IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS

BRAIN CORPORATION, a California Corporation Plaintiff, v. AVIDBOTS CORPORATION, a Canadian Corporation; and AVIDBOTS USA CORPORATION, a Delaware Corporation Defendant.	))))))))))))))	Case No. 1:24-cv-12569 **JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff BRAIN CORPORATION ("Brain") hereby complain of Defendants AVIDBOTS CORPORATION ("Avidbots Corp.") and AVIDBOTS USA CORPORATION ("Avidbots USA"), and allege as follows:

I. THE PARTIES

1. Plaintiff Brain is a California corporation having its principal place of business at 10182 Telesis Court, Suite 100, San Diego, California 92121.

2. Defendant Avidbots Corp. is a Canadian corporation having a principal place of business at 45 Washburn Drive, Kitchener, Ontario, N2R 1S1, Canada.

3. Defendant Avidbots USA is a Delaware corporation having a principal place of business at 5400 Newport Dr., Suite 7, Rolling Meadows, Illinois 60008.

II. JURISDICTION AND VENUE

4. This civil action includes claims for patent infringement arising under the patent laws of the United States, 35 U.S.C. §§ 100, *et seq*., more particularly, 35 U.S.C. §§ 271 and 281.

5. This Court has subject matter jurisdiction over causes of action 1-5 pursuant to at least 28 U.S.C. §§ 1331 and 1338(a).

6. Avidbots Corp. maintains at least two head offices: one in Kitchener, Ontario, Canada, and the other in Rolling Meadows, Illinois. Avidbots Corp.'s affiliations with Illinois via its Illinois head office render it essentially at home in Illinois. Thus, Avidbots Corp. is subject to personal jurisdiction in Illinois. AvidBots Corp. also has continuous and systematic contacts with at least Avidbots USA in Rolling Meadows, Illinois.

7. Avidbots USA is a subsidiary of Avidbots Corp. Avidbots USA is incorporated in Delaware and maintains its principal place of business in Rolling Meadows, Illinois. Avidbots USA is subject to personal jurisdiction in Illinois.

8. Avidbots Corp. has completed at least one sale in Chicago, Illinois and offers infringing products for sale in Illinois.

9. Avidbots USA offers infringing products for sale in Chicago, Illinois.

10. Venue is proper in the Northern District of Illinois pursuant to 28 U.S.C. § 1400(b) with respect to patent infringement because Avidbots Corp. and Avidbots USA maintain a regular and established place of business in Rolling Meadows, Illinois within the Northern District of Illinois and have committed acts of infringement in this Judicial District.

III. STATEMENT OF THE CASE

11. This action seeks relief for infringement of Brain's patents by Avidbots Corp. and Avidbots USA (hereinafter collectively referred to as "Avidbots").

12. Brain is an autonomous technology company that pioneered the commercial robotics domain by developing innovative solutions in robotics and artificial intelligence.

13. Brain was found in 2009 with a mission to research and develop artificial intelligence technologies inspired by the human brain. In 2014, after significant investment in research and development, Brain launched its Brain Operating System ("BrainOS"), which provided a breakthrough in robot programming. This breakthrough was inspired by Brain's

commitment to understanding how biological brains perceive their environment via inputs and learn from demonstration. BrainOS is the leading artificial intelligence platform for powering robots in commercial public spaces worldwide.

14. Soon after developing BrainOS, Brain recognized that the commercial floor cleaning industry was experiencing a labor shortage. Brain then partnered with major floor equipment manufacturers to integrate the BrainOS system into manual cleaning equipment. By 2018, Brain started collaborating with major global retailers to provide autonomous floor scrubbers in several of their stores. Brain's technology solved problems unique to autonomous floor cleaning, including how to navigate dynamic environments while cleaning as much of the desired area as possible. The success of the initial launch quickly led to Brain deploying autonomous floor scrubbers in stores nationwide.

15. Following this success, Brain continued to expand in the areas of autonomous technology and artificial intelligence. In 2019, Brain was named a top Autonomy Solution Provider. Such recognition helped establish Brain as a leader in the robotics autonomy and artificial intelligence fields.

16. With the business continuing to grow, Brain recognized a need to control a robotic fleet of autonomous robots in a simpler manner. As a result, the Brain team developed and released the BrainOS mobile app, which allows robotic fleet owners to monitor machine performance, receive real-time notifications, and access training materials for optimal operational efficiency.

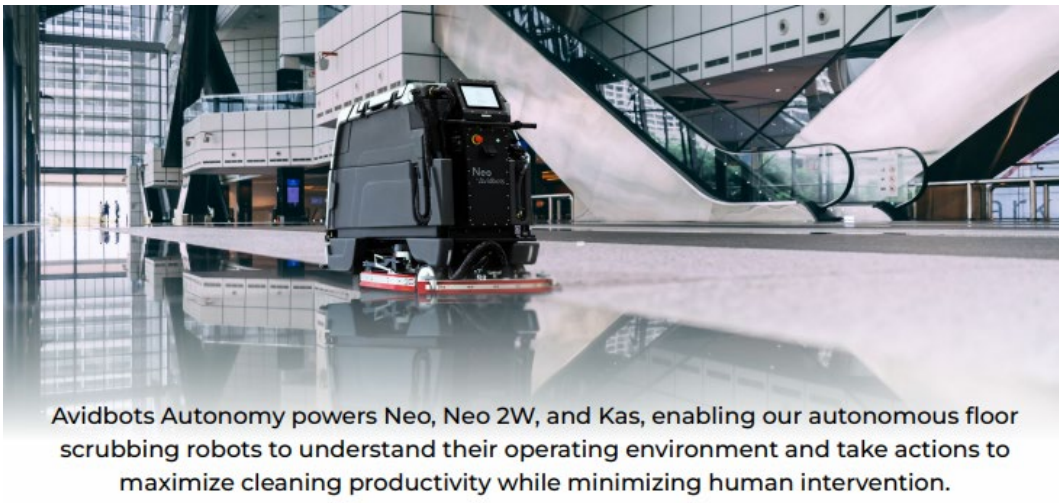
17. Brain continues to make advances and deploy state-of-the-art robots by dedicating time and resources to understanding and developing improved robotics, robotic capabilities, and artificial intelligence. Brain's technology has now been implemented in over 37,000 mobile robots that have operated for more than 19 million operational hours.

18. Because of Brain's innovation in the fields of autonomous robots and artificial intelligence, Brain has applied for and acquired over 240 patents in these fields, including the patents asserted in this complaint. The patents asserted in this complaint disclose and claim innovations for improving robotic autonomous navigation and object detection. Brain's success is based in part on the innovations disclosed and claimed in the patents asserted in this complaint.

19. Brain has expended significant resources developing these technologies to remain a leader in the robotics autonomy and artificial intelligence fields. Although Brain remains a leader, it faces challenges from competitors, such as Avidbots, who have unfairly benefitted from Brain's technologies by using these innovations without Brain's permission.

20. Upon information and belief, Avidbots first launched a floor-scrubbing robot, Neo, in 2017. Avidbots later launched the Neo 2 in September 2020, Neo 2W in April 2023, and Kas in April 2024. Each of these floor-scrubbing robots map their environment and adapt to new objects entering the area. AvidBots' Neo, Neo 2, Neo 2W, and Kas products (collective, the "Accused Products") infringe the patents asserted in this complaint.

21. Avidbots trains the Accused Products using the Avidbots Autonomy platform. The Accused Products each function and operate according to the Avidbots Autonomy platform, as reflected in the description below:



22. Avidbots states that the Avidbots Autonomy platform utilizes a "leading-edge combination" of obstacle detection and a "sophisticated autonomous path planning algorithm." But Avidbots Autonomy relies on technology first developed and used by Brain, and Brain has not authorized Avidbots to use this technology.

23. As set forth in detail below, and on information and belief, each portion of evidence cited by Brain accurately portrays, in relevant part, the structure, design, function and/or operation of the Accused Products.

IV. THE PATENTS-IN-SUIT

24. Brain is the owner by assignment of U.S. Patent No. 10,001,780 entitled "Systems and Methods For Dynamic Route Planning In Autonomous Navigation" ("the '780 patent"), which the United States Patent and Trademark Office lawfully and duly issued on June 19, 2018. The '780 patent is attached hereto as **Appendix 1**.

25. Brain is the owner by assignment of U.S. Patent No. 10,379,539 entitled "Systems and Methods For Dynamic Route Planning In Autonomous Navigation" ("the '539 patent"), which the United States Patent and Trademark Office lawfully and duly issued on August 13, 2019. The '539 patent is attached hereto as **Appendix 2**.

26. Brain is the owner by assignment of U.S. Patent No. 10,274,325 entitled "Systems and Methods for Robotic Mapping" ("the '325 patent"), which the United States Patent and Trademark Office lawfully and duly issued on April 30, 2019. The '325 patent is attached hereto as **Appendix 3**.

27. Brain is the owner by assignment of U.S. Patent No. 10,823,576 entitled "Systems and Methods for Robotic Mapping" ("the '576 patent"), which the United States Patent and Trademark Office lawfully and duly issued on November 3, 2020. The '576 patent is attached hereto as **Appendix 4**.

28. Brain is the owner by assignment of U.S. Patent No. 10,728,436 entitled "Optical Detection Apparatus and Methods" ("the '436 patent"), which the United States Patent and Trademark Office lawfully and duly issued on July 28, 2020. The '436 patent is attached hereto as **Appendix 5**.

V. FIRST CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 10,001,780)

29. Plaintiff Brain hereby realleges and incorporates by reference the allegations set forth in paragraphs 1 through 28.

30. The '780 patent describes innovative technology generally related to dynamic route planning for robots capable of autonomous navigation, including floor scrubber robots.

31. As explained in the '780 patent, autonomous robots can struggle with the ability to make real time adjustments to planned paths. For example, robots could be unable to make changes to planned paths if new and unexpected objects blocked the planned path. As another example, robots could attempt to navigate around an unexpected obstacle but then collide with the obstacle.

32. The technology described and claimed in the '780 patent provides technological solutions to these particular problems arising with autonomous robots. As the specification explains, the technology claimed and described in the '780 patent can (i) provide for dynamic route planning in an autonomously navigating robot; (ii) enhance efficiency in navigating environments, which can allow for improved and/or efficient utilization of resources (e.g., energy, fuel, cleaning fluid, etc.); and (iii) provide computational efficiency, which can reduce consumption of processing power, energy, time, or other resources in navigating robots.

33. The technology described and claimed in the ’780 patent also advantageously can allow robots to deviate from planned paths to follow more efficient paths or make complex adjustments to avoid obstacles.

34. The technology described and claimed in the ’780 patent can provide these advantages in part by computing “repulsive forces” onto a “route pose,” wherein a “route pose” can be “a footprint indicative of poses of the robot along the route.” Such technology allows the robot to advantageously change or alter its navigation path. This particular method of changing or altering robotic navigation is a technical solution to particular problems in the field of robotics. Further, this technology improves the functionality of the robot itself in the manner described above.

35. For example, computing repulsive forces can be a computationally advantageous way to change and alter navigation paths. This increases computational efficiency. As another example, altering the navigation path in this manner can help to allow the robot to navigate closely around objects and to navigate in a manner that stays close to the original path. This can be particularly important for floor scrubber robots because it can allow the robot to clean the designated area even when unexpected objects are in the cleaning path. As another example, computing repulsive forces on to route poses can allow the robot to navigate and alter paths. Because certain poses prevent certain types of movements, navigating based on the route pose allows the robot to successfully alter its paths. For example, circular robots may be able to navigate by turning in place, while rectangular robots may have specific turning radiuses or can turn only at certain angles. Accounting for route poses allows the robot to navigate based on its particular features.

36. Some of the claims of the ’780 patent further describe and claim a non-generic combination of sensors and controllers to allow the robot to compute these “repulsive forces.”

37. Upon information and belief, the Accused Products infringe one or more claims of the ’780 patent under at least 35 U.S.C. § 271(a), (b), and (c).

38. Upon information and belief, Avidbots has directly infringed one or more claims of the ’780 patent through manufacture, use, sale, offer for sale, and/or importation into the United States of the Accused Products in violation of 35 U.S.C. § 271(a). Avidbots continues to directly infringe the ’780 patent.

39. For example, upon information and belief, in operation, the Accused Products practice all of the limitations of Claim 1 of the ’780 patent as set forth herein and illustrated in the exemplary claim chart shown in **Exhibit 1**, which is both attached to this Complaint and incorporated herein by reference. The infringement by the Accused Products is shown through at least Avidbots’ website, including promotional videos, brochures, and technical specifications, and Avibots’ patent filings, including U.S. Patent No. 11,531,347, U.S. Patent Publication No. 2021/0365029, U.S. Patent Publication No. 2021/0080964, and U.S. Provisional Application No. 63/602,426. Upon information and belief, Avidbots’ website and patent filings accurately describe the functionality and operation of the Accused Products as they pertain to Avidbots’ infringement of the ’780 patent.

40. Upon information and belief, Avidbots was aware of or was willfully blind to the ’780 patent. Brain is the industry leader in the area of autonomous floor scrubbers and released BrainOS years before Avidbots released any of the accused products. Further, Brain appropriately marks products containing BrainOS with Brain’s patents, including the ’780 patent, on Brain’s patent marking website. Because of Brain’s influence and innovation in the area of autonomous floor scrubbers, Avidbots knew or was willfully blind to Brain’s patent portfolio, including the ’780 patent. Moreover, Avidbots knew or will know of Brain’s ’780 patent at least as of the date of filing of this complaint.

41. Upon information and belief, Avidbots actively induces users to directly infringe the asserted claims of the ’780 patent in violation of 35 U.S.C. § 271(b). By way of example only, upon information and belief, Avidbots actively induces direct infringement of the ’780 patent by providing directions, demonstrations, guides, manuals, training for use, product support, and/or other materials necessary for the use of the Accused Products. Upon information and belief, Avidbots knew or should have known that these activities would cause direct infringement.

42. Upon information and belief, Avidbots’ acts constitute contributory infringement of the ’780 patent in violation of 35 U.S.C. § 271(c). Upon information and belief, Avidbots contributorily infringes because, among other things, Avidbots offers to sell and/or sells within the United States, and/or imports into the United States, components of the Accused Products that constitute material parts of the invention of the asserted claims of the ’780 patent, are not staple articles or commodities of commerce suitable for substantial non-infringing use and are known by Avidbots to be especially made or especially adapted for use in an infringement of the ’780 patent.

43. Avidbots’ infringement of the ’780 patent is willful, deliberate, and intentional by continuing its acts of infringement after becoming aware of the ’780 patent and its infringement thereof, thus acting in reckless disregard of Brain’s patent rights.

44. Because of Avidbots’ infringement of the ’780 patent, Brain has suffered and will continue to suffer irreparable harm and injury, including monetary damages in an amount to be determined at trial.

45. Upon information and belief, unless enjoined, Avidbots, and/or others acting on behalf of Avidbots, will continue their infringing acts, thereby causing additional irreparable injury to Brain for which there is no adequate remedy at law.

VI. SECOND CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 10,379,539)

46. Plaintiff Brain hereby realleges and incorporates by reference the allegations set forth in paragraphs 1 through 45.

47. The ’539 patent is a continuation of the ’780 patent and similarly describes innovative technology generally related to dynamic route planning for robots capable of autonomous navigation, including floor cleaner robots.

48. Like the ’780 patent, the technology described and claimed in the ’539 patent can (i) provide for dynamic route planning in an autonomously navigating robot; (ii) enhance efficiency in navigating environments, which can allow for improved and/or efficient utilization of resources (e.g., energy, fuel, cleaning fluid, etc.); and (iii) provide computational efficiency which can reduce consumption of processing power, energy, time, or other resources in navigating robots.

49. The technology described and claimed in the ’539 patent also advantageously can allow robots to deviate from planned paths to follow more efficient paths or make complex adjustments to avoid obstacles.

50. The technology described and claimed in the ’539 patent can provide these advantages in part by computing “repulsive forces” onto a “route pose” of a robot to allow the robot to advantageously change or alter its navigation path. This particular method of changing or altering a robotic navigation patent is a technical solution to particular problems in the field of robotics. Further, this technology improves the functionality of the robot itself in the manner described above.

51. Indeed, as discussed above and incorporated by reference herein, computing repulsive forces onto route poses can be advantageous for many reasons.

52. Some of the claims of the ’539 patent further describe and claim a non-generic combination of sensors and controllers to allow the robot to compute these “repulsive forces.”

53. Upon information and belief, the Accused Products infringe one or more claims of the ’539 patent under at least 35 U.S.C. § 271(a), (b), and (c).

54. Upon information and belief, Avidbots has directly infringed one or more claims of the ’539 patent through manufacture, use, sale, offer for sale, and/or importation into the United States of the Accused Products in violation of 35 U.S.C. § 271(a). Avidbots continues to directly infringe the ’539 patent.

55. For example, upon information and belief, in operation, the Accused Products practice all of the limitations of Claim 1 of the ’539 patent as set forth herein and illustrated in the exemplary claim chart shown in **Exhibit 2**, which is both attached to this Complaint and incorporated herein by reference. Infringement by the Accused Products is shown through at least Avidbots’ website, including promotional videos, brochures, and technical specifications, and Avibots’ patent filings, including U.S. Patent Publication No. 2021/0365029, U.S. Patent No. 11,531,347, and U.S. Patent Publication No. 2021/0080964. Upon information and belief, Avidbots’ website and patent filings accurately describe the functionality and operation of the Accused Products as they pertain to Avidbots’ infringement of the ’539 patent.

56. Upon information and belief, Avidbots was aware of or was willfully blind to the ’539 patent. Brain is the industry leader in the area of autonomous floor scrubbers and released BrainOS years before Avidbots released any of the accused products. Further, Brain appropriately marks products containing BrainOS with Brain’s patents, including the ’539 patent, on Brain’s patent marking website. Because of Brain’s influence and innovation in the area of autonomous floor scrubbers, Avidbots knew or was willfully blind to Brain’s patent portfolio, including the

’539 patent. Moreover, Avidbots knew or will know of Brain’s ’539 patent at least as of the date of filing of this complaint.

57. Upon information and belief, Avidbots actively induces users to directly infringe the asserted claims of the ’539 patent in violation of 35 U.S.C. § 271(b). By way of example only, upon information and belief, Avidbots actively induces direct infringement of the ’539 patent by providing directions, demonstrations, guides, manuals, training for use, product support, and/or other materials necessary for the use of the Accused Products. Upon information and belief, Avidbots knew or should have known that these activities would cause direct infringement.

58. Upon information and belief, Avidbots’ acts constitute contributory infringement of the ’539 patent in violation of 35 U.S.C. § 271(c). Upon information and belief, Avidbots contributorily infringes because, among other things, Avidbots offers to sell and/or sells within the United States, and/or imports into the United States, components of the Accused Products that constitute material parts of the invention of the asserted claims of the ’539 patent, are not staple articles or commodities of commerce suitable for substantial non-infringing use, and are known by Avidbots to be especially made or especially adapted for use in an infringement of the ’539 patent.

59. Avidbots’ infringement of the ’539 patent is willful, deliberate, and intentional by continuing its acts of infringement after becoming aware of the ’539 patent and its infringement thereof, thus acting in reckless disregard of Brain’s patent rights.

60. Because of Avidbots’ infringement of the ’539 patent, Brain has suffered and will continue to suffer irreparable harm and injury, including monetary damages in an amount to be determined at trial.

61. Upon information and belief, unless enjoined, Avidbots, and/or others acting on behalf of Avidbots, will continue their infringing acts, thereby causing additional irreparable injury to Brain for which there is no adequate remedy at law.

VII. THIRD CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 10,274,325)

62. Plaintiff Brain hereby realleges and incorporates by reference the allegations set forth in paragraphs 1 through 61.

63. The ’325 patent describes innovative technology generally related to using scan matching for identifying the location of a robot in an environment.

64. As the specification explains, robots can utilize maps to navigate, but a robot’s map may not be perfectly accurate, or errors may occur during navigation. Thus, the robot may need to confirm its position or to confirm the accurate positions of features in its environment.

65. The technology described and claimed in the ’325 patent provides technical solutions to these technical problems in the field of robotic navigation. Further, the technology described and claimed in the ’325 patent can advantageously (i) provide for accurate route and/or environment mapping by a robot; (ii) provide computational efficiency which can reduce consumption of processing power, energy, and/or other resources in navigating robots; and (iii) allow use of lower-cost hardware in construction of robots. The technology described and claimed in the ’325 patent can provide these advantages in part by performing “scan matching” on scan groups. For example, the robot can take scans using one or more sensors and compare the scans to other data to determine the relative position of the robot.

66. The technology described and claimed in the ’325 patent further can provide these advantages in part by constraining the graph generated by the robot between a start location and

an end location, the start location and the end location being at a substantially similar location in the environment.

67. For example, "constraining the graph" and performing "scan matching" as claimed in the '325 patent can reduce the number of sensors needed to produce accurate mapping. As another example, these technical solutions can reduce the number of times that a robot needs to scan an area in order to produce an accurate map. As another example, these technical solutions can be computationally advantageous because the solutions can simplify the calculations needed to create an accurate map and allow for error mitigation.

68. Some of the claims of the '325 patent further describe and claim a non-generic combination of sensors and mapping and localization units to allow the robot to perform this "scan matching."

69. Upon information and belief, the Accused Products infringe one or more claims of the '325 patent under at least 35 U.S.C. § 271(a), (b), and (c).

70. Upon information and belief, Avidbots has directly infringed one or more claims of the '325 patent through manufacture, use, sale, offer for sale, and/or importation into the United States of the Accused Products in violation of 35 U.S.C. § 271(a). Avidbots continues to directly infringe the '325 patent.

71. For example, upon information and belief, in operation, the Accused Products practice all of the limitations of Claim 1 of the '325 patent as set forth herein and illustrated in the exemplary claim chart shown in **Exhibit 3**, which is both attached to this Complaint and incorporated herein by reference. Infringement by the Accused Products is shown through at least Avidbots' website, including promotional videos, brochures, and technical specifications, Avibots' patent filings, including U.S. Patent Publication No. 2022/0265110 and U.S. Patent Publication No. 2021/0080964, as well as a journal article by an individual named as an inventor

on Avidbots' patents (N. Reginald, O. Al-Buraiki, B. Fidan and E. Hashemi, *Confidence Estimator Design for Dynamic Feature Point Removal in Robot Visual-Inertial Odometry*, 48th Annual Conf. of IEEE (2022) ("Fidan")). Upon information and belief, Avidbots' website, patent filings, and this journal article accurately describe the functionality and operation of the Accused Products as they pertain to Avidbots' infringement of the '325 patent.

72. Upon information and belief, Avidbots was aware of or was willfully blind to the '325 patent. Brain is the industry leader in the area of autonomous floor scrubbers and released BrainOS years before Avidbots released any of the accused products. Further, Brain appropriately marks products containing BrainOS with Brain's patents, including the '325 patent, on Brain's patent marking website. Because of Brain's influence and innovation in the area of autonomous floor scrubbers, Avidbots knew or was willfully blind to Brain's patent portfolio, including the '325 patent. Moreover, Avidbots knew or will know of Brain's '325 patent at least as of the date of filing of this complaint.

73. Upon information and belief, Avidbots actively induces users to directly infringe the asserted claims of the '325 patent in violation of 35 U.S.C. § 271(b). By way of example only, upon information and belief, Avidbots actively induces direct infringement of the '325 patent by providing directions, demonstrations, guides, manuals, training for use, product support, and/or other materials necessary for the use of the Accused Products. Upon information and belief, Avidbots knew or should have known that these activities would cause direct infringement.

74. Upon information and belief, Avidbots' acts constitute contributory infringement of the '325 patent in violation of 35 U.S.C. § 271(c). Upon information and belief, Avidbots contributorily infringes because, among other things, Avidbots offers to sell and/or sells within the United States, and/or imports into the United States, components of the Accused Products that constitute material parts of the invention of the asserted claims of the '325 patent, are not staple

articles or commodities of commerce suitable for substantial non-infringing use and are known by Avidbots to be especially made or especially adapted for use in an infringement of the ’325 patent.

75. Avidbots’ infringement of the ’325 patent is willful, deliberate, and intentional by continuing its acts of infringement after becoming aware of the ’325 patent and its infringement thereof, thus acting in reckless disregard of Brain’s patent rights.

76. Because of Avidbots’ infringement of the ’325 patent, Brain has suffered and will continue to suffer irreparable harm and injury, including monetary damages in an amount to be determined at trial.

77. Upon information and belief, unless enjoined, Avidbots, and/or others acting on behalf of Avidbots, will continue their infringing acts, thereby causing additional irreparable injury to Brain for which there is no adequate remedy at law.

VIII. FOURTH CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 10,823,576)

78. Plaintiff Brain hereby realleges and incorporates by reference the allegations set forth in paragraphs 1 through 77.

79. The ’576 patent is a continuation of the ’325 patent. The ’576 patent describes innovative technology generally related to generating a map for use in autonomous navigation for robots.

80. As the specification explains, robots can utilize maps to navigate, but the map may not be perfectly accurate. Further, navigation error can cause the robot to misunderstand its position on the map. Thus, the robot may need the ability to analyze how accurate its current estimation of its location is.

81. The technology described and claimed in the ’576 patent provides technical solutions to this technical problem in the field of robotic navigation. Further, the technology

described and claimed in the ’576 patent can advantageously (i) provide for accurate route and/or environment mapping by a robot; (ii) provide computational efficiency which can reduce consumption of processing power, energy, and/or other resources in navigating robots; and (iii) allow use of lower-cost hardware in construction of robots. The technology described and claimed in the ’576 patent can provide these advantages in part by generating a map based on measurements taken by at least one sensor at a plurality of nodes, where each node comprises a range, where the range is based on the “confidence measure” at each node.

82. For example, using a “confidence measure” as claimed by the ’576 patent can provide advantages by allowing the robot to use specific scans to reduce the uncertainty inherent to map based navigation. These technical solutions can also allow for less memory and computation by making it easier to identify scans that are more important for navigation. These technical solutions also can enhance the reliability of the robot’s navigation, which is important for floor scrubbing or other cleaning robots to ensure that the correct areas are being cleaned.

83. Upon information and belief, the Accused Products infringe one or more claims of the ’576 patent under at least 35 U.S.C. § 271(a), (b), and (c).

84. Upon information and belief, Avidbots has directly infringed one or more claims of the ’576 patent through manufacture, use, sale, offer for sale, and/or importation into the United States of the Accused Products in violation of 35 U.S.C. § 271(a). Avidbots continues to directly infringe the ’576 patent.

85. For example, upon information and belief, in operation, the Accused Products practice all of the limitations of Claim 13 of the ’576 patent as set forth herein and illustrated in the exemplary claim chart shown in **Exhibit 4**, which is both attached to this Complaint and incorporated herein by reference. Infringement of the Accused Products is shown through at least Avidbots’ website, including promotional videos, brochures, and technical specifications, and

Avibots' patent filings, including U.S. Patent No. 11,531,347, U.S. Patent Publication No. 2022/0265110, U.S. Patent Publication No. 2021/0080964, and U.S. Patent Publication No. 2023/0113331. Upon information and belief, Avidbots' website and patent filings accurately describe the functionality and operation of the Accused Products as they pertain to Avidbots' infringement of the '576 patent.

86. Upon information and belief, Avidbots was aware of or was willfully blind to the '576 patent. Brain is the industry leader in the area of autonomous floor scrubbers and released BrainOS years before Avidbots released any of the accused products. Further, Brain appropriately marks products containing BrainOS with Brain's patents, including the '576 patent, on Brain's patent marking website. Because of Brain's influence and innovation in the area of autonomous floor scrubbers, Avidbots knew or was willfully blind to Brain's patent portfolio, including the '576 patent. Moreover, Avidbots knew or will know of Brain's '576 patent at least as of the date of filing of this complaint.

87. Upon information and belief, Avidbots actively induces users to directly infringe the asserted claims of the '576 patent in violation of 35 U.S.C. § 271(b). By way of example only, upon information and belief, Avidbots actively induces direct infringement of the '576 patent by providing directions, demonstrations, guides, manuals, training for use, product support, and/or other materials necessary for the use of the Accused Products. Upon information and belief, Avidbots knew or should have known that these activities would cause direct infringement.

88. Upon information and belief, Avidbots' acts constitute contributory infringement of the '576 patent in violation of 35 U.S.C. § 271(c). Upon information and belief, Avidbots contributorily infringes because, among other things, Avidbots offers to sell and/or sells within the United States, and/or imports into the United States, components of the Accused Products that constitute material parts of the invention of the asserted claims of the '576 patent, are not staple

articles or commodities of commerce suitable for substantial non-infringing use and are known by Avidbots to be especially made or especially adapted for use in an infringement of the ’576 patent.

89. Avidbots’ infringement of the ’576 patent is willful, deliberate, and intentional by continuing its acts of infringement after becoming aware of the ’576 patent and its infringement thereof, thus acting in reckless disregard of Brain’s patent rights.

90. Because of Avidbots’ infringement of the ’576 patent, Brain has suffered and will continue to suffer irreparable harm and injury, including monetary damages in an amount to be determined at trial.

91. Upon information and belief, unless enjoined, Avidbots, and/or others acting on behalf of Avidbots, will continue their infringing acts, thereby causing additional irreparable injury to Brain for which there is no adequate remedy at law.

IX. FIFTH CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 10,728,436)

92. Plaintiff Brain hereby realleges and incorporates by reference the allegations set forth in paragraphs 1 through 91.

93. The ’436 patent describes innovative technology generally related to analyzing images to detect objects.

94. As the ’436 patent specification explains, various kinds of sensors used for object detection can be unreliable under certain circumstances, such as when used outdoors or in the presence of infrared radiation. Other sensors suffer from being costly, heavy, or requiring substantial computing power. The technology described and claimed in the ’436 patent explains novel and non-generic ways of gathering and analyzing sensor data that results in an improved sensor apparatus. This sensor apparatus can be small, inexpensive, reliable, lightweight, power

efficient and capable of effective use outdoors. Thus, the technology described and claimed in the ’436 patent can provide an improvement to sensors used for object detection.

95. The technology described and claimed in the ’436 patent can provide these advantages in part by determining a “contrast parameter” from data received by the sensor and then “comparing the contrast parameter of the at least one image to a threshold, the threshold being dynamically configured based on one or parameters” in order to detect an object.

96. For example, using a “contrast parameter” as claimed by the ’436 patent can allow the same sensors to be used to detect objects in numerous different conditions, such as objects in high light or shadow or objects made of material with different reflectivity. This can allow fewer or less expensive sensors to be used to successfully detect objects.

97. Upon information and belief, the Accused Products infringe one or more claims of the ’436 patent under at least 35 U.S.C. § 271(a), (b), and (c).

98. Upon information and belief, Avidbots has directly infringed one or more claims of the ’436 patent through manufacture, use, sale, offer for sale, and/or importation into the United States of the Accused Products in violation of 35 U.S.C. § 271(a). Avidbots continues to directly infringe the ’436 patent.

99. For example, upon information and belief, in operation, the Accused Products practice all of the limitations of Claim 16 of the ’436 patent as set forth herein and illustrated in the exemplary claim chart shown in **Exhibit 5**, which is both attached to this Complaint and incorporated herein by reference. Infringement of the Accused Products is shown through at least Avidbots’ website, including promotional videos, brochures, and technical specifications, and Avidbots’ patent filings, including U.S. Patent Publication No. 2021/0365029 and U.S. Patent Publication No. 2022/0265110. Upon information and belief, Avidbots’ website and patent filings

accurately describe the functionality and operation of the Accused Products as they pertain to Avidbots' infringement of the '436 patent.

100. Upon information and belief, Avidbots was aware of or was willfully blind to the '436 patent. Brain is the industry leader in the area of autonomous floor scrubbers and released BrainOS years before Avidbots released any of the accused products. Further, Brain appropriately marks products containing BrainOS with Brain's patents, including the '436 patent, on Brain's patent marking website. Because of Brain's influence and innovation in the area of autonomous floor scrubbers, Avidbots knew or was willfully blind to Brain's patent portfolio, including the '436 patent. Moreover, Avidbots knew or will know of Brain's '436 patent at least as of the date of filing of this complaint.

101. Upon information and belief, Avidbots actively induces users to directly infringe the asserted claims of the '436 patent in violation of 35 U.S.C. § 271(b). By way of example only, upon information and belief, Avidbots actively induces direct infringement of the '436 patent by providing directions, demonstrations, guides, manuals, training for use, product support, and/or other materials necessary for the use of the Accused Products. Upon information and belief, Avidbots knew or should have known that these activities would cause direct infringement.

102. Upon information and belief, Avidbots' acts constitute contributory infringement of the '436 patent in violation of 35 U.S.C. § 271(c). Upon information and belief, Avidbots contributorily infringes because, among other things, Avidbots offers to sell and/or sells within the United States, and/or imports into the United States, components of the Accused Products that constitute material parts of the invention of the asserted claims of the '436 patent, are not staple articles or commodities of commerce suitable for substantial non-infringing use and are known by Avidbots to be especially made or especially adapted for use in an infringement of the '436 patent.

103. Avidbots' infringement of the '436 patent is willful, deliberate, and intentional by continuing its acts of infringement after becoming aware of the '436 patent and its infringement thereof, thus acting in reckless disregard of Brain's patent rights.

104. Because of Avidbots' infringement of the '436 patent, Brain has suffered and will continue to suffer irreparable harm and injury, including monetary damages in an amount to be determined at trial.

105. Upon information and belief, unless enjoined, Avidbots, and/or others acting on behalf of Avidbots, will continue their infringing acts, thereby causing additional irreparable injury to Brain for which there is no adequate remedy at law.

PRAYER FOR RELIEF

WHEREFORE, Brain prays for judgment in its favor against Defendants for the following relief:

A. Pursuant to 35 U.S.C. § 271, a determination that Avidbots and their officers, agents, servants, employees, attorneys and all others in active concert and/or participation with them have infringed each of the '780, '539, '325, '576, and '436 patents through the manufacture, use, importation, offer for sale, and/or sale of infringing products and/or any of the other acts prohibited by 35 U.S.C. § 271;

B. Pursuant to 35 U.S.C. § 283, an injunction enjoining Avidbots and their officers, agents, servants, employees, attorneys and all others in active concert and/or participation with them from infringing the '780, '539, '325, '576, and '436 patents through the manufacture, use, importation, offer for sale, and/or sale of infringing products and/or any of the other acts prohibited by 35 U.S.C. § 271, including preliminary and permanent injunctive relief;

C. Pursuant to 35 U.S.C. § 284, an award compensating Brain for Defendants' infringement of the '780, '539, '325, '576, and '436 patents through payment of damages but not

less than a reasonable royalty on Defendants' sales of infringing products;

D. Pursuant to 35 U.S.C. § 284, an award increasing damages up to three times the amount found or assessed by the jury for Defendants' infringement of each of the '780, '539, '325, '576, and '436 patents in view of the willful and deliberate nature of the infringement;

E. Pursuant to 35 U.S.C. § 285, a finding that this is an exceptional case, and an award of reasonable attorneys' fees and non-taxable costs;

F. An assessment of prejudgment and post-judgment interest and costs against Defendants, together with an award of such interest and costs, pursuant to 35 U.S.C. § 284; and

G. Such other and further relief as this Court may deem just.

Dated: December 6, 2024

Respectfully submitted,

BRAIN CORPORATION

By: /s/ Kevin Tottis

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DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Plaintiff Brain Corporation hereby demands a trial by jury on all issues so triable.

Dated: December 6, 2024

Respectfully submitted,

BRAIN CORPORATION

By: /s/ Kevin Tottis

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