representation comprise a first object representation and a second object representation;

[28.14]wherein the first object representation includes a first data structure generated at least by:

[28.15]processing one or more digital pictures to detect: a type of a first object, a location of the first object, and a size of the first object; and

[28.16]in response to the processing, generating the first data structure that includes: a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating the detected size of the first object;

[28.17]wherein the second object representation includes a second data structure generated at least by:

[28.18]processing one or more digital pictures to detect: a type of a second object, a location of the second object, and a size of the second object; and

[28.19]in response to the processing, generating the second data structure that includes: a label indicating the detected type of the second object, a coordinate indicating the detected location of the second object, and a computer model indicating the detected size of the second object;

[28.20]wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first device.

Claim 29 (Proposed substitute for claim 16, if found unpatentable) [29.pre]A
system comprising:

[29.1]one or more processors configured to perform at least:

[29.2]accessing a memory that stores at least a knowledgebase that includes a first circumstance representation correlated with a first one or more instruction sets for operating a 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 wherein at least a portion of the first circumstance representation or at least a portion of the first one or more instruction sets for operating the first device is learned in a learning process that includes operating the first device at least partially by a user;

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

[29.4]anticipating the first one or more instruction sets for operating the first device based on at least partial match between the second circumstance representation and the first circumstance representation; and

[29.5]at least in response to the anticipating, executing the first one or more instruction sets for operating the first device, 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;

[29.6]wherein the first circumstance representation includes a first one or more object representations, and wherein the second circumstance representation includes a second one or more object representations;

[29.7]wherein the first circumstance representation correlated with the first one or more instruction sets for operating the first device include at least a portion of the first one or more object representations connected, using at least one or more connections, with at least a portion of the first one or more instruction sets for operating the first device;

[29.8]wherein the first one or more object representations of the first

circumstance representation comprise a first object representation and a second object representation;

[29.9]wherein the first object representation includes a first data structure generated at least by:

[29.10]processing one or more digital pictures to detect: a type of a first object, a location of the first object, and a size of the first object; and

[29.11]in response to the processing, generating the first data structure that includes: a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating the detected size of the first object;

[29.12]wherein the second object representation includes a second data structure generated at least by:

[29.13]processing one or more digital pictures to detect: a type of a second object, a location of the second object, and a size of the second object; and

[29.14]in response to the processing, generating the second data structure that includes: a label indicating the detected type of the second object, a coordinate indicating the detected location of the second object, and a computer model indicating the detected size of the second object;

[29.15]wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first device.