asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the specification explain how translating and rotating in response to repositioning of the respective pose is accomplished.

- "first point being discretized than a second point" (claim 1). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the specification describe a "first point being discretized than [or then] a second point."

2. Indefiniteness

Avidbots contends that the following Asserted Claims of the '539 Patent are invalid under 35 U.S.C. Section 112(b). Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under Section 112(b) because they fail to inform, with reasonable certainty, those skilled in the art about the scope of the claimed invention. For each listed term or phrase, Avidbots believes the term or phrase is invalid under Section 112(b), and any limitation including such term or phrase is also indefinite. Therefore, identification of a term or phrase below necessarily identifies any broad term/phrase or claim limitation in which the identified term or phrase appears.

- "uniform on the respective pose" (claim 4). This claim has an inconsistent antecedent basis, and is therefore indefinite. The repulsive forces of claim 1 are computed "onto the

plurality of points of the respective pose," but the repulsive forces of claim 4 are computed "on the respective pose."

- "[large]/[small]/[ ] footprint" (claims 3, 8, 10, 14, 16). The Asserted Claims do not meet the definiteness requirements of 35 U.S.C. § 112 for at least the reason that they fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). For example, the claims read together with the specification do not inform a POSITA as to the size of a large footprint alone or in comparison to a small footprint (and vice-versa) with reasonable certainty.
- "translating and rotating in response to repositioning of the respective pose" (claim 12). The Asserted Claims do not meet the definiteness requirements of 35 U.S.C. § 112 for at least the reason that they fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).
- "first point being discretized than a second point" (claim 1). The Asserted Claims do not meet the definiteness requirements of 35 U.S.C. § 112 for at least the reason that they fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). For example, this element claims a comparison between first and second points, but the nature of the comparison cannot be ascertained. In the alternative, should the Court read "than" as "then," it would be impossible for a POSITA to determine how this claimed limitation would modify "the route including a plurality of points."

D. Section 112 Invalidity of U.S. Patent No. 10,274,325

1. Lack of Written Description / Enablement

Avidbots contends that the following Asserted Claims of the '325 Patent are invalid under 35 U.S.C. Section 112(a). Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under Section 112(a) because the specification of the Asserted Patent fails to provide a sufficient written description and/or enabling disclosure. For each listed term or phrase, Avidbots believes the term or phrase is invalid under 35 U.S.C. Section 112(a), as is any limitation including such terms or phrases, for the same reason(s).

- "constrain[ing]" (claims 1, 5, 8, 15). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification describe how the location of a node is constrained.
- "scan matching" (claims 1, 8, 15). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification describe how scans are matched.
- "extended scan group[s]" (claims 1, 7, 8, 15). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent

Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification describe how scans are identified for inclusion in an extended scan group nor how an extended scan group is formed.

- "home locator" (claim 5). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification describe or provide an example of a home locator.
- "distinct features" (claim 7). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification explain what is meant by distinct features nor how they are identified.
- "navigation unit configured to navigate the robot autonomously without the user" (claim 14). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth*

Resource Mapping, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification explain how the navigation unit may be so configured.

- "transmit a signal" (claim 15). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification discuss transmitting a signal except in connection with communication unit 266, and nowhere does the Specification indicate that communication unit 266 is capable of transmitting a signal to at least one sensor.
- "cost function" (claim 17). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification explain how a cost function may be calculated.

2. Indefiniteness

Avidbots contends that the following Asserted Claims of the '325 Patent are invalid under 35 U.S.C. Section 112(b). Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under Section 112(b) because they fail to inform, with reasonable certainty, those skilled in the art about the scope of the claimed invention. For each listed term or phrase, Avidbots believes the term or phrase is invalid under Section 112(b), and any limitation including such term or phrase is also indefinite. Therefore, identification of a term or phrase below

necessarily identifies any broad term/phrase or claim limitation in which the identified term or phrase appears.

- "extended scan group[s]" (claims 1, 7, 8, 15). The Asserted Claims do not meet the definiteness requirements of 35 U.S.C. § 112 for at least the reason that they fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).
- "the root note" (claim 7). The term "root note" has no antecedent basis, and is therefore indefinite.
- "a mapping and localization unit" (claim 14). Nowhere does the specification provide a corresponding structure to accomplish the "mapping and localization" function. 35 U.S.C. § 112(f); *see Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015).
- "a navigation unit" (claim 14). Nowhere does the specification provide a corresponding structure to accomplish the "navigation" function. 35 U.S.C. § 112(f); *see Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015).

E. Section 112 Invalidity of U.S. Patent No. 10,823,576

1. Lack of Written Description / Enablement

Avidbots contends that the following Asserted Claims of the '576 Patent are invalid under 35 U.S.C. Section 112(a). Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under Section 112(a) because the specification of the Asserted Patent fails to provide a sufficient written description and/or enabling disclosure. For each listed term or phrase, Avidbots believes the term or phrase is invalid under 35 U.S.C. Section 112(a), as is any limitation including such terms or phrases, for the same reason(s).

- "node/plurality of nodes" (claims 1, 13, 21, 22, 23, 25). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005).
- "range" (claims 1, 13, 22, 23, 25). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005).
- "generate a map of the environment and a route on the map in real-time" (claims 1, 13, 25). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification reference or explain how a map and a route may be computed in real-time.
- "the map being generated concurrently with the collection of the data" (claims 1, 13, 25). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource*

Mapping, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification describe how a map may be generated concurrently with the collection of data.

- "associate actions undertaken by the robot during traveling along the route with the location and position of the robot on the route on the map" (claims 1, 13, 25). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005).
- "selectively actuate one or more systems as the robot travels along the route" (claims 12, 24, 36). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). For example, nowhere does the Specification describe actuation of systems; it describes only actuation of "wheels or other displacement enabling drivers." '576 Patent, 10:53–60.
- "detecting a home locator" (claim 17). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed.

Cir. 2005). For example, nowhere does the Specification explain how a home locator is detected.

2. Indefiniteness

Avidbots contends that the following Asserted Claims of the '576 Patent are invalid under 35 U.S.C. Section 112(b). Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under Section 112(b) because they fail to inform, with reasonable certainty, those skilled in the art about the scope of the claimed invention. For each listed term or phrase, Avidbots believes the term or phrase is invalid under Section 112(b), and any limitation including such term or phrase is also indefinite. Therefore, identification of a term or phrase below necessarily identifies any broad term/phrase or claim limitation in which the identified term or phrase appears.

- "the range of each one of the plurality of nodes corresponds to a region around each one of the plurality of nodes such that each one of the plurality of nodes is located within the range" (claim 22). This self-contradicting claim is indefinite. *See Maxell, Ltd. v. Amperex Tech. Ltd.*, 94 F.4th 1369 (Fed. Cir. 2024) (holding that an internal contradiction can render a claim indefinite, even though the term at issue was not self-contradicting). In combination with claim 13, from which claim 22 depends, each node "comprises a range," and the range is both "based on [a] confidence measure at a respective node" and "corresponds to a region . . . such that ***each one of the plurality of nodes*** is located within the range." The range of a node cannot be both based on a confidence measure, which depends only on the particular node, and the location of each of the plurality of nodes.

F. Section 112 Invalidity of U.S. Patent No. 10,728,436

1. Lack of Written Description / Enablement

Avidbots contends that the following Asserted Claims of the '436 Patent are invalid under 35 U.S.C. § 112(a). Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under Section 112(a) because the specification of the Asserted Patent fails to provide a sufficient written description and/or enabling disclosure. For each listed term or phrase, Avidbots believes the term or phrase is invalid under 35 U.S.C. § 112(a), as is any limitation including such terms or phrases, for the same reason(s).

- "contrast parameter" (claims 1, 3, 11, 16, 17). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005).
- "threshold" (claims 1, 11, 16). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005).
- "maximum absolute deviation of pixels" (claims 1, 11, 16). The Asserted Claims do not meet the written description or enablement requirements of 35 U.S.C. § 112 for at least the reason that the patent specification does not provide support for the full scope of the claims to the extent Brain asserts that the claims are broad enough to cover the Avidbots accused

functionalities. *See LizardTech Inc. v. Earth Resource Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005).

2. Indefiniteness

Avidbots contends that the following Asserted Claims of the '436 Patent are invalid under 35 U.S.C. Section 112(b). Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under Section 112(b) because they fail to inform, with reasonable certainty, those skilled in the art about the scope of the claimed invention. For each listed term or phrase, Avidbots believes the term or phrase is invalid under Section 112(b), and any limitation including such term or phrase is also indefinite. Therefore, identification of a term or phrase below necessarily identifies any broad term/phrase or claim limitation in which the identified term or phrase appears.

- "contrast parameter" (claims 1, 3, 11, 16, 17). The Asserted Claims do not meet the definiteness requirements of 35 U.S.C. § 112 for at least the reason that they fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).
- "threshold" (claims 1, 11, 16). The Asserted Claims do not meet the definiteness requirements of 35 U.S.C. § 112 for at least the reason that they fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).
- "maximum absolute deviation of pixels" (claims 1, 11, 16). The Asserted Claims do not meet the definiteness requirements of 35 U.S.C. § 112 for at least the reason that they fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.

Nautilus, Inc. v. Biosig Instruments, Inc., 572 U.S. 898, 901 (2014). For example, the specification does not describe what constitutes "maximum absolute deviation of pixels."

V. INVALIDITY UNDER 35 U.S.C. § 101

The Asserted Claims are not patent-eligible under 35 U.S.C. § 101. Avidbots reserves all rights to amend its Initial Non-Infringement and Invalidity Contentions, including after the Asserted Claims are ultimately construed by the Court, in response to any interpretation of the Asserted Claims embodied in Plaintiff's infringement positions, and/or to account for any changes in the law concerning ineligibility under 35 U.S.C. § 101. Avidbots also reserves the right to provide additional explanation and/or argument for its Initial Non-Infringement and Invalidity Contentions, including, for example, based on expert testimony. In particular, the abstract ideas set forth below are exemplary and based on Avidbots's current understanding of the patents.

The law regarding patent-eligible subject matter under 35 U.S.C. § 101 has changed significantly in the last decade, and may continue to develop during the pendency of this case. The Supreme Court has articulated a two-step framework for determining patent eligibility. *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 217 (2014). At Step One, the court determines "whether the claims at issue are directed to" a "patent-ineligible concept[]," such as "laws of nature, natural phenomena, and abstract ideas." *Id*. This first step of the inquiry has been "described . . . as looking at the 'focus' of the claims," or "their 'character as a whole.'" *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016).

If the claims are directed to one of those ineligible concepts, the Step Two inquiry asks whether the claims contain an "inventive concept," or "an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself." *Alice*, 573 U.S. at 217–18 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1294 (2012)) (internal quotation marks omitted). At Step

Two, "well-understood, routine, conventional activit[ies]" are insufficient to confer an inventive concept. *Mayo*, 132 S. Ct. at 1294. In the realm of computer-implemented inventions, merely adding "purely functional and generic" components does not "transform an abstract idea into a patent-eligible invention" because "[n]early every computer will include [such components] capable of performing the basic . . . functions required by the . . . claims." *Alice*, 573 U.S. at 226. The Asserted Claims fail to pass this threshold inquiry.

Avidbots reserves the right to modify, amend, or supplement these Initial Non-Infringement and Invalidity Contentions based on any discovery relating to the patent eligibility of the Asserted Claims, any positions taken by Plaintiff, and any other relevant event. In particular, the abstract ideas set forth below are exemplary and based on Avidbots's current understanding of the patents. As of the date of these Initial Non-Infringement and Invalidity Contentions, no expert reports have yet been exchanged. Avidbots reserves the right to incorporate by reference the entirety of any invalidity expert reports submitted by its experts, including but not limited to their opinions concerning the ineligibility of the Asserted Claims.

The Federal Circuit and other courts have routinely held that claims directed to gathering and analyzing data, as Brain's Asserted Claims are here, are directed to an abstract idea. *See, e.g.*, *In re Killian*, 45 F.4th 1373, 1382 (Fed. Cir. 2022) ("because [i]nformation as such is an intangible, claims directed to gathering and analyzing information of a specified content, then displaying the results without any particular assertedly inventive technology for performing those functions is an abstract idea.") (internal citations omitted). Moreover, Brain's Asserted Claims provide no improvements to preexisting technology and merely "describe an effect or result, dissociated from any method by which it is accomplished." *IBM Corp. v. Zillow Grp.*, *Inc.*, 50 F.4th 1371, 1378 (Fed. Cir. 2022).

For instance, the claims of the '436 patent are directed to the abstract idea of gathering and analyzing data to determine the presence of an object in the environment. They focus on the concept of "obtaining" data associated with the surroundings of an apparatus using a "sensor," "analyzing" the data to detect the presence of an object, and "causing" the "controller" to "activate the actuator" based on a processing of this data. The claims are like the ineligible claims in *iLife Techs., Inc. v. Nintendo of Am., Inc.*, 839 F. App'x 534, 535 (Fed. Cir. 2021), which involved claims "directed to a motion detection system that evaluate[d] relative movement of a body based on both dynamic acceleration . . . and static acceleration." In *iLife*, the Federal Circuit agreed with the district court that the claims were directed to the abstract idea of "gathering, processing, and transmitting information." *Id.* at 536 (cleaned up). Further, the claims here employ broad language, such as "obtaining," "analyzing," "determining," and "causing" to implement the concept – without specifying precisely *how* to perform the functions or requiring any specific technological improvement. According to the '436 patent's specification, the analysis of the image to determine the presence of the object "may comprise determination of a contrast parameter based on a maximum absolute deviation of a pixel value within the image from the image median value." *See, e.g.*, '436 Patent, 14:34–47. But a "contrast parameter" is an abstract parameter, value, or threshold. Indeed, the specification refers to the "contrast parameter" in "some implementations" as merely a ratio. *Id.* at 15:41-45. Moreover, the claims are not focused on a specific means or method to improve object detection systems, nor are they directed to a specific physical configuration of sensors. Additionally, relying on a contrast parameter to determine the presence of objects in an image is not inventive. Indeed, the specification acknowledges that "the contrast parameter determination may be effectuated" by well-known methods, including "*an* image-domain based approach," "*an* image-spectrum domain based approach," "and/or *other applicable*

methodologies." *Id.* at 17:65–18:11. Further, the '436 Patent recites a generic "sensor," "controller," and "actuator" employing conventional object-detection methods. The mere instruction to sense and process data using generic components does not transform the claims of the '436 Patent into patent-eligible subject matter. Thus, the Asserted Claims are abstract and lack an inventive concept, reciting well-understood, routine, and conventional methods and components, already known and practiced in the art.

Brain's other Asserted Patents suffer from similar deficiencies. For example, the Asserted Claims of those patents are directed to the following abstract ideas:

- **U.S. Patent Nos. 10,001,780** and **10,379,539:** gathering and analyzing data to navigate in an environment.
- **U.S. Patent Nos. 10,274,325** and **10,823,576:** gathering and analyzing data to map an environment.

They are not focused on a specific means or method to improve robot navigation or mapping systems, nor are they directed to a specific physical configuration of sensors. They claim gathering and analyzing data to either navigate or map an environment by employing well-known methods. For instance, as to the '325 and '576 Patents, the purported advance is creating a map with fewer "inaccuracies" using "scan matching." But the specification (at 20:21-28) concedes that scan matching can be accomplished using known algorithms. Moreover, the claims are not focused on a specific means or method to improve mapping systems, nor are they directed to a specific physical configuration of sensors. Additionally, as to the '325 Patent, relying on "extended scan groups" for mapping is not inventive. And nowhere does the specification describe how scans are identified for inclusion in an extended scan group nor how an extended scan group is formed. The '576 Patent does no better, claiming well-known mathematical concepts such as nodes, graphs, confidence measures, and ranges in combination with conventional robots. The

Asserted Claims are therefore abstract and lack an inventive concept, reciting well-understood, routine, and conventional methods and components, already known and practiced in the art.

VI. OBVIOUSNESS-TYPE DOUBLE PATENTING

A. Legal Standards

As the Federal Circuit explained in *In re Hubbell*, obviousness-type double patenting has two separate and independent rationales:

> There are two justifications for obviousness-type double patenting. The first is "to prevent unjustified timewise extension of the right to exclude granted by a patent no matter how the extension is brought about." *Van Ornum*, 686 F.2d at 943-44 (quotation and citation omitted). The second rationale is to prevent multiple infringement suits by different assignees asserting essentially the same patented invention. *Fallaux*, 564 F.3d at 1319 (recognizing that "harassment by multiple assignees" provides "a second justification for obviousness-type double patenting"); *see also* Chisum on Patents § 9.04[2][b][ii] ("The possibility of multiple suits against an infringer by assignees of related patents has long been recognized as one of the concerns behind the doctrine of double patenting.").

In re Hubbell, 709 F.3d 1140, 1145 (Fed. Cir. 2013); *see also* MPEP § 804.

The obviousness-type double patenting analysis is a two-step process. First, the differences between the claims of the patent being used as a reference and the claims at issue are identified. *Georgia-Pacific v. US Gypsum*, 195 F.3d 1322, 1326 (Fed. Cir. 1999) ("[A]nalysis of the claims at issue is the first step in determining if the second invention is merely an obvious variation of the first. . . . Because these two claims are so similar, we must look to see if there is anything to distinguish claim 1 of the '989 patent from claim 1 of the '569 patent. There are two differences between these claims."), opinion amended on rehearing, 204 F.3d 1359 (Fed. Cir. 2000).

Second, whether those differences raise a patentable distinction must be determined. *Georgia-Pacific*, 195 F.3d at 1328 (finding that "[t]hese differences are not sufficient to render the claims patentably distinct"). "A later patent claim 'is not patentably distinct from an earlier claim

if the later claim is obvious over, or anticipated by, the earlier claim.'" *Hubbell*, 709 F.3d at 1145 (quoting *Eli Lilly & Co. v. Barr Labs., Inc*., 251 F.3d 955, 968 (Fed. Cir. 2001)).

A patentee can avoid obviousness-type double patenting issues by filing a terminal disclaimer in the Patent Office. *See In re Goodman*, 11 F.3d 1046, 1052 (Fed. Cir. 1993) ("[T]he patentee may overcome the double patenting rejection by filing a terminal disclaimer."); 37 C.F.R. § 1.321(c) (indicating that a terminal disclaimer can be filed "to obviate judicially created double patenting in a patent application or in a reexamination proceeding"); MPEP § 804.02 ("A rejection based on a nonstatutory type of double patenting can be avoided by filing a terminal disclaimer in the application or proceeding in which the rejection is made.").

B. The '539 Patent

At least the below-identified claims of the '539 Patent are invalid due to obviousness-type double patenting.

The claims of the '539 Patent are directed to the same subject matter, and accomplish any claimed advancement of the art, in the same way. As explained below, the '539 Patent—which is in the same family and names the same inventors as the '780 Patent—claims the same purported invention as the '780 Patent with only well-known, obvious additional limitations.

Both patents are directed to the use of "repulsive" and/or "attractive" forces to determine routes for robots to travel. *Compare* '539 Patent, claim 1 *with* '780 Patent, claim 1. Any linguistic or substantive differences between the two patents are especially irrelevant in light of the apparently broad and inconsistent claim constructions implicit in Brain's cursory Infringement Contentions. By way of example only, claim 1 of the '539 Patent is invalid due to obviousness-type double patenting in view of claim 1 of the '780 Patent. For example, claim 1 of the '539 Patent recites in part, "determine a route on a map for the robot to travel, the map corresponding to the environment and being generated by at least one or more sensors coupled to the robot." '539

Patent, col. 22, ll. 1-4. Claim 1 of the '780 Patent claims the same thing, using slightly different words in a slightly different order. *See* '780 Patent col. 21, ll. 64-65 ("determine a route in the map in which the robot will travel"). As noted below, at least the following claims from the '539 Patent are substantively identical to a claim in the '780 Patent:

'539 Patent Claim	**'780 Patent Claim**
1	1
4	4
8	8
12	13
13	14
14	18

Avidbots reserves the right to add additional arguments—or change those made above—in light of further factual developments, claim constructions by the Court, and further developments in the claim constructions explicitly or implicitly proposed by Brain.

C. The '436 Patent

At least the below-identified claims of the '436 patent are invalid due to obviousness-type double patenting.

The claims of the '436 Patent are directed to the same subject matter, and accomplish any claimed advancement of the art, in the same way as U.S. Patent No. 9,848,112 (hereinafter the "'112 Patent"). As explained below, the '436 Patent—which is a continuation of the application that led to the '112 Patent and names the same inventors as the '112 Patent—claims the same purported invention as the '112 Patent with only well-known, obvious additional limitations.

Both patents are directed to detecting the presence of an object in an image based on a contrast parameter meeting one or more criteria. *Compare* '436 Patent, claim 1 *with* '112 Patent, claim 1. Any linguistic or substantive differences between the two patents are especially irrelevant in light of the apparently broad and inconsistent claim constructions implicit in Brain's cursory infringement contentions. By way of example only, claim 1 of the '436 Patent is invalid due to obviousness-type double patenting in view of claim 1 of the '112 Patent. For example, claim 1 of the '436 Patent recites in part, "determining the presence of the object based on comparing a contrast parameter of the at least one image to a threshold." Claim 1 of the '112 Patent claims the same thing, using slightly different words in a slightly different order. *See* '112 Patent at claim 1 ("detecting a presence of an object in the at least one image based at least in part on the contrast parameter meeting one or more criteria"). The remaining claims of the '436 Patent suffer from the same obviousness-type double patenting with respect to the '112 Patent.

VII. NON-INFRINGEMENT OF THE ASSERTED PATENTS

Brain's Infringement Contentions have not established that any accused product or service infringes any valid claim under any asserted subsection. 35 U.S.C. §§ 271(a)–(c). Thus, Avidbots's statements below should not be treated as an admission, implication, or suggestion that Avidbots agrees with Brain regarding either the scope, construction, or interpretation of any of the Asserted Claims or the infringement theories advanced by Brain in its Initial Infringement Contentions, including whether any Asserted Claim satisfies 35 U.S.C. §§ 101 or 112. In certain cases, Avidbots specified non-limiting examples of where its noninfringement discussion is based on Brain's apparent application of the claim element. These statements are not intended to suggest that Avidbots agrees with Brain's application of any claim term, suggest a proposed construction at this stage of the case, or suggest that construction is needed.

Avidbots reserves the right to supplement, modify, or amend the following initial noninfringement claim chart or assert new theories of noninfringement, in light of the Court's claim construction, subsequent discovery, or subsequent events in the litigation. Brain has failed to identify any coherent infringement theory and has failed to cite any source code in its infringement contentions, despite being offered an extension to its deadline to serve the initial infringement contentions, and despite being provided with access to the source code promptly after the entry of the Protective Order in this case. Brain refused the extension and instead served clearly deficient Infringement Contentions that fail to specify which specific function or feature it contends satisfy the limitations of the Asserted Patents. As such, Avidbots is unable to provide a complete response at this time and reserves the right to supplement. Moreover, Avidbots requested an extension to the deadline to serve these initial non-infringement contentions to allow it sufficient time to investigate the infringement allegations and non-infringement defenses, but Brain refused.

Avidbots does not directly infringe any Asserted Claim under 35 U.S.C. §271(a):

First, Brain has failed to set forth proof of infringement as to each and every claim element of the Asserted Claims.

Second, no Accused Product infringes any Asserted Claim for the reasons set forth in the following charts:

Exhibit	Title
A0	Non-Infringement Contentions of U.S. Patent No. 10,001,780
B0	Non-Infringement Contentions of U.S. Patent No. 10,379,539
C0	Non-Infringement Contentions of U.S. Patent No. 10,274,325
D0	Non-Infringement Contentions of U.S. Patent No. 10,823,576
E0	Non-Infringement Contentions of U.S. Patent No. 10,728,436

Third, Avidbots is not liable for use of the Accused Camera Systems outside of the United States. *See, e.g., Microsoft Corp. v. AT & T Corp.*, 550 U.S. 437, 454–55 (2007) (United States patent law "operate[s] only domestically and do[es] not extend to foreign activities" (internal citation omitted)). "[A] process cannot be used 'within' the United States as required by section 271(a) unless each of the steps is performed within this country." *NTP, Inc. v. Rsch in Motion, Ltd*., 418 F.3d 1282, 1318 (Fed. Cir. 2005). A claimed system is used in a place where "the system as a whole is put into service, the place where control of the system is exercised and beneficial use of the system obtained." *Id*. at 1317; *see also Intell. Ventures I LLC v. Motorola Mobility LLC*, 870 F.3d 1320, 1329 (Fed. Cir. 2017) ("[P]roof of an infringing 'use' of the claimed system under § 271(a) requires the patentee to demonstrate that the direct infringer obtained 'benefit' from each and every element of the claimed system. In addition, the direct or indirect control required 'is the ability to place the system as a whole into service.'" (quoting *Centillion Data Sys., LLC v. Qwest Commc'ns Int'l, Inc*., 631 F.3d 1279, 1284 (Fed. Cir. 2011))).

Fourth, to the extent that Brain attempts to assert infringement under the doctrine of equivalents without specifying its theory under the legal test for equivalence, it cannot maintain its assertion of infringement on that basis. For example, Brain fails to explain why performing certain steps of the Asserted Claims on a backend computing system and not the robot would accomplish substantially the same function in substantially the same way to achieve substantially the same result. To the extent Brain relies on doctrine of equivalents in its Infringement Contentions, Avidbots does not infringe under the doctrine of equivalents.

Fifth, to the extent that Brain argues that Avidbots is liable under 35 U.S.C. § 271(a) for direct infringement based on activities of third parties, Avidbots does not infringe. As explained in *Akamai Technologies, Inc. v. Limelight Networks*, the standard for direct infringement through

the use of third parties is a high one. 797 F.3d 1020, 1023 (Fed. Cir. 2015) (en banc). The alleged infringer must have a high degree of control over such third parties; that an alleged infringer may derive some benefit from a contractual relationship is not enough. *See Medgraph, Inc. v. Medtronic, Inc.,* 843 F.3d 942, 948 (Fed. Cir. 2016) (finding no infringement because "[u]nder the *Akamai V* standard invoked by Medgraph, the evidence would have to allow a finding that Medtronic 'conditions participation in an activity or receipt of a benefit upon performance of a step or steps of a patented method and establishes the manner and timing of performance'"). Brain has not identified any third parties that meet the legal requirements to establish an agency relationship with Avidbots or that would cause Avidbots to be "liable under 35 U.S.C. § 271(a) for direct infringement" as Brain contends. In fact, Brain has not identified any specific third parties in its contentions. Brain cannot rely on actions taken by third parties to prove infringement, when it has failed to even identify such third parties in its contentions.

Sixth, because Brain's Initial Infringement Contentions are not clear as to which version, features, or functionality of the Accused Product allegedly infringes each specific claim limitation, depending on which version, feature, and functionality is asserted to infringe, it may have been practiced early enough in time such that, under Brain's infringement theory, that version or feature of the Accused Product may have practiced this claim prior to its priority date and therefore (i) Avidbots would be entitled to a defense to infringement based on prior commercial use pursuant to 35 U.S.C. 273 and/or (ii) Brain has accused the prior art of infringing, and therefore this claim would be invalid under 35 U.S.C. 102, 103.

Avidbots also does not indirectly infringe any Asserted Claim. Brain's willful infringement case fails because Avidbots did not know of the Asserted Patents nor the alleged infringement prior to the filing of this litigation. Brain is not entitled to any pre-suit damages for

any act of indirect infringement. Moreover, Brain fails to show any bad-faith or egregious conduct and has failed to show that this case is exceptional under 35 U.S.C. § 285. Brain's allegations of bad-faith and egregious conduct are devoid of any factual support.

Avidbots also does not indirectly infringe any Asserted Claim under 35 U.S.C. §271(b) or (c). Brain's infringement claims fail with respect to induced infringement because Avidbots did not know of the Asserted Patents or the alleged infringement, did not know that "the induced acts constitute patent infringement," and did not "possess[] specific intent to encourage another's infringement." *See Sanofi v. Watson Labs., Inc*., 875 F.3d 636, 643–44 (Fed. Cir. 2017); *see also Commil USA, LLC v. Cisco Sys., Inc.,* 575 U.S. 632, 639 (2015). With respect to contributory infringement, Avidbots did not have "knowledge of the patent[s] in suit" and "knowledge of patent infringement." See Commil, 575 U.S. at 639. There has also been no showing that the Accused Products are not suitable for a non-infringing use. *See id*.

Brain cannot show an act of direct infringement by Avidbots's contractors, customers, or end users, a necessary predicate to a finding of induced infringement. *See Akamai Techs., Inc. v. Limelight Networks, Inc*., 797 F.3d 1020, 1022 (Fed. Cir. 2015) (en banc). Moreover, Avidbots does not induce infringement of the Asserted Claims as Avidbots does not know that "the induced acts constitute patent infringement," *Sanofi v. Watson Laboratories, Inc*., 875 F.3d 636, 644 (Fed. Cir. 2017). Avidbots does not have specific intent or knowledge that the acts were infringing. *See Commil*, 575 U.S. at 642. Avidbots also did not have knowledge of the Asserted Patents or the alleged infringement. The knowledge and intent requirements for induced infringement require a showing of "affirmative steps" to induce with either actual knowledge or willful blindness by Avidbots, which Brain has made no attempt to support in its Initial Infringement Contentions. *Glob-Tech Appliances, Inc. v. SEB S.A*., 563 U.S. 754, 760, 768 (2011). "[A] willfully blind

defendant is one who takes deliberate actions to avoid confirming a high probability of wrongdoing and who can almost be said to have actually known the critical facts." *Id*. at 769; *Forest Lab'ys Holdings Ltd. v. Mylan Inc*., 206 F. Supp. 3d 957, 974 (D. Del. 2016). Avidbots did not possess the actual knowledge or willful blindness required to support a finding of induced infringement.

Finally, Brain has disclosed several products that it purports practice the Asserted Patents. Brain must produce all documents relating to the marking of these products, including all license agreements and evidence of marking. Brain is not entitled to pre-suit damages to the extent Brain or its licensees failed to mark any product that practices any claim of any Asserted Patent. 35 U.S.C. § 287.

VIII. ACCOMPANYING DOCUMENT PRODUCTION

Pursuant to the Court's Scheduling Order and L.P.R. 2.4, Avidbots produces with these Initial Non-Infringement and Invalidity Contentions (1) all prior art referenced in the Initial Non-Infringement and Invalidity Contentions; and (2) additional documents to show operation of the accused products.

Dated: August 27, 2025

Respectfully submitted,

AVIDBOTS CORP., a Canadian Corporation; and AVIDBOTS USA CORP., a Delaware Corporation,

/s/ Neema Jalali

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CERTIFICATE OF SERVICE

I certify that the foregoing document was served electronically on August 27, 2025 on all counsel who have consented to electronic service.

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