

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

BOSTON DYNAMICS, INC.,)	
)	
Plaintiff,)	
)	
v.)	C.A. No. _____
)	
GHOST ROBOTICS CORPORATION,)	JURY TRIAL DEMANDED
)	
Defendant.)	

COMPLAINT

Plaintiff Boston Dynamics, Inc. (“Boston Dynamics” or “Plaintiff”), hereby demands a jury trial and alleges the following against Defendant Ghost Robotics Corporation (“Ghost Robotics” or “Defendant”):

NATURE OF ACTION

1. This is an action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. §§ 1, *et seq.*
2. Plaintiff has filed this lawsuit to stop Defendant’s unlawful infringement of Plaintiff’s patented inventions and to obtain damages, an injunction, and other relief.

THE PARTIES

3. Boston Dynamics is a corporation organized and existing under the laws of the State of Delaware with its principal place of business located at 200 Smith Street, Waltham, MA 02451.
4. On information and belief, Ghost Robotics is a corporation organized and existing under the laws of the State of Delaware, and has a place of business at 3401 Grays Ferry Ave Bldg 197 Ste 312, Philadelphia, PA 19146.

JURISDICTION AND VENUE

5. This is an action for patent infringement arising under the patent laws of the United States of America, 35 U.S.C. §1, et. seq., including 35 U.S.C. § 271. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. This Court has personal jurisdiction over Ghost Robotics based at least on Ghost Robotics' incorporation in the State of Delaware.

7. Venue is proper in this Court under 28 U.S.C. § 1400(b) because Ghost Robotics is incorporated in, and therefore resides in, the State of Delaware.

FACTUAL BACKGROUND

Boston Dynamics' Early and Continued Innovations

8. Boston Dynamics is a robotics design company founded in 1992 as a spin-off from the Massachusetts Institute of Technology. Its focus has been and continues to be “on creating robots with advanced mobility, dexterity and intelligence.”¹ Boston Dynamics' robots are inspired by the natural world to be able to balance and to have dynamic motion; this allows many Boston Dynamics robots to “navigate tough unstructured, unknown or antagonistic terrain with ease.”² To this effort, Boston Dynamics has invested millions of dollars in the development of its robots.

9. Boston Dynamics began developing and launching its first quadrupedal robots as early as 2004—the first robot called BigDog served as a robotic pack mule for rough terrain. Following BigDog, Boston Dynamics continued to develop robots from 2005 to the present. Other Boston Dynamics' projects include, but are not limited to, the Cheetah, LittleDog, PETMAN, LS3, Atlas, Spot, Handle, Stretch, and Pick.

¹ BOSTON DYNAMICS, <https://www.bostondynamics.com/about> (last visited Nov. 10, 2022).

² *Id.*

10. Boston Dynamics introduced the Spot® robot, an innovative four-legged robot designed for industrial and commercial applications. At the time, the Spot® robot was the quietest and most capable robot Boston Dynamics had ever built. Boston Dynamics' Spot® robot has been honored by the Robotics Business Review Innovation Awards in 2020, 2021, and 2022 for its innovation.³

The Asserted Patents

11. Boston Dynamics, with its early roots in the robotics industry, has been and continues to be a pioneer and leading innovator in developing quadrupedal and bipedal robots. The Asserted Patents discussed below capture technology, features, and processes that reflect these innovations, and are directed to core technology used in its robots.

12. On April 12, 2016, the United States Patent and Trademark Office (“the USPTO”) duly and legally issued U.S. Patent No. 9,308,648 (the “’648 patent”), titled “Systems and Methods for Robotic Self-Right.” Boston Dynamics is the owner by assignment of the ’648 patent. The application for the ’648 patent was filed with the USPTO on July 24, 2014. A true and accurate copy of the ’648 patent is attached hereto as Ex. A.

13. On May 30, 2017, the USPTO duly and legally issued U.S. Patent No. 9,662,791 (the “’791 patent”), titled “Systems and Methods for Robotic Self-Right.” Boston Dynamics is the owner by assignment of the ’791 patent. The application for the ’791 patent was filed with the

³ *Boston Dynamics Hopes to Kick-Start Commercial Quadruped Market*, ROBOTICS BUSINESS REVIEW, <https://www.roboticsbusinessreview.com/rbr50-company/boston-dynamics-commercializes-spot-quadruped-robot/>; *Robot Arm Opens Doors for Boston Dynamics' Spot Quadruped*, ROBOTICS BUSINESS REVIEW, <https://www.roboticsbusinessreview.com/rbr50-company-2021/boston-dynamics/>; *Boston Dynamics' Spot Enterprise Goes the Distance*, ROBOTICS BUSINESS REVIEW, <https://www.roboticsbusinessreview.com/rbr50-company-2022/spot-enterprise-brings-the-quadruped-to-new-places/>.

USPTO on January 29, 2016. A true and accurate copy of the '791 patent is attached hereto as Ex. B.

14. On September 21, 2021, the USPTO duly and legally issued U.S. Patent No. 11,123,869 (the "'869 patent"), titled "Robotically Negotiating Stairs." Boston Dynamics is the owner by assignment of the '869 patent. The application for the '869 patent was filed with the USPTO on January 25, 2021. A true and accurate copy of the '869 patent is attached hereto as Ex. C.

15. On July 12, 2016, the USPTO duly and legally issued U.S. Patent No. 9,387,588 (the "'588 patent"), titled "Handling Gait Disturbances with Asynchronous Timing." Boston Dynamics is the owner by assignment of the '588 patent. The application for the '588 patent was filed with the USPTO on August 25, 2014. A true and accurate copy of the '588 patent is attached hereto as Ex. D.

16. On July 27, 2021, the USPTO duly and legally issued U.S. Patent No. 11,073,842 (the "'842 patent"), titled "Perception and Fitting for a Stair Tracker." Boston Dynamics is the owner by assignment of the '842 patent. The application for the '842 patent was filed with the USPTO on January 25, 2021. A true and accurate copy of the '842 patent is attached hereto as Ex. E.

17. On April 9, 2019, the USPTO duly and legally issued U.S. Patent No. 10,253,855 (the "'855 patent"), titled "Screw Actuator for a Legged Robot." Boston Dynamics is the owner by assignment of the '855 patent. The application for the '855 patent was filed on December 15, 2016. A true and accurate copy of the '855 patent is attached hereto as Ex. F.

18. On September 28, 2021, the USPTO duly and legally issued U.S. Patent No. 11,131,368 (the "'368 patent"), titled "Screw Actuator for a Legged Robot." Boston

Dynamics is the owner by assignment of the '368 patent. The application for the '368 patent was filed on February 27, 2019. A true and accurate copy of the '368 patent is attached hereto as Ex. G.

19. At least Boston Dynamics' Spot® robot practices the above Asserted Patents. Boston Dynamics has listed the above Asserted Patents on its website as covering its Spot® robot.⁴

Defendant's Accused Products

20. Boston Dynamics' early success with the Spot® robot did not go unnoticed by competitors in the robotics industry, including Ghost Robotics.

21. Upon information and belief, in or around the Fall of 2019, Defendant introduced a product called the Vision 60 product. On information and belief, Defendant makes, uses, offers to sell, and/or sells the Vision 60 product in the United States, and/or imports the Vision 60 product into the United States. Provided herewith as Ex. H is a copy of the Vision 60 product website at <https://www.ghostrobotics.io/vision-60> (last visited Nov. 10, 2022); and provided herewith as Ex. I is a copy of the Vision 60 product information sheet at <https://farrwest.com/pub/media/pdf/Hero%20Products/Vision60/GRV60QUGV.pdf>.

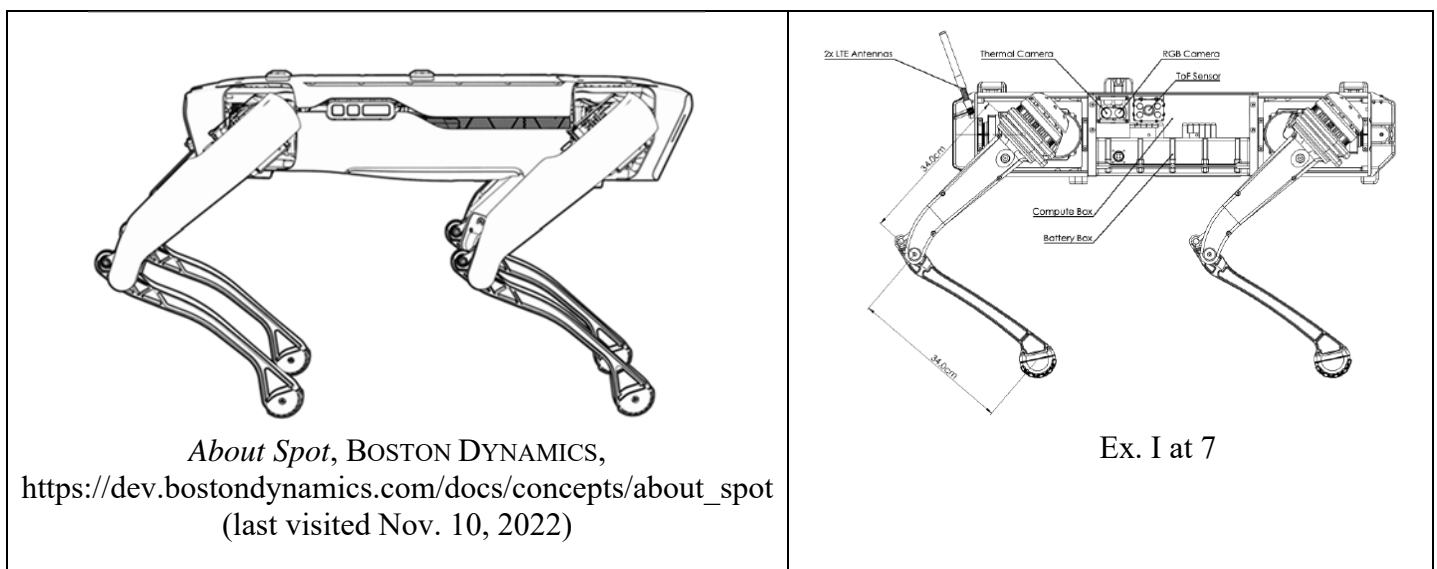
22. Upon information and belief, in or around February 2020, Defendant introduced a product called the Spirit 40 product. On information and belief, Defendant makes, uses, offers to sell, and/or sells the Spirit 40 product in the United States, and/or imports the Spirit 40 product into the United States. Provided herewith as Ex. J is a copy of the Spirit 40 product information sheet at https://uspto.report/ts/cd/pdfs?f=/SOU/2020/06/23/20200623125618914893-88276426-004_003/SPN1-3898152106-20200623124743387022_._GR_Spirit_40-P_Quad_UGV-_Full_Spec_rev1.0.pdf.

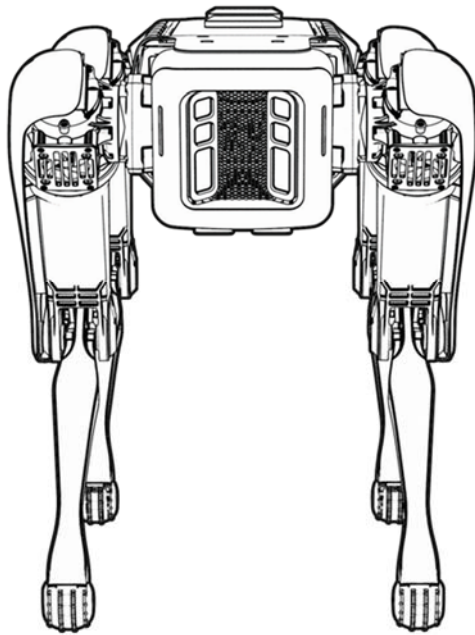
⁴ *Patents*, BOSTON DYNAMICS, <https://www.bostondynamics.com/patents> (last visited November 10, 2022).

23. Upon learning that Defendant might have entered the market and released products that it believed might practice its intellectual property, on July 7, 2020, Boston Dynamics wrote to Defendant requesting that Defendant review Boston Dynamics' published patent applications and issued patents to ensure that Ghost Robotics did not infringe Boston Dynamics' patent rights, particularly referencing the Ghost Robotics Vision 60 product.

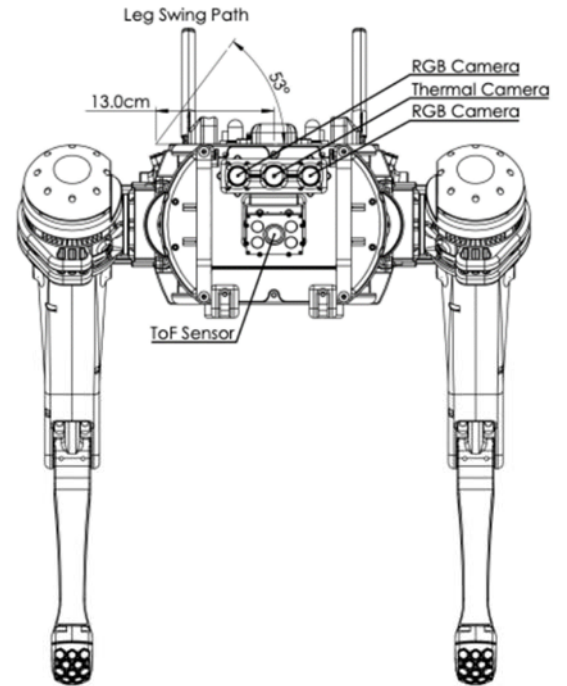
24. On March 1, 2021, Boston Dynamics sent a cease and desist letter to Defendant requesting that it stop marketing robots and technology that Boston Dynamics believed infringes on Boston Dynamics' intellectual property. In that letter, Boston Dynamics specifically discussed the '648, '791 and '588 patents, again referencing the Ghost Robotics Vision 60 product. This letter also cited the '855 patent, among others.

25. On May 9, 2022, Boston Dynamics sent Defendant another cease and desist letter, specifically calling out the similarities in morphology and operation between Ghost Robotics' quadrupedal robots (particularly the Vision 60 product) and Boston Dynamics' Spot® robot. Some of the similarities between the Ghost Robotics Vision 60 product and Boston Dynamics Spot robot are illustrated in the images below:





About Spot, BOSTON DYNAMICS,
https://dev.bostondynamics.com/docs/concepts/about_spot
(last visited Nov. 10, 2022)



Ex. I at 7.



Scarlett Evans, *Spot the Robot Dog is Heading to Ukraine*, IOT WORLD TODAY (June 23, 2022),



Meet The New Guard Dog Of The U.S. Military Air Base: Vision 60, VOI (April 10, 2021),

<https://www.iotworldtoday.com/2022/06/23/boston-dynamics-spot-the-robot-dog-is-heading-to-ukraine/>.

<https://voiid.com/en/news/42793/meet-the-new-guard-dog-of-the-us-military-air-base-vision-60>

26. In that May 9, 2022 letter, Boston Dynamics specifically discussed the '648, '791, '869, '588 and '842 patents, and also cited the '855 patent, among others.

COUNT I—INFRINGEMENT OF THE '648 PATENT

27. The allegations in the preceding paragraphs are incorporated by reference as if fully set forth herein.

28. Defendant has directly infringed, and continues to directly infringe, at least claims 1, 3, 4, 5, 6, 10, 11, 13, 14, and 15 of the '648 patent by making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products, and has induced and contributed to the infringement of the '648 patent by others.

29. For example, and without limitation, on information and belief, the Vision 60 and Spirit 40 products meet every limitation of at least independent claims 1 and 11 of the '648 patent, Defendant's use and testing of the Vision 60 and Spirit 40 products directly infringes claim 1 of the '648 patent, and Defendant's making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products directly infringes claim 11 of the '648 patent under 35 U.S.C. § 271(a).

30. For example, claim 1 of the '648 patent recites:

1. A method operable by a computing device, the method comprising:

determining an orientation of a bottom surface of a legged robotic device with respect to a ground surface, wherein the legged robotic device includes two or more legs extending from a body of the legged robotic device;

based on the determined orientation, determining that the legged robotic device is in an unstable position, wherein the unstable position comprises the legged robotic device positioned on a first side of the legged robotic device in a lying position such that the legged robotic device is unable to maintain a stance in the unstable position;

providing, by the computing device, instructions to perform a first action configured to return the legged robotic device to a stable position such that the legged robotic device is able to maintain a stance in the stable position, wherein the first action includes moving a first leg of the legged robotic device from a first position to a second position, such that a distal end of the first leg is further away from the ground surface in the second position than in the first position, and wherein a proximal end of the first leg is coupled to a first side of the legged robotic device;

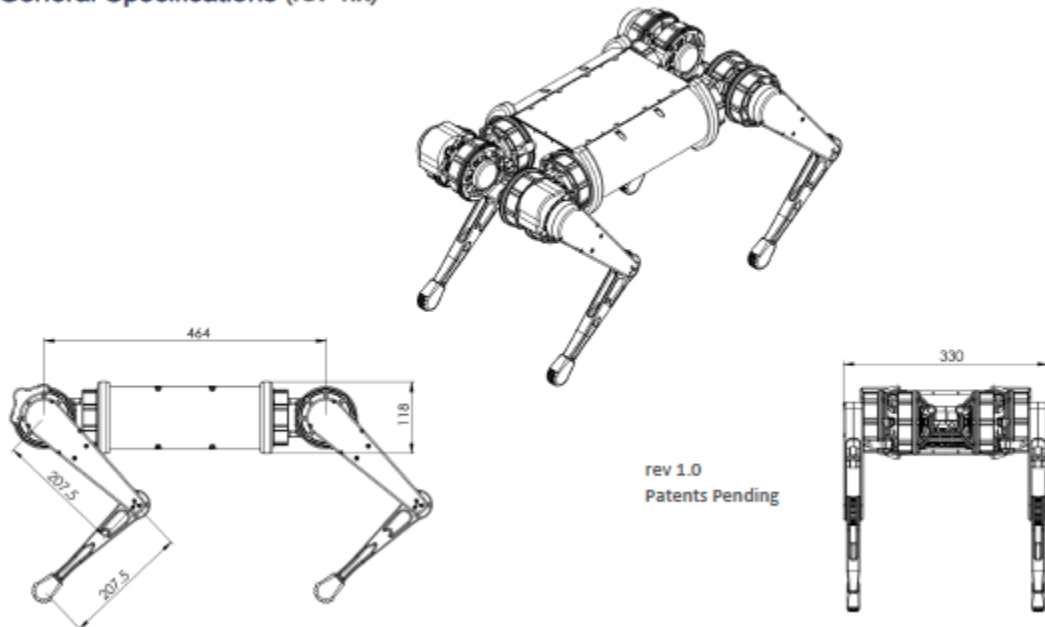
if the first action causes the legged robotic device to return to the stable position, providing instructions to extend at least two of the two or more legs of the legged robotic device; and

if the legged robotic device is in the unstable position after the first action, providing, by the computing device, instructions to perform a second action configured to return the legged robotic device to the stable position, wherein the second action includes extending the distal end of the first leg of the legged robotic device away from the body of the legged robotic device such that a gravitational potential energy of the legged robotic device is increased.

31. The Spirit 40 product is a computing device. For example, Defendant’s product information states that the Spirit 40 product is “**The Ultimate Research Robot**. Built on same software, SDK and electronics as the Vision and Wraith series Q-UGVs for enterprise and military.” Ex. J at 1.

32. The Spirit 40 product is capable of determining an orientation of a bottom surface of a legged robotic device with respect to a ground surface, wherein the legged robotic device includes two or more legs extending from a body of the legged robotic device. For example, Defendant’s product information states that the Spirit 40 product is capable of “**Self-Right & Inverted Operation**. Self-right from any immobilization; operate in inverted position.” Ex. J at 3. For example, Spirit 40 documentation also illustrates that it has two or more legs extending from a body of the legged robotic device:

General Specifications (rev 1.x)



Ex. J at 2.

33. The Spirit 40 product is capable, based on the determined orientation, of determining that the legged robotic device is in an unstable position, wherein the unstable position

comprises the legged robotic device positioned on a first side of the legged robotic device in a lying position such that the legged robotic device is unable to maintain a stance in the unstable position. For example, Defendant’s product information states that the Spirit 40 product is capable of **“Self-Right & Inverted Operation.** Self-right from any immobilization; operate in inverted position.” Ex. J at 3.

34. The Spirit 40 product is capable of providing, by the computing device, instructions to perform a first action configured to return the legged robotic device to a stable position such that the legged robotic device is able to maintain a stance in the stable position, wherein the first action includes moving a first leg of the legged robotic device from a first position to a second position, such that a distal end of the first leg is further away from the ground surface in the second position than in the first position, and wherein a proximal end of the first leg is coupled to a first side of the legged robotic device. For example, when the Spirit 40 is lying on its back from a kick, it lifts its feet on one side to tuck them under the shoulders.⁵



⁵ Ghost Robotics (@GhostRobotics), TWITTER (June 11, 2020, 9:00 PM) https://twitter.com/Ghost_Robotics/status/1271246011013496832 at 0:11.

35. The Spirit 40 product is capable, if the first action causes the legged robotic device to return to the stable position, of providing instructions to extend at least two of the two or more legs of the legged robotic device. For example, the Spirit 40 product then extends all legs in an attempt to stand up (while upside down):⁶



36. The Spirit 40 product is capable, if the legged robotic device is in the unstable position after the first action, of providing, by the computing device, instructions to perform a second action configured to return the legged robotic device to the stable position, wherein the second action includes extending the distal end of the first leg of the legged robotic device away from the body of the legged robotic device such that a gravitational potential energy of the legged robotic device is increased. For example, the Spirit 40 product pushes against the ground to roll onto its stomach:⁷

⁶ *Id.* at 0:14.

⁷ *Id.* at 0:16-0:17.



37. As another example, claim 11 of the '648 patent recites:

11. A robotic device including:

a body;

two or more legs extending from the body;

at least one processor; and

data storage comprising program logic executable by the at least one processor to cause the robotic device to perform functions comprising:

determining an orientation of a bottom surface of a robotic device with respect to a ground surface;

based on the determined orientation, determining that the robotic device is in an unstable position, wherein the unstable position comprises the legged robotic device positioned on a first side of the legged robotic device in a lying position such that the robotic device is unable to maintain a stance in the unstable position;

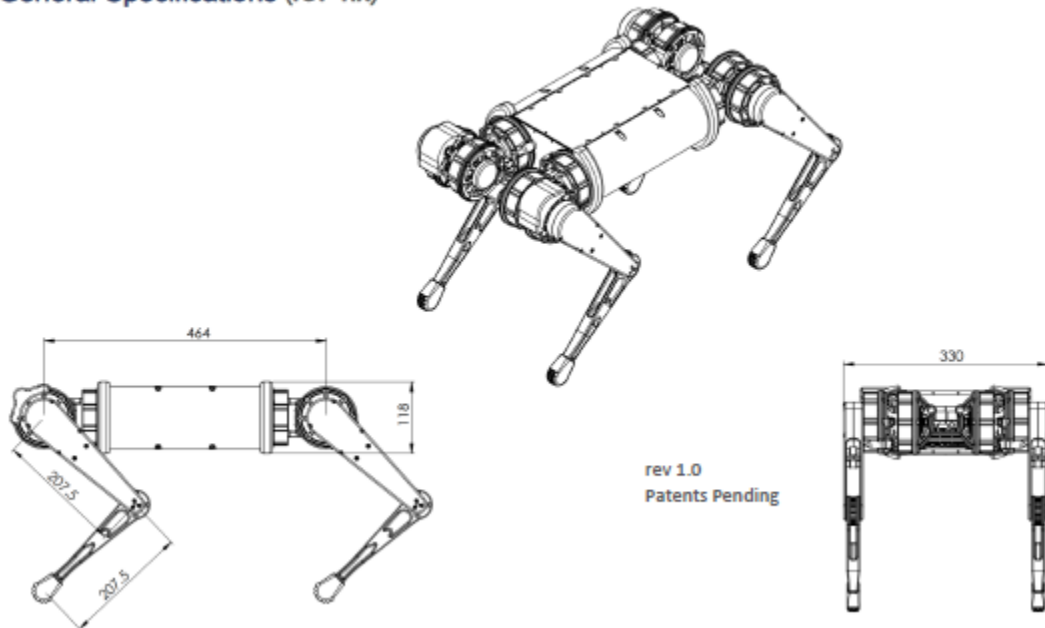
performing a first action configured to return the robotic device to a stable position such that the robotic device is able to maintain a stance in the stable position, wherein the first action includes moving a first leg of the robotic device from a first position to a second position, such that a distal end of the first leg is further away from the ground surface in the second position than in the first position, and wherein a proximal end of the first leg is coupled to a first side of the robotic device;

if the first action causes the robotic device to return to the stable position, extending at least two of the two or more legs of the robotic device; and

if the robotic device is in the unstable position after the first action, performing a second action configured to return the robotic device to the stable position, wherein the second action includes extending the distal end of the first leg of the robotic device away from the body of the robotic device such that a gravitational potential energy of the robotic device is increased.

38. For example, the Spirit 40 product documentation illustrates that it has a body, with two or more legs extending from the body of the robotic device:

General Specifications (rev 1.x)



Ex. J at 2.

39. The Spirit 40 product includes at least one processor and data storage comprising program logic executable by the at least one processor to cause the robotic device to perform functions. For example, Defendant's product information indicates that it meets these physical and technical limitations. Defendant's product information states that the Spirit 40 product is "**The Ultimate Research Robot.** Built on same software, SDK and electronics as the Vision and Wraith series Q-UGVs for enterprise and military." Ex. J at 1.

40. The Spirit 40 product is capable of determining an orientation of a bottom surface of a robotic device with respect to a ground surface. For example, Defendant's product information states that the Spirit 40 product is capable of "**Self-Right & Inverted Operation.** Self-right from any immobilization; operate in inverted position." Ex. J at 3.

41. The Spirit 40 product is capable, based on the determined orientation, of determining that the robotic device is in an unstable position, wherein the unstable position comprises the legged robotic device positioned on a first side of the legged robotic device in a lying position such that the robotic device is unable to maintain a stance in the unstable position. For example, Defendant's product information states that the Spirit 40 product is capable of "**Self-Right & Inverted Operation.** Self-right from any immobilization; operate in inverted position." Ex. J at 3.

42. The Spirit 40 product is capable of performing a first action configured to return the robotic device to a stable position such that the robotic device is able to maintain a stance in the stable position, wherein the first action includes moving a first leg of the robotic device from a first position to a second position, such that a distal end of the first leg is further away from the ground surface in the second position than in the first position, and wherein a proximal end of the first leg is coupled to a first side of the robotic device. For example, when the Spirit 40 product is lying on its back from a kick, it lifts its feet on one side to tuck them under the shoulders.⁸

⁸ Ghost Robotics (@GhostRobotics), TWITTER (June 11, 2020, 9:00 PM) https://twitter.com/Ghost_Robotics/status/1271246011013496832 at 0:11.



43. The Spirit 40 product is capable, if the first action causes the robotic device to return to the stable position, of extending at least two of the two or more legs of the robotic device. For example, the Spirit 40 product then extends all legs in an attempt to stand up (while upside down):⁹



⁹ *Id.* at 0:14.

44. The Spirit 40 product is capable, if the robotic device is in the unstable position after the first action, of performing a second action configured to return the robotic device to the stable position, wherein the second action includes extending the distal end of the first leg of the robotic device away from the body of the robotic device such that a gravitational potential energy of the robotic device is increased. For example, the Spirit 40 product pushes against the ground to roll onto its stomach:¹⁰



¹⁰ *Id.* at 0:16-0:17.



45. On information and belief, the Vision 60 product has these same capabilities as the Spirit 40 product, and thus similarly infringes claims 1 and 11 of the '648 patent.

46. Thus, the Vision 60 and Spirit 40 products meet every limitation of at least independent claims 1 and 11 of the '648 patent. Defendant directly infringes at least claim 1 by use and testing the Vision 60 and Spirit 40 products and directly infringes at least claim 11 by making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products in violation of 35 U.S.C. § 271(a).

47. Defendant also has indirectly infringed and continues to indirectly infringe the claims of the '648 patent by inducing infringement pursuant to 35 U.S.C. § 271(b) and contributing to infringement pursuant to 35 U.S.C. § 271(c).

48. On information and belief, in violation of 35 U.S.C. § 271(b), Defendant specifically intended to induce infringement of the '648 patent by its customers and users of the Vision 60 and Spirit 40 products and had knowledge that the inducing acts would cause

infringement or was willfully blind to the possibility that their inducing acts would cause infringement.

49. Defendant has known of the '648 patent since at least as early as March 1, 2021, when that patent was identified by Boston Dynamics to Defendant. Boston Dynamics identified the '648 patent to Defendant again on May 9, 2022. Defendant also knew or should have known of the '648 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

50. On information and belief, Defendant's customers directly infringe the '648 patent. For example, when the Vision 60 and Spirit 40 products are sold to customers, those customers infringe at least independent claims 1 and 11 of the '648 patent through their use of the Vision 60 and Spirit 40 products.

51. On information and belief, Defendant specifically intends that its customers infringe the '648 patent. Defendant encourages infringement by customers at least by providing product support instructing users on how to use the Vision 60 and Spirit 40 products. For example, Defendant provides specification sheets. Exs. I, J. The specification sheets describe the features of the Vision 60 and Spirit 40 products, including "self-right." Ex. I at 3, 5; Ex. J at 1, 3. As another example, Defendant provides support to its customers. Ex. K at 2.

52. On information and belief, despite Defendant's knowledge of the '648 patent and knowledge that customers will necessarily infringe the '648 patent when the Vision 60 and Spirit 40 products are used as instructed, Defendant continues to encourage infringement.

53. Defendant also contributes to infringement of the '648 patent by Defendant's customers in violation of 35 U.S.C. §271(c). On information and belief, Defendant offers to sell and sells within the United States the Vision 60 and Spirit 40 products knowing that they are

especially made or especially adapted for use in infringing the '648 patent, and knowing that the Vision 60 and Spirit 40 products are not staple articles or commodities of commerce suitable for substantial non-infringing use.

54. Defendant has committed and continues to commit all of the above acts of infringement without license or authorization.

55. Boston Dynamics has complied with the requirements of 35 U.S.C. § 287 by, among other things, marking its products with the '648 patent, and giving actual notice to Defendant no later than March 1, 2021, and giving actual notice again no later than May 9, 2022. Defendant also knew or should have known of the '648 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

56. As a result of Defendant's infringement of the '648 patent, Plaintiff has suffered damages and will continue to suffer damages.

57. On information and belief, the infringement of the '648 patent by Defendant has been and continues to be willful. Defendant has had knowledge of the '648 patent and knowledge that the Vision 60 and Spirit 40 products are covered by the '648 patent since at least March 1, 2021. Defendant has thus sold the Vision 60 and Spirit 40 products knowing of the risk of infringement and/or in view of a risk of infringement that was sufficiently obvious that it should have been known to Defendant. Despite this risk, Defendant has deliberately continued to infringe in a wanton, malicious, and egregious manner, with reckless disregard for Boston Dynamics' patent rights. Thus, Defendant's infringing actions have been and continue to be knowingly wrongful, entitling Boston Dynamics to increased damages under 35 U.S.C. § 284.

58. Under 35 U.S.C. § 283, Boston Dynamics is entitled to a permanent injunction against further infringement. Defendant's wrongful conduct has caused and will continue to cause

Boston Dynamics to suffer irreparable harm resulting from the loss of its lawful patent right to exclude others from making, using selling, offering to sell, and/or importing Boston Dynamics' patented inventions. On information and belief, Defendant will continue to infringe the '648 patent unless permanently enjoined by the Court.

COUNT II—INFRINGEMENT OF THE '791 PATENT

59. The allegations in the preceding paragraphs are incorporated by reference as if fully set forth herein.

60. Defendant has directly infringed, and continues to directly infringe, claims 1, 2, 3, 4, 5, 6, 10, 11, 13 and 14 of the '791 patent by making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products, and has induced and contributed to the infringement of the '791 patent by others.

61. For example, and without limitation, on information and belief, the Vision 60 and Spirit 40 products meet every limitation of at least independent claims 1 and 11 of the '791 patent, Defendant's use and testing of the Vision 60 and Spirit 40 products directly infringes claim 1 of the '791 patent, and Defendant's making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products directly infringes claim 11 of the '791 patent under 35 U.S.C. § 271(a).

62. For example, claim 1 of the '791 patent recites:

1. A method operable by a computing device, the method comprising:

determining an orientation of a bottom surface of a legged robotic device with respect to a ground surface, wherein the legged robotic device includes two or more legs extending from a body of the legged robotic device;

based on the determined orientation, determining that the legged robotic device is in an unstable position, wherein the unstable position comprises the legged robotic device positioned on a first side of the legged robotic device in a lying position such that the legged robotic device is unable to maintain a stance in the unstable position; and

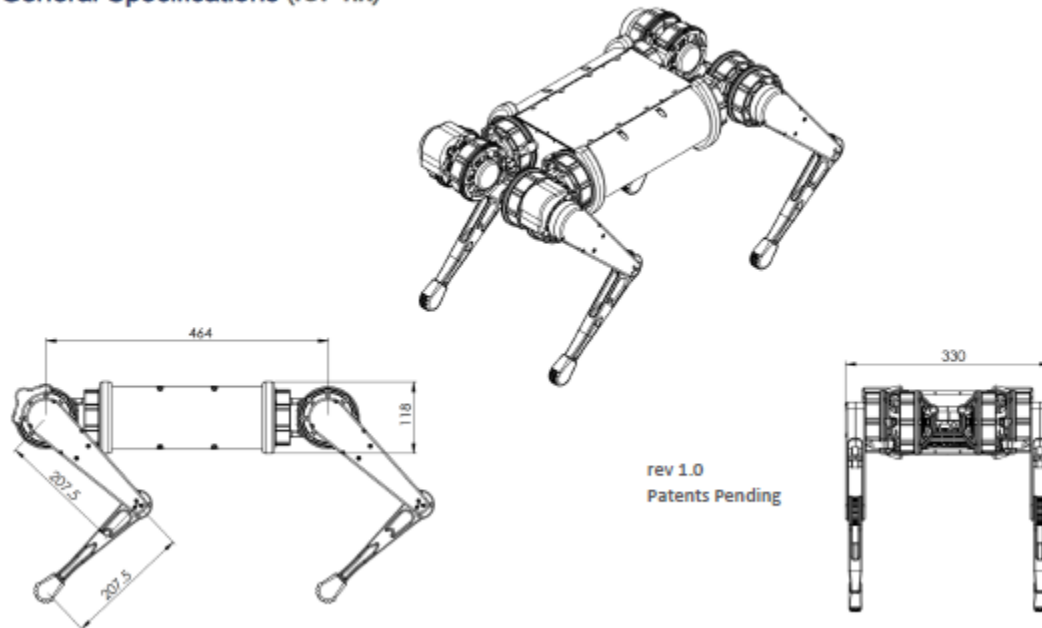
providing, by the computing device, instructions to perform a first action configured to return the legged robotic device to a stable position such that the legged robotic device is able to maintain a stance in the stable position, wherein the first action includes moving a first leg of the legged robotic device from a first position to a second position, such that a distal end of the first leg is further away from the ground surface in the second position than in the first position, and wherein a proximal end of the first leg is coupled to a first side of the legged robotic device.

63. The Spirit 40 product is a computing device. For example, Defendant's product information states that the Spirit 40 product is "**The Ultimate Research Robot**. Built on same software, SDK and electronics as the Vision and Wraith series Q-UGVs for enterprise and military." Ex. J at 1.

64. The Spirit 40 product is capable of determining an orientation of a bottom surface of a legged robotic device with respect to a ground surface, wherein the legged robotic device includes two or more legs extending from a body of the legged robotic device. For example, Defendant's product information states that the Spirit 40 is capable of "**Self-Right & Inverted Operation**. Self-right from any immobilization; operate in inverted position." Ex. J at 3. For

example, Spirit 40 product documentation illustrates that it has two or more legs extending from a body of the legged robotic device:

General Specifications (rev 1.x)



Ex. J at 2.

65. The Spirit 40 product is capable, based on the determined orientation, of determining that the legged robotic device is in an unstable position, wherein the unstable position comprises the legged robotic device positioned on a first side of the legged robotic device in a lying position such that the legged robotic device is unable to maintain a stance in the unstable position. For example, Defendant’s product information states that the Spirit 40 product is capable of **“Self-Right & Inverted Operation.** Self-right from any immobilization; operate in inverted position.” Ex. J at 3.

66. The Spirit 40 product is capable of providing, by the computing device, instructions to perform a first action configured to return the legged robotic device to a stable position such that the legged robotic device is able to maintain a stance in the stable position, wherein the first action includes moving a first leg of the legged robotic device from a first position to a second

position, such that a distal end of the first leg is further away from the ground surface in the second position than in the first position, and wherein a proximal end of the first leg is coupled to a first side of the legged robotic device. For example, when the Spirit 40 product is lying on its back from a kick, it lifts its feet on one side to tuck them under the shoulders:¹¹



For example, the Spirit 40 product then extends all legs in an attempt to stand up (while upside down):¹²

¹¹ Ghost Robotics (@GhostRobotics), TWITTER (June 11, 2020, 9:00 PM) https://twitter.com/Ghost_Robotics/status/1271246011013496832 at 0:11.

¹² *Id.* at 0:14.



For example, the Spirit 40 product then pushes against the ground to roll onto its stomach:¹³



¹³ *Id.* at 0:16-0:17.



67. As another example, claim 11 of the '791 patent recites:

11. A robotic device including:

a body;

two or more legs extending from the body;

at least one processor; and

data storage comprising program logic executable by the at least one processor to cause the robotic device to perform functions comprising:

determining an orientation of a bottom surface of a robotic device with respect to a ground surface;

based on the determined orientation, determining that the robotic device is in an unstable position, wherein the unstable position comprises the legged robotic device positioned on a first side of the legged robotic device in a lying position such that the robotic device is unable to maintain a stance in the unstable position;

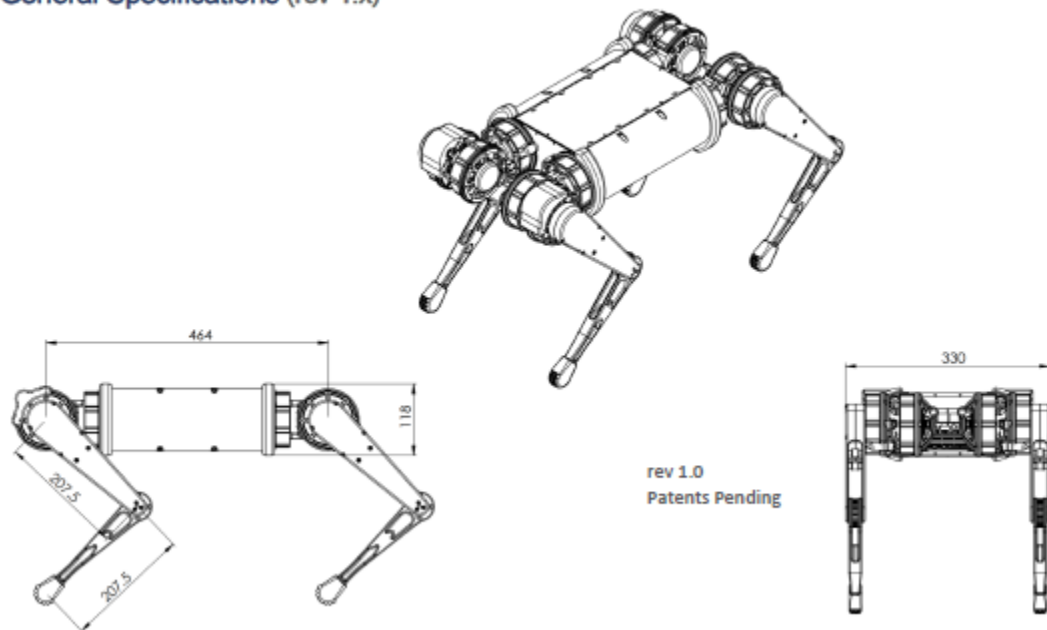
performing a first action configured to return the robotic device to a stable position such that the robotic device is able to maintain a stance in the stable position, wherein the first action includes moving a first leg of the robotic device from a first position to a second position, such that a distal end of the first leg is further away from the ground surface in the second position than in the first position, and wherein a proximal end of the first leg is coupled to a first side of the robotic device;

if the first action causes the robotic device to return to the stable position, extending at least two of the two or more legs of the robotic device; and

if the robotic device is in the unstable position after the first action, performing a second action configured to return the robotic device to the stable position, wherein the second action includes extending the distal end of the first leg of the robotic device away from the body of the robotic device such that a gravitational potential energy of the robotic device is increased.

68. For example, Spirit 40 product documentation illustrates that it has a body, with two or more legs extending from the body of the robotic device:

General Specifications (rev 1.x)



Ex. J at 2.

69. The Spirit 40 product includes at least one processor and data storage comprising program logic executable by the at least one processor to cause the robotic device to perform functions. Defendant's product information indicates that it meets these physical and technical limitations. For example, Defendant's product information states that the Spirit 40 product is "The Ultimate Research Robot. Built on same software, SDK and electronics as the Vision and Wraith series Q-UGVs for enterprise and military." Ex. J at 1.

70. The Spirit 40 product is capable of determining an orientation of a bottom surface of a robotic device with respect to a ground surface. For example, Defendant's product information states that the Spirit 40 product is capable of "Self-Right & Inverted Operation. Self-right from any immobilization; operate in inverted position." Ex. J at 3.

71. The Spirit 40 product is capable, based on the determined orientation, of determining that the robotic device is in an unstable position, wherein the unstable position comprises the legged robotic device positioned on a first side of the legged robotic device in a

lying position such that the robotic device is unable to maintain a stance in the unstable position. For example, Defendant's product information states that the Spirit 40 is capable of "Self-Right & Inverted Operation. Self-right from any immobilization; operate in inverted position." Ex. J at 3.

72. The Spirit 40 product is capable of performing a first action configured to return the robotic device to a stable position such that the robotic device is able to maintain a stance in the stable position, wherein the first action includes moving a first leg of the robotic device from a first position to a second position, such that a distal end of the first leg is further away from the ground surface in the second position than in the first position, and wherein a proximal end of the first leg is coupled to a first side of the robotic device. For example, when the Spirit 40 product is lying on its back from a kick, it lifts its feet on one side to tuck them under the shoulders.¹⁴



¹⁴ Ghost Robotics (@GhostRobotics), TWITTER (June 11, 2020, 9:00 PM) https://twitter.com/Ghost_Robotics/status/1271246011013496832 at 0:11.

73. The Spirit 40 product is capable, if the first action causes the robotic device to return to the stable position, of extending at least two of the two or more legs of the robotic device. For example, the Spirit 40 product then extends all legs in an attempt to stand up (while upside down):¹⁵



74. The Spirit 40 product is capable, if the robotic device is in the unstable position after the first action, of performing a second action configured to return the robotic device to the stable position, wherein the second action includes extending the distal end of the first leg of the robotic device away from the body of the robotic device such that a gravitational potential energy of the robotic device is increased. For example, the Spirit 40 product pushes against the ground to roll onto its stomach:¹⁶

¹⁵ *Id.* at 0:14.

¹⁶ *Id.* at 0:16-0:17.



75. On information and belief, the Vision 60 product has these same capabilities as the Spirit 40 product, and thus similarly infringes claim 1 and 11 of the '791 patent.

76. Thus, the Vision 60 and Spirit 40 products meet every limitation of at least independent claims 1 and 11 of the '791 patent. Defendant directly infringes at least claim 1 by use and testing the Vision 60 and Spirit 40 products and directly infringes at least claim 11 by

making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products in violation of 35 U.S.C. § 271(a).

77. Defendant also has indirectly infringed and continues to indirectly infringe the claims of the '791 patent by inducing infringement pursuant to 35 U.S.C. § 271(b) and contributing to infringement pursuant to 35 U.S.C. § 271(c).

78. On information and belief, in violation of 35 U.S.C. § 271(b), Defendant specifically intended to induce infringement of the '791 patent by its customers and users of the Vision 60 and Spirit 40 products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that their inducing acts would cause infringement.

79. Defendant has known of the '791 patent since at least as early as March 1, 2021, when it was identified by Boston Dynamics to Defendant. Boston Dynamics identified the '791 patent to Defendant again on May 9, 2022. Defendant also knew or should have known of the '791 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

80. On information and belief, Defendant's customers directly infringe the '791 patent. For example, when the Vision 60 and Spirit 40 products are sold to customers, those customers infringe at least independent claims 1 and 11 of the '791 patent through the use of the Vision 60 and Spirit 40 products.

81. On information and belief, Defendant specifically intends that its customers infringe the '791 patent. Defendant encourages infringement by customers at least by providing product support instructing users on how to use the Vision 60 and Spirit 40 products. For example, Defendant provides a specification sheet. Exs. I, J. The specification sheet describes the features

of the Vision 60 and Spirit 40 products, including “self-right.” Ex. I at 3, 5; Ex. J at 1, 3. As another example, Defendant provides support to its customers. Ex. K at 2.

82. On information and belief, despite Defendant’s knowledge of the ’791 patent and knowledge that customers will necessarily infringe the ’791 patent when the Vision 60 and Spirit 40 products are used as instructed, Defendant continues to encourage infringement.

83. Defendant also contributes to infringement of the ’791 patent by Defendant’s customers in violation of 35 U.S.C. §271(c). On information and belief, Defendant offers to sell and sells within the United States the Vision 60 and Spirit 40 products knowing that they are especially made or especially adapted for use in infringing the ’791 patent, and knowing that the Vision 60 and Spirit 40 products are not staple articles or commodities of commerce suitable for substantial non-infringing use.

84. Defendant has committed and continues to commit all of the above acts of infringement without license or authorization.

85. Boston Dynamics has complied with the requirements of 35 U.S.C. § 287 by, among other things, marking its products with the ’791 patent, and giving actual notice to Defendant no later than March 1, 2021, and giving actual notice again no later than May 9, 2022. Defendant also knew or should have known of the ’791 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

86. As a result of Defendant’s infringement of the ’791 patent, Plaintiff has suffered damages and will continue to suffer damages.

87. On information and belief, the infringement of the ’791 patent by Defendant has been and continues to be willful. Defendant has had knowledge of the ’791 patent and knowledge that the Vision 60 and Spirit 40 products are covered by the ’791 patent since at least

March 1, 2021. Defendant has thus sold the Vision 60 and Spirit 40 products knowing of the risk of infringement and/or in view of a risk of infringement that was sufficiently obvious that it should have been known to Defendant. Despite this risk, Defendant has deliberately continued to infringe in a wanton, malicious, and egregious manner, with reckless disregard for Boston Dynamics' patent rights. Thus, Defendant's infringing actions have been and continue to be knowingly wrongful, entitling Boston Dynamics to increased damages under 35 U.S.C. § 284.

88. Under 35 U.S.C. § 283, Boston Dynamics is entitled to a permanent injunction against further infringement. Defendant's wrongful conduct has caused and will continue to cause Boston Dynamics to suffer irreparable harm resulting from the loss of its lawful patent right to exclude others from making, using selling, offering to sell, and/or importing Boston Dynamics' patented inventions. On information and belief, Defendant will continue to infringe the '791 patent unless permanently enjoined by the Court.

COUNT III—INFRINGEMENT OF THE '869 PATENT

89. The allegations in the preceding paragraphs are incorporated by reference as if fully set forth herein.

90. Defendant has directly infringed, and continues to directly infringe, claims 1-6, 10, 11-16, and 20 of the '869 patent by making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products, and induced or contributed to the infringement of the '869 patent by others.

91. For example, and without limitation, on information and belief, the Vision 60 and Spirit 40 products meet every limitation of at least independent claims 1 and 11 of the '869 patent, Defendant's use and testing of the Vision 60 and Spirit 40 products directly infringes claim 1 of the '869 patent, and Defendant's making, using, offering for sale, selling, and/or importing into

the United States the Vision 60 and Spirit 40 directly infringes claim 11 of the '869 patent under 35 U.S.C. § 271(a).

92. For example, claim 1 of the '869 patent recites:

1. A computer-implemented method when executed by data processing hardware of a robot causes the data processing hardware to perform operations comprising:

receiving image data indicating that the robot is facing one or more stairs, the robot comprising a body, a front right leg, a front left leg, a rear right leg, and a rear left leg, each leg comprising:

an upper leg portion;

a lower leg portion; and

a knee joint articulatably coupling the upper leg portion to the lower leg portion;

prior to traversing the one or more stairs, establishing a stance pose for a front stance leg corresponding to one of the front right leg or the front left leg, the stance pose defining a stance angle between the body of the robot and an upper leg portion of the front stance leg; and

while traversing the one or more stairs:

causing shift of a weight distribution of the robot towards the front legs of the robot; and

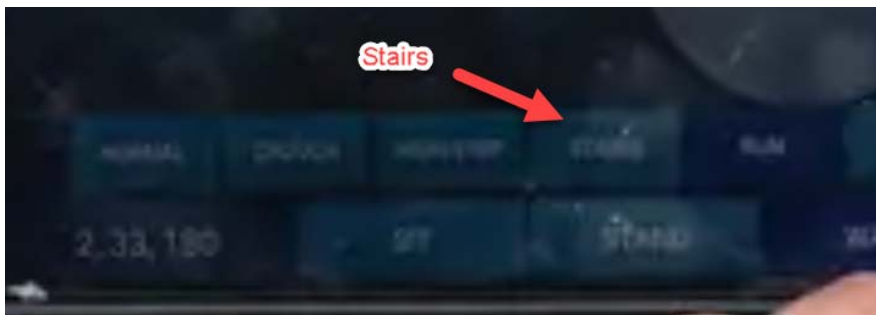
reducing the stance angle by positioning the knee joint of the front stance leg towards the body of the robot when the front stance leg is in contact with a tread of a stair of the one or more stairs.

93. The Vision 60 product is capable of a computer-implemented method when executed by data processing hardware of a robot causes the data processing hardware to perform operations. For example, Defendant’s product information states that the Vision 60 product has “Ghost OS and Robot Software[–] Comprehensive, low-level core control to higher application development environment and APIs, simulation, diagnostic tools, and applications.” Ex. H at 5.

94. The Vision 60 product is capable of receiving image data indicating that the robot is facing one or more stairs. For example, Defendant’s Vision 60 product has a controller that allows a user to select “stairs.”¹⁷



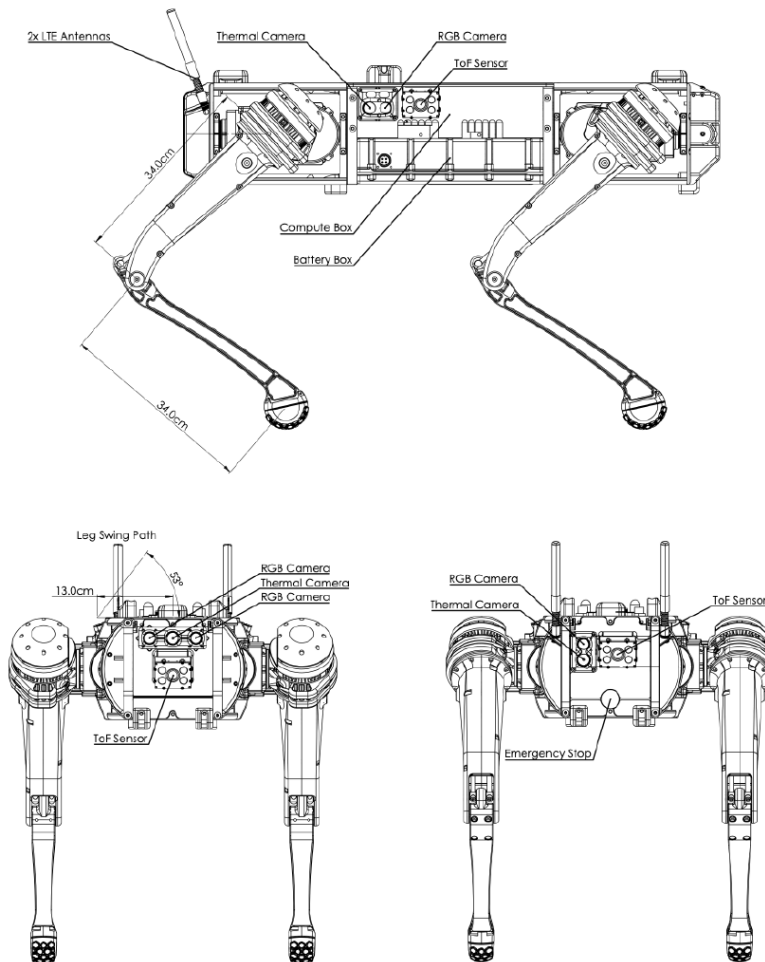
Rodriguez controls a Ghost Robotics Vision 60 prototype while on patrol during an exercise on Nellis Air Force Base, September 5, 2020. US Air Force/Tech. Sgt. Cory D. Payne



95. The Vision 60 product comprises a body, a front right leg, a front left leg, a rear right leg, and a rear left leg, each leg comprising an upper leg portion, a lower leg portion, and a knee joint articulatably [DAI] coupling the upper leg portion to the lower leg portion. For example,

¹⁷ Jared Keller, *The Air Force Just Tested 'Robot Dogs' To Help Security Forces Keep an Eye on Their Bases*, INSIDER (Sept. 8, 2020), https://www.businessinsider.com/air-force-tests-robot-dogs-to-support-base-security-forces-2020-9?fbclid=IwAR11z3Rz55ckSBIIm4TMIhNZh_OEt_O_814e1VczyG1dKj_4zcQ3s_YaGFUE.

Vision 60 product documentation illustrates that it has two or more legs extending from a body of the legged robotic device:



Ex. I at 7.

96. The Vision 60 product is capable, prior to traversing the one or more stairs, of establishing a stance pose for a front stance leg corresponding to one of the front right leg or the front left leg, the stance pose defining a stance angle between the body of the robot and an upper leg portion of the front stance leg. For example, the Vision 60 product reduces its stance angle prior to traversing the stairs by positioning the knee joint of the front stance leg towards the body of the robot when the front stance leg is in contact with a tread of a stair of the one or more stairs

while negotiating stairs.¹⁸ For example, this is how the Vision 60 product looks before contact with the stairs:



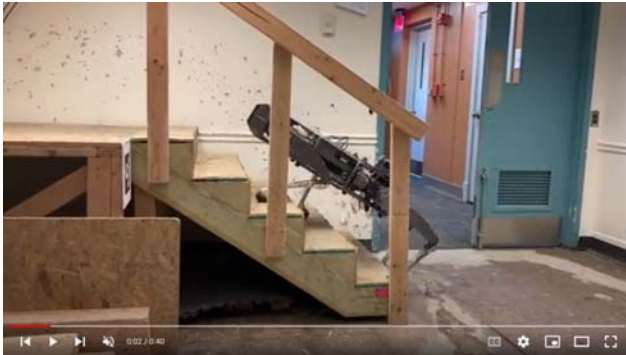
And this is how the Vision 60 looks with contact with the stairs:



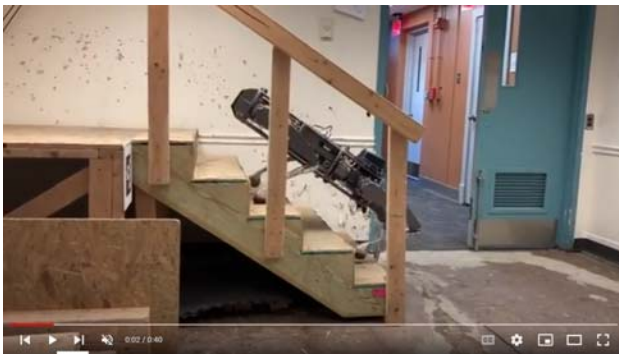
97. The Vision 60 product is capable, while traversing the one or more stairs, of causing shift of a weight distribution of the robot towards the front legs of the robot; and reducing the stance angle by positioning the knee joint of the front stance leg towards the body of the robot when the front stance leg is in contact with a tread of a stair of the one or more stairs. For example, the Vision 60 product also reduces its stance angle while traversing stairs by positioning the knee joint of the front stance leg towards the body of the robot when the front stance leg is in contact

¹⁸ Sam Eckholm, *Robotic Ghost Dog | The Future of Military Security?*, YOUTUBE (May 1, 2021), <https://www.youtube.com/watch?v=3UBIQVB7vYI> at 7:45-7:48.

with a tread of a stair of the one or more stairs.¹⁹ For example, the Vision 60 product's left foreleg initially plants:



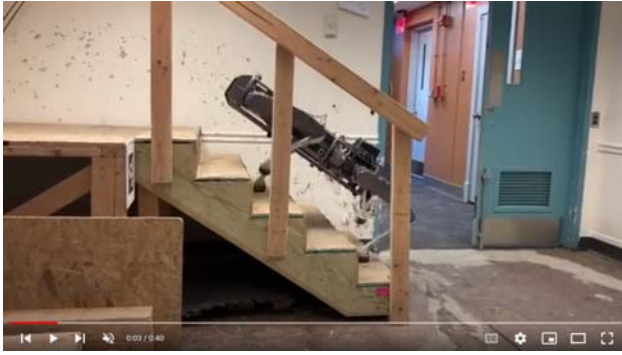
For example, the Vision 60 product's left foreleg looks like the below after the right foreleg swings up:



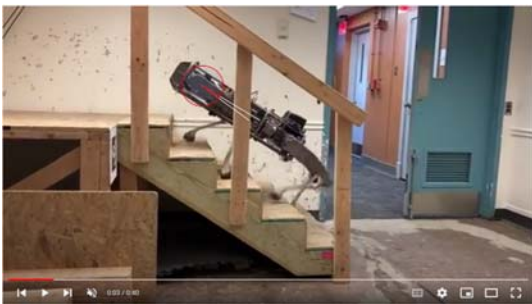
98. For example, following the above, in which both forelegs are squarely planted on the same stair, the Vision 60 product briefly picks up the left foreleg again, then places it down on the same stair.²⁰

¹⁹ Ghost Robotics, *Perception-Based Stair Climbing & Obstacle Management*, YOUTUBE (July 23, 2020), https://www.youtube.com/watch?v=5sE_zssS4EQ at 0:02-0:03

²⁰ *Id.* at 0:03.

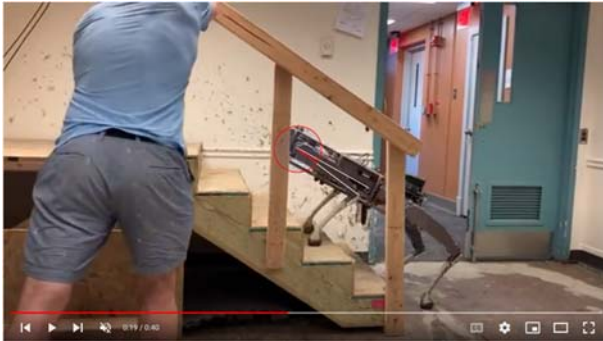


99. Then, the Vision 60 product appears to “lean into” the left foreleg, bending at the knee joint and decreasing the stance angle, seemingly placing additional weight onto the left foreleg to allow the right foreleg to swing up onto the next stair. The Vision 60 product decreases its stance angle. The left foreleg is at a downward angle with respect to the body axis, but the left foreleg is virtually parallel with the body axis.²¹



²¹ *Id.* at 0:02-0:03.

100. As another example of infringement, the stance angle formed by the left foreleg and the body decreases to parallel, or near parallel, as the right leg swings up.²² For example, the Vision 60 product plants its left foreleg and prepares to swing its right foreleg up:



This is an image after the Vision 60 product swings its rights foreleg up:



101. As another example, claim 11 of the '869 patent recites:

11. A robot comprising:

a body;

four legs coupled to the body and configured to traverse an environment with stairs, the four legs comprising a front right leg, a front left leg, a rear right leg, and a rear left leg, each leg comprising:

an upper leg portion;

a lower leg portion; and

²² *Id.* at 0:02-0:03.

a knee joint articulatably coupling the upper leg portion to the lower leg portion; and

a movement controller in communication with the four legs, the movement controller comprising data processing hardware and memory hardware in communication with the data processing hardware, the memory hardware storing instructions that when executed on the data processing hardware cause the data processing hardware to perform operations comprising:

receiving image data indicating that the robot is facing one or more stairs;

prior to traversing the one or more stairs, establishing a stance pose for a front stance leg corresponding to one of the front right leg or the front left leg, the stance pose defining a stance angle between the body of the robot and an upper leg portion of the front stance leg; and

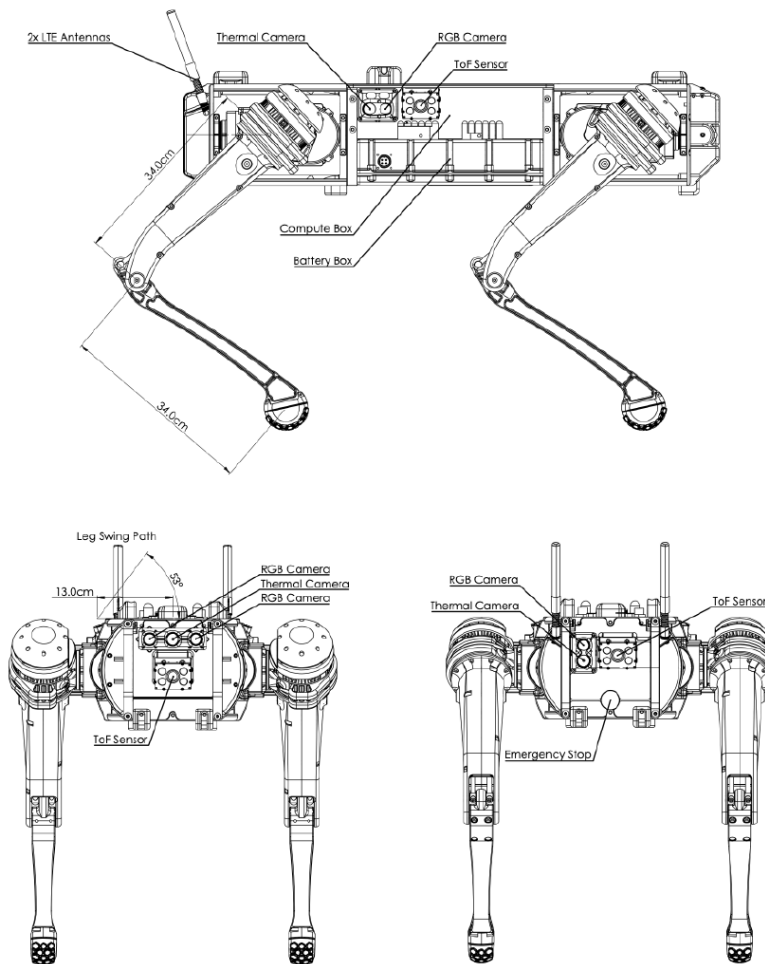
while traversing the one or more stairs:

causing shift of a weight distribution of the robot towards the front legs of the robot; and

reducing the stance angle by positioning the knee joint of the front stance leg towards the body of the robot when the front stance leg is in contact with a tread of a stair of the one or more stairs.

102. The Vision 60 product is a robot comprising a body, four legs coupled to the body and configured to traverse an environment with stairs, the four legs comprising a front right leg, a

front left leg, a rear right leg, and a rear left leg, each leg comprising: an upper leg portion; a lower leg portion; and a knee joint articulatably [DA2]coupling the upper leg portion to the lower leg portion. For example, Vision 60 product documentation illustrates that it has two or more legs extending from a body of the legged robotic device:



Ex. I at 7.

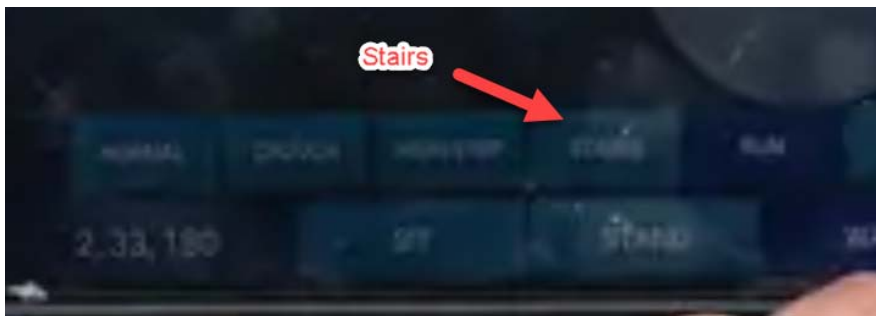
103. The Vision 60 product has a movement controller in communication with the four legs, the movement controller comprising data processing hardware and memory hardware in communication with the data processing hardware, the memory hardware storing instructions that when executed on the data processing hardware cause the data processing hardware to perform

operations comprising receiving image data indicating that the robot is facing one or more stairs. For example, Defendant's product information states that the Vision 60 product has "Ghost OS and Robot Software[---] Comprehensive, low-level core control to higher application development environment and APIs, simulation, diagnostic tools, and applications." Ex. I at 5.

104. The Vision 60 product is capable of receiving image data indicating that the robot is facing one or more stairs. For example, Defendant's Vision 60 product has a controller that allows a user to select "stairs." .²³



Rodriguez controls a Ghost Robotics Vision 60 prototype while on patrol during an exercise on Nellis Air Force Base, September 3, 2020. US Air Force/Tech. Sgt. Cory D. Payne



105. The Vision 60 product is capable, prior to traversing the one or more stairs, of establishing a stance pose for a front stance leg corresponding to one of the front right leg or the front left leg, the stance pose defining a stance angle between the body of the robot and an upper leg portion of the front stance leg. The Vision 60 product reduces its stance angle prior to

²³ Airman 1st Class Anabel Del Valle, *Robot dogs Arrive at Tyndall AFB*, UNITED STATES AIR FORCE (March 29, 2021), <https://www.af.mil/News/Article-Display/Article/2551037/robot-dogs-arrive-at-tyndall-afb/>; see also <https://media.defense.gov/2021/Mar/25/2002608620/-1/-1/0/210324-F-PU499-1010.JPG>.

traversing the stairs by positioning the knee joint of the front stance leg towards the body of the robot when the front stance leg is in contact with a tread of a stair of the one or more stairs while negotiating stairs.²⁴ For example, this is how the Vision 60 product looks before contact with the stairs:



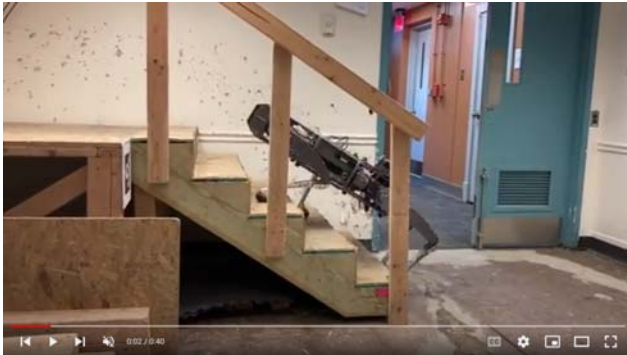
And this is how the Vision 60 product looks with contact with the stairs:



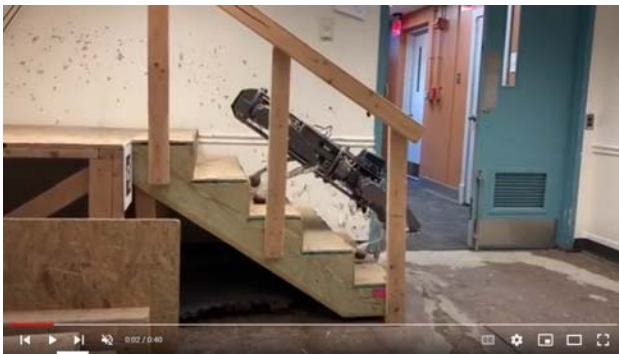
106. The Vision 60 product is capable, while traversing the one or more stairs, of causing shift of a weight distribution of the robot towards the front legs of the robot, and reducing the stance angle by positioning the knee joint of the front stance leg towards the body of the robot when the front stance leg is in contact with a tread of a stair of the one or more stairs. The Vision 60 product also reduces its stance angle while traversing stairs by positioning the knee joint of the front stance leg towards the body of the robot when the front stance leg is in contact with a tread

²⁴ Sam Eckholm, *Robotic Ghost Dog | The Future of Military Security?*, YOUTUBE (May 1, 2021), <https://www.youtube.com/watch?v=3UBIQVB7vYI> at 7:45-7:48.

of a stair of the one or more stairs.²⁵ For example, the Vision 60 product's left foreleg initially plants:



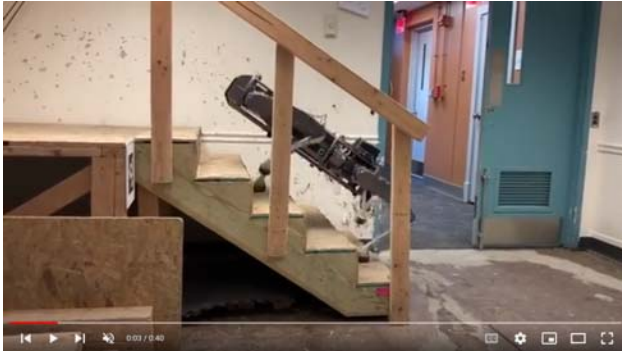
For example, the Vision 60 product's left foreleg looks like the below after the right foreleg swings up:



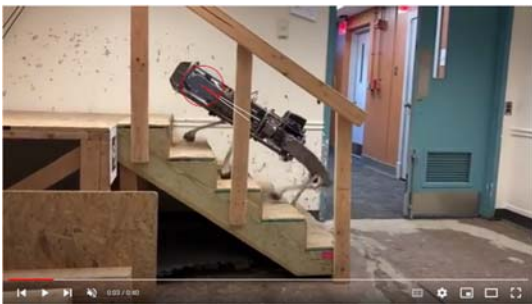
107. For example, following the above, in which both forelegs are squarely planted on the same stair, the Vision 60 product briefly picks up the left foreleg again, then places it down on the same stair.²⁶

²⁵ Ghost Robotics, *Perception-Based Stair Climbing & Obstacle Management*, YOUTUBE (July 23, 2020), https://www.youtube.com/watch?v=5sE_zssS4EQ at 0:02.

²⁶ *Id.* at 0:03.



108. Then, the Vision 60 product appears to “lean into” the left foreleg, bending at the knee joint and decreasing the stance angle, seemingly placing additional weight onto the left foreleg to allow the right foreleg to swing up onto the next stair. The Vision 60 product decreases its stance angle. The left foreleg is at a downward angle with respect to the body axis, but the left foreleg is virtually parallel with the body axis.²⁷



²⁷ *Id.* at 0:03.

109. As another example of infringement, the stance angle formed by the left foreleg and the body decreases to parallel, or near parallel, as the right leg swings up.²⁸ For example, the Vision 60 product plants its left foreleg and prepares to swing its right foreleg up:



This is an image after the Vision 60 product swings its rights foreleg up:



110. On information and belief, the Spirit 40 product has these same capabilities as the Vision 60, product and thus similarly infringes claims 1 and 11 of the '869 patent.

111. Thus, the Vision 60 and Spirit 40 products meet every limitation of at least independent claims 1 and 11 of the '869 patent. Defendant directly infringes at least claims 1 by use and testing the Vision 60 and Spirit 40 products and directly infringes at least claim 11 by making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products in violation of 35 U.S.C. § 271(a).

²⁸ *Id.* at 0:02-0:03.

112. Defendant also has indirectly infringed and continues to indirectly infringe the claims of the '869 patent by inducing infringement pursuant to 35 U.S.C. § 271(b) and contributing to infringement pursuant to 35 U.S.C. § 271(c).

113. On information and belief, in violation of 35 U.S.C. § 271(b), Defendant specifically intended to induce infringement of the '869 patent by its customers and users of the Vision 60 and Spirit 40 products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that their inducing acts would cause infringement.

114. Defendant has known of the '869 patent since at least as early as May 9, 2022, when that patent was identified by Boston Dynamics to Defendant. Defendant also knew or should have known of the '869 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

115. On information and belief, Defendant's customers directly infringe the '869 patent. For example, when the Vision 60 and Spirit 40 products are sold to customers, those customers infringe at least independent claims 1 and 11 of the '869 patent through the use of the Vision 60 and Spirit 40 products.

116. On information and belief, Defendant specifically intends that its customers infringe the '869 patent. Defendant encourages infringement by customers at least by providing product support instructing users on how to use the Vision 60 and Spirit 40 products. For example, Defendant provides specification sheets. Exs. I, J. The specification sheets describe the features of the Vision 60 and Spirit 40 products, including stairclimbing. Ex. I at 2, 3, 5; Ex. J at 1, 3. As another example, Defendant provides support to its customers. Ex. K at 2.

117. On information and belief, despite Defendant's knowledge of the '869 patent and knowledge that customers will necessarily infringe the '869 patent when the Vision 60 and Spirit 40 products are used as instructed, Defendant continues to encourage infringement.

118. Defendant also contributes to infringement of the '869 patent by Defendant's customers in violation of 35 U.S.C. §271(c). On information and belief, Defendant offers to sell and sells within the United States the Vision 60 and Spirit 40 products knowing that they are especially made or especially adapted for use in infringing the '869 patent, and knowing that the Vision 60 and Spirit 40 products are not staple articles or commodities of commerce suitable for substantial non-infringing use.

119. Defendant has committed and continues to commit all of the above acts of infringement without license or authorization.

120. Boston Dynamics has complied with the requirements of 35 U.S.C. § 287 by, among other things, and giving actual notice of the '869 patent to Defendant no later than May 9, 2022. Defendant also knew or should have known of the '869 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

121. As a result of Defendant's infringement of the '869 patent, Plaintiff has suffered damages and will continue to suffer damages.

122. On information and belief, the infringement of the '869 patent by Defendant has been and continues to be willful. Defendant has had knowledge of the '869 patent and knowledge that the Vision 60 and Spirit 40 products are covered by the '869 patent since at least May 9, 2022. Defendant has thus sold the Vision 60 and Spirit 40 products knowing of the risk of infringement and/or in view of a risk of infringement that was sufficiently obvious that it should have been

known to Defendant. Despite this risk, Defendant has deliberately continued to infringe in a wanton, malicious, and egregious manner, with reckless disregard for Boston Dynamics' patent rights. Thus, Defendant's infringing actions have been and continue to be knowingly wrongful, entitling Boston Dynamics to increased damages under 35 U.S.C. § 284.

123. Under 35 U.S.C. § 283, Boston Dynamics is entitled to a permanent injunction against further infringement. Defendant's wrongful conduct has caused and will continue to cause Boston Dynamics to suffer irreparable harm resulting from the loss of its lawful patent right to exclude others from making, using selling, offering to sell, and/or importing Boston Dynamics' patented inventions. On information and belief, Defendant will continue to infringe the '869 patent unless permanently enjoined by the Court.

COUNT IV-- INFRINGEMENT OF THE '588 PATENT

124. The allegations in the preceding paragraphs are incorporated by reference as if fully set forth herein.

125. Defendant has directly infringed, and continues to directly infringe, claims 1-7, 9, 11, and 12-16 of the '588 patent by using and testing the Vision 60 and Spirit 40 products in the United States, and induced and contributed to the infringement of the '588 patent by others.

126. For example, and without limitation, on information and belief, the Vision 60 and Spirit 40 products meet every limitation of at least independent claims 1 and 12 of the '588 patent, as Defendant's use and testing of the Vision 60 and Spirit 40 directly infringes claims 1 and 12 of the '588 patent under 35 U.S.C. § 271(a).

127. For example, claim 1 of the '588 patent recites:

1. A method comprising:

detecting a disturbance to a gait of a robot, wherein the gait comprises a swing state and a step down state, the swing state comprising a target swing trajectory for a first foot of the robot during a step, and wherein the target swing trajectory during the step comprises a beginning at a first time, and an end at a second time;

based on the detected disturbance, causing the first foot of the robot to leave the swing state and enter the step down state before the second time;

after causing the first foot to enter the step down state before the second time, causing the first foot to make contact with a ground surface; and

based on the first foot making contact with the ground surface, causing a second foot to lift off of the ground surface.

128. The Vision 60 product is capable of detecting a disturbance to a gait of a robot. For example, Defendant's product information states that the Vision 60 product is capable of traversing "[a]ny Terrain [--] Traverse a range of terrains & substrates, including stairs using vision and blind-mode." Ex. I at 3.

129. The Vision 60 product is capable of having a gait that comprises a swing state and a step down state, the swing state comprising a target swing trajectory for a first foot of the robot during a step, and wherein the target swing trajectory during the step comprises a beginning at a first time, and an end at a second time. The Vision 60 products legs have three states: a swing state, a step down state, and a stance state, wherein the target swing trajectory during the step comprises a beginning at a first time, and an end at a second time.²⁹

²⁹ Sam Eckholm, *Robotic Ghost Dog | The Future of Military Security?*, YOUTUBE (May 1, 2021), <https://www.youtube.com/watch?v=3UBIQVB7vYI> at 3:58-3:59.

For example, at a first time, the Vision 60 product's left hind leg enters a swing state:



For example, at a second time, the Vision 60 product's left hind leg enters a step down state:



For example, the Vision 60 product is capable of standing in a stance state:



130. The Vision 60 product is capable, based on the detected disturbance, of causing the first foot of the robot to leave the swing state and enter the step down state before the second time, and after causing the first foot to enter the step down state before the second time, causing the first foot to make contact with a ground surface. The Vision 60 product is able to handle gait disturbances, and does so by a foot prematurely leaving the swing state and entering the step down state.³⁰ For example, after encountering a disturbance, the Vision 60 product's right front leg enters a swing state at a first time:



For example, after encountering a disturbance, the Vision 60 product's right front leg enters a step down state at a second time:



³⁰ Ghost Robotics, *Vision 60 4th Gen Q-UGV: Ultrafast Control Core Balancing On Ice*, YOUTUBE (Jan. 22, 2021), <https://www.youtube.com/watch?v=BQ5G011RLy0> at 0:06.

For example, after encountering a disturbance, the Vision 60 product's first foot makes contact with the ground surface:



131. The Vision 60 product is capable, based on the first foot making contact with the ground surface, of causing a second foot to lift off of the ground surface. After the first foot makes contact, the second foot lifts off the ground.³¹



132. As another example, claim 12 of the '588 patent recites:

12. A method comprising:

determining, by a robot having a first foot and a second foot, a gait comprising a swing state and a stance state, the swing state comprising a target swing trajectory for the first foot of the robot during a step, wherein

³¹ *Id.* at 0:07.

the target swing trajectory during the step comprises a beginning at a first time, and an end at a second time;

detecting an indication that the first foot of the robot has contacted a ground surface before the second time; and

based on the detected indication, causing the second foot of the robot to lift off of the ground surface.

133. The Vision 60 product is capable of determining, by a robot having a first foot and a second foot, a gait comprising a swing state and a stance state, the swing state comprising a target swing trajectory for the first foot of the robot during a step, wherein the target swing trajectory during the step comprises a beginning at a first time, and an end at a second time. The Vision 60 product's legs have three states: a swing state, a step down state, and a stance state, wherein the target swing trajectory during the step comprises a beginning at a first time, and an end at a second time.³² For example, at a first time, the Vision 60 product's right front leg enters a swing state:



For example, after encountering a disturbance, the Vision 60 product's right front leg enters a step down state at a second time:

³² Sam Eckholm, *Robotic Ghost Dog | The Future of Military Security?*, YOUTUBE (May 1, 2021), <https://www.youtube.com/watch?v=3UBIQVB7vYI> at 3:58-3:59.



Vision 60 4th Gen Q-UGV: Ultrafast Control Core Balancing On Ice

For example, after encountering a disturbance, the first foot of the Vision 60 product makes contact with the ground surface:



Vision 60 4th Gen Q-UGV: Ultrafast Control Core Balancing On Ice

134. The Vision 60 product is capable of detecting an indication that the first foot of the robot has contacted a ground surface before the second time, and, based on the first foot making contact with the ground surface, of causing a second foot to lift off of the ground surface. After the first foot makes contact, the second foot lifts off the ground.³³

³³ *Id.* at 0:07.



135. On information and belief, the Spirit 40 product has these same capabilities as the Vision 60, product and thus similarly infringes claim 1 and 12 of the '588 patent.

136. Thus, the Vision 60 and Spirit 40 products meet every limitation of at least independent claims 1 and 12 of the '588 patent and Defendant directly infringes at least claims 1 and 12 by use and testing the Vision 60 and Spirit 40 products in violation of 35 U.S.C. § 271(a).

137. Defendant also has indirectly infringed and continues to indirectly infringe the claims of the '588 patent by inducing infringement pursuant to 35 U.S.C. § 271(b) and contributing to infringement pursuant to 35 U.S.C. § 271(c).

138. On information and belief, in violation of 35 U.S.C. § 271(b), Defendant specifically intended to induce infringement of the '588 patent by its customers and users of the Vision 60 and Spirit 40 products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that their inducing acts would cause infringement.

139. Defendant has known of the '588 patent since at least as early as March 1, 2021, when it was identified by Boston Dynamics to Defendant. Boston Dynamics cited the '588 patent to Defendants again on May 9, 2022. Defendant also knew or should have known of the '588

patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

140. On information and belief, Defendant's customers directly infringe the '588 patent. For example, when the Vision 60 and Spirit 40 products are sold to customers, those customers infringe at least independent claims 1 and 12 of the '588 patent through the use of the Vision 60 and Spirit 40 products.

141. On information and belief, Defendant specifically intends that its customers infringe the '588 patent. Defendant encourages infringement by customers at least by providing product support instructing users on how to use the Vision 60 and Spirit 40 products. For example, Defendant provides a specification sheet. Exs. I, J. The specification sheet describes the features of the Vision 60 and Spirit 40 product, including "self-right." Ex. I at 3, 5; Ex. J at 1, 3. As another example, Defendant provides support to its customers. Ex. K at 2.

142. On information and belief, despite Defendant's knowledge of the '588 patent and knowledge that customers will necessarily infringe the '588 patent when the Vision 60 and Spirit 40 products are used as instructed, Defendant continues to encourage infringement.

143. Defendant also contributes to infringement of the '588 patent by Defendant's customers in violation of 35 U.S.C. §271(c). On information and belief, Defendant offers to sell and sells within the United States the Vision 60 and Spirit 40 products knowing that they are especially made or especially adapted for use in infringing the '588 patent, and knowing that the Vision 60 and Spirit 40 products are not staple articles or commodities of commerce suitable for substantial non-infringing use.

144. Defendant has committed and continues to commit all of the above acts of infringement without license or authorization.

145. Boston Dynamics has complied with the requirements of 35 U.S.C. § 287 by, among other things, marking its products with the '588 patent, and giving actual notice to Defendant no later than March 1, 2021, and giving actual notice again no later than May 9, 2022. Defendant also knew or should have known of the '588 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

146. As a result of Defendant's infringement of the '588 patent, Plaintiff has suffered damages and will continue to suffer damages.

147. On information and belief, the infringement of the '588 patent by Defendant has been and continues to be willful. Defendant has had knowledge of the '588 patent and knowledge that the Vision 60 and Spirit 40 products are covered by the '588 patent since at least March 1, 2021. Defendant has thus sold the Vision 60 and Spirit 40 products knowing of the risk of infringement and/or in view of a risk of infringement that was sufficiently obvious that it should have been known to Defendant. Despite this risk, Defendant has deliberately continued to infringe in a wanton, malicious, and egregious manner, with reckless disregard for Boston Dynamics' patent rights. Thus, Defendant's infringing actions have been and continue to be knowingly wrongful, entitling Boston Dynamics to increased damages under 35 U.S.C. § 284.

148. Under 35 U.S.C. § 283, Boston Dynamics is entitled to a permanent injunction against further infringement. Defendant's wrongful conduct has caused and will continue to cause Boston Dynamics to suffer irreparable harm resulting from the loss of its lawful patent right to exclude others from making, using selling, offering to sell, and/or importing Boston Dynamics' patented inventions. On information and belief, Defendant will continue to infringe the '588 patent unless permanently enjoined by the Court.

COUNT V—INFRINGEMENT OF THE '842 PATENT

149. The allegations in the preceding paragraphs are incorporated by reference as if fully set forth herein.

150. Defendant has directly infringed, and continues to directly infringe, claims 1-15 of the '842 patent by making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products, and contributed to and/or induced infringement of the '842 patent by others.

151. For example, and without limitation, on information and belief, the Vision 60 and Spirit 40 products meet every limitation of at least independent claims 1 and 8 of the '842 patent, Defendant's use and testing of the Vision 60 and Spirit 40 directly infringes claim 1 of the '842 patent, and Defendant's making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products directly infringes claim 8 of the '842 patent under 35 U.S.C. § 271(a).

152. For example, claim 1 of the '842 patent recites:

1. A computer-implemented method when executed by data processing hardware of a robot causes the data processing hardware to perform operations comprising:
 - receiving image data from a vision system of the robot, the image data depicting that the robot is proximate to a staircase;
 - communicating the image data to a remote controller operated by a user of the robot, the remote controller configured to display the image data and a graphical user interface for activating a stair mode;
 - receiving, from the remote controller, a command to activate the stair mode of the robot; and

in response to receiving the command to activate the stair mode of the robot, causing the robot to traverse the staircase using one or more controllers dedicated to stair traversal by constraining a stride length corresponding to a distance that a respective swing leg of the robot travels from lift-off to touchdown as the robot traverses the staircase using the one or more controllers dedicated to stair traversal,

wherein the stair mode engages an obstacle avoidance protocol comprising

identifying an obstacle while traversing the staircase based on the received sensor data from the vision system; and

instructing the robot to move along an avoidance path avoiding the obstacle, the avoidance path maintaining a heading for the robot in a traversal direction either up or down the staircase.

153. The Vision 60 product is a robot that is capable of using data processing hardware to perform operations. For example, Defendant's product information states that the Vision 60 product has "Ghost OS and Robot Software[--] Comprehensive, low-level core control to higher application development environment and APIs, simulation, diagnostic tools, and applications." Ex. I at 5.

154. The Vision 60 product uses image data from a vision system of the robot, the image data depicting that the robot is proximate to a staircase, and communicates the image data to a remote controller operated by a user of the robot. On information and belief, the Vision 60 product

receives image data from the robot's vision system, and communicates that information to the user via the remote controller.³⁴



155. The Vision 60 product has a remote controller configured to display the image data and a graphical user interface for activating a stair mode, and is configured to receive from the remote controller, a command to activate the stair mode of the robot. The Vision 60 product controller offers the user an option to navigate stairs. On information and belief, the robot reacts in response to this command by the user.³⁵

³⁴ Airman 1st Class Anabel Del Valle, *Robot dogs Arrive at Tyndall AFB*, UNITED STATES AIR FORCE (March 29, 2021), <https://www.af.mil/News/Article-Display/Article/2551037/robot-dogs-arrive-at-tyndall-afb/>; *see also* <https://media.defense.gov/2021/Mar/25/2002608620/-1/-1/0/210324-F-PU499-1010.JPG>.

³⁵ Jared Keller, *The Air Force Just Tested 'Robot Dogs' To Help Security Forces Keep an Eye on Their Bases*, INSIDER (Sept. 8, 2020), https://www.businessinsider.com/air-force-tests-robot-dogs-to-support-base-security-forces-2020-9?fbclid=IwAR11z3Rz55ckSBI4TMIhNZh_OEt_O_814e1VczyG1dKj_4zcQ3s_YaGFUE.



156. The Vision 60 product is capable, in response to receiving the command to activate the stair mode of the robot, of causing the robot to traverse the staircase using one or more controllers dedicated to stair traversal by constraining a stride length corresponding to a distance that a respective swing leg of the robot travels from lift-off to touchdown as the robot traverses the staircase using the one or more controllers dedicated to stair traversal. For example, the Vision 60 product is able to traverse the stairs.³⁶ For example, this is how the Vision 60 product looks when the left foreleg initially plants:

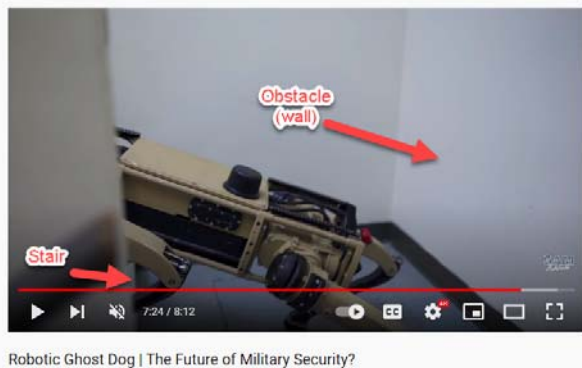


³⁶ Ghost Robotics, *Perception-Based Stair Climbing & Obstacle Management*, YOUTUBE (July 23, 2020), https://www.youtube.com/watch?v=5sE_zssS4EQ at 0:02-0:03

And this is how the Vision 60 product looks after the right foreleg swings up:



157. The Vision 60 product, while in stair mode, engages an obstacle avoidance protocol comprising identifying an obstacle while traversing the staircase based on the received sensor data from the vision system; and instructing the robot to move along an avoidance path avoiding the obstacle, the avoidance path maintaining a heading for the robot in a traversal direction either up or down the staircase. The Vision 60 product engages in obstacle sensing and avoidance protocol.³⁷ For example, the below image shows the Vision 60 product sensing an obstacle, the wall:



For example, the below image shows the Vision 60 product avoiding the obstacle:

³⁷ Sam Eckholm, *Robotic Ghost Dog | The Future of Military Security?*, YOUTUBE (May 1, 2021), <https://www.youtube.com/watch?v=3UBIQVB7vYI>.



158. For example, claim 8 of the '842 patent recites:

8. A robot comprising:

a body

four legs coupled to the body and configured to traverse a set of stairs within an environment; and

a control system in communication with the robot, the control system comprising data processing hardware and memory hardware in communication with the data processing hardware, the memory hardware storing instructions that when executed on the data processing hardware cause the data processing hardware to perform operations comprising:

receiving image data from a vision system of the robot, the image data depicting that the robot is proximate to a staircase:

communicating the image data to a remote controller operated by a user of the robot, the remote controller configured to display the image data and a graphical user interface for activating a stair mode;

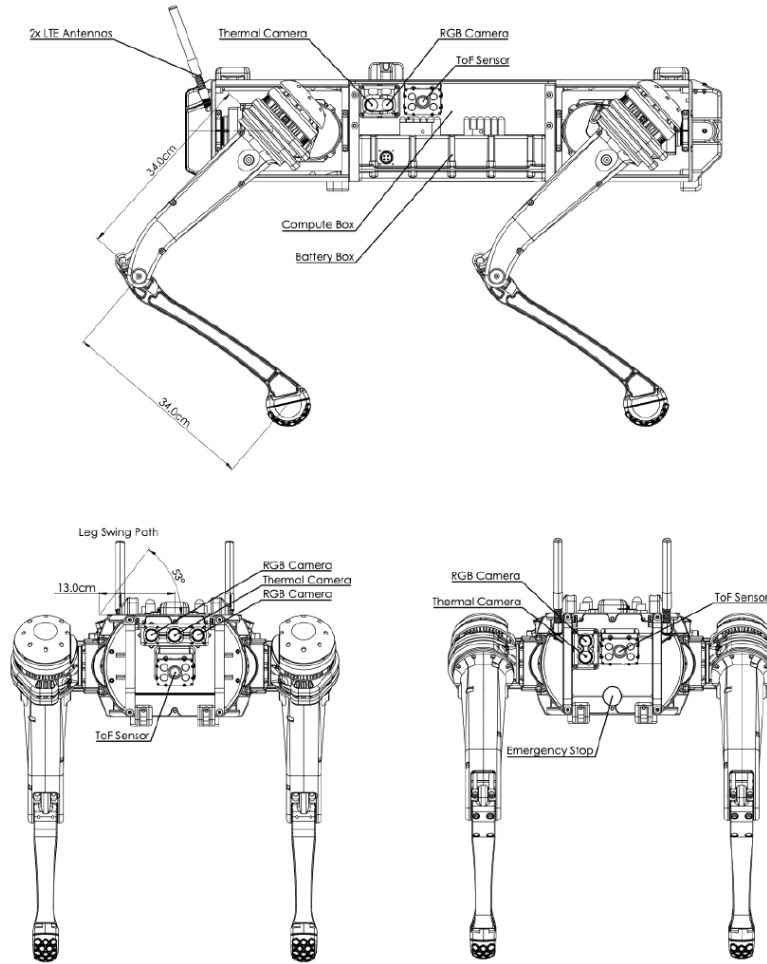
receiving, from the remote controller, a command to activate the stair mode of the robot; and

in response to receiving the command to activate the stair mode of the robot, causing the robot to traverse the staircase using one or more controllers dedicated to stair traversal by constraining a stride length corresponding to a distance that a respective swing leg of the robot travels from lift-off to touchdown as the robot traverses the staircase using the one or more controllers dedicated to stair traversal,

wherein the stair mode engages an obstacle avoidance protocol comprising

identifying an obstacle while traversing the staircase based on the received sensor data from the vision system; and instructing the robot to move along an avoidance path avoiding the obstacle, the avoidance path maintaining a heading for the robot in a traversal direction either up or down the staircase.

159. The Vision 60 product is a robot comprising a body, four legs coupled to the body and configured to traverse a set of stairs within an environment. For example, Vision 60 product documentation illustrates that it has two or more legs extending from a body of the legged robotic device:



Ex. I at 7.

160. The Vision 60 product has a control system in communication with the robot, the control system comprising data processing hardware and memory hardware in communication with the data processing hardware, the memory hardware storing instructions that when executed on the data processing hardware cause the data processing hardware to perform operations. For example, Defendant’s product information states that the Vision 60 product has “Ghost OS and Robot Software[–] Comprehensive, low-level core control to higher application development environment and APIs, simulation, diagnostic tools, and applications.” Ex. I at 5.

161. The Vision 60 product is capable of receiving image data from a vision system of the robot, the image data depicting that the robot is proximate to a staircase, communicating the image data to a remote controller operated by a user of the robot, the remote controller configured to display the image data. The Vision 60 product receives image data from the robot's vision system, and communicates that information to the user via the remote controller.³⁸

For example, the below image shows the Vision 60 product controller displaying what is in front of the user:



162. The Vision 60 product has a graphical user interface for activating a stair mode, and is capable of receiving, from the remote controller, a command to activate the stair mode of the robot. The Vision 60 product controller offers the user an option to navigate stairs. On information and belief, the robot reacts in response to this command by the user.³⁹

³⁸ Airman 1st Class Anabel Del Valle, *Robot dogs Arrive at Tyndall AFB*, UNITED STATES AIR FORCE (March 29, 2021), <https://www.af.mil/News/Article-Display/Article/2551037/robot-dogs-arrive-at-tyndall-afb/>; *see also* <https://media.defense.gov/2021/Mar/25/2002608620/-1/-1/0/210324-F-PU499-1010.JPG>.

³⁹ Jared Keller, *The Air Force Just Tested 'Robot Dogs' To Help Security Forces Keep an Eye on Their Bases*, INSIDER (Sept. 8, 2020), <https://www.businessinsider.com/air-force-tests-robot-dogs->



Rodriguez controls a Ghost Robotics Vision 60 prototype while on patrol during an exercise on Nellis Air Force Base, September 3, 2020. US Air Force/Tech Sgt. Cory D. Payne



163. The Vision 60 product is capable, in response to receiving the command to activate the stair mode of the robot, of causing the robot to traverse the staircase using one or more controllers dedicated to stair traversal by constraining a stride length corresponding to a distance that a respective swing leg of the robot travels from lift-off to touchdown as the robot traverses the staircase using the one or more controllers dedicated to stair traversal. For example, the Vision 60 product is able to traverse the stairs.⁴⁰ For example, the Vision 60 product's left foreleg initially plants:

to-support-base-security-forces-2020-9?fbclid=IwAR11z3Rz55ckSBI4TMIhNZh_OEt_O_814e1VczyG1dKj_4zcQ3s_YaGFUE.

⁴⁰ Ghost Robotics, *Perception-Based Stair Climbing & Obstacle Management*, YOUTUBE (July 23, 2020), https://www.youtube.com/watch?v=5sE_zssS4EQ at 0:02-0:03



For example, the Vision 60 product's left foreleg looks like the below after the right foreleg swings up:



164. The Vision 60 product has a stair mode that engages an obstacle avoidance protocol comprising identifying an obstacle while traversing the staircase based on the received sensor data from the vision system; and instructing the robot to move along an avoidance path avoiding the obstacle, the avoidance path maintaining a heading for the robot in a traversal direction either up or down the staircase. The Vision 60 product engages in obstacle sensing and avoidance protocol.⁴¹ For example, the below image shows the Vision 60 product sensing an obstacle, the wall:

⁴¹ Sam Eckholm, *Robotic Ghost Dog | The Future of Military Security?*, YOUTUBE (May 1, 2021), <https://www.youtube.com/watch?v=3UBIQVB7vYI>.



For example, the below image shows the Vision 60 product avoiding the obstacle:



165. On information and belief, the Spirit 40 product has these same capabilities as the Vision 60 product, and thus similarly infringes claim 1 and 8 of the '842 patent.

166. Thus, the Vision 60 and Spirit 40 products meet every limitation of at least independent claims 1 and 8 of the '842 patent and Defendant directly infringes at least claim 1 by use and testing the Vision 60 and Spirit 40 products and directly infringes at least claim 8 by making, using, offering for sale, selling, and/or importing into the United States the Vision 60 and Spirit 40 products in violation of 35 U.S.C. § 271(a).

167. Defendant also has indirectly infringed and continues to indirectly infringe the claims of the '842 patent by inducing infringement pursuant to 35 U.S.C. § 271(b) and contributing to infringement pursuant to 35 U.S.C. § 271(c).

168. On information and belief, in violation of 35 U.S.C. § 271(b), Defendant specifically intended to induce infringement of the '842 patent by its customers and users of the Vision 60 and Spirit 40 products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that their inducing acts would cause infringement.

169. Defendant has known of the '842 patent since at least as early as May 9, 2022, when it was identified by Boston Dynamics to Defendant. Defendant also knew or should have known of the '842 patent because Boston Dynamics marks its products with the patent (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

170. On information and belief, Defendant's customers directly infringe the '842 patent. For example, when the Vision 60 and Spirit 40 product are sold to customers, those customers infringe at least independent claims 1 and 8 of the '842 patent through the use of the Vision 60 and Spirit 40 products.

171. On information and belief, Defendant specifically intends that its customers infringe the '842 patent. Defendant encourages infringement by customers at least by providing product support instructing users on how to use the Vision 60 and Spirit 40 products. For example, Defendant provides a specification sheet. Exs. I, J. The specification sheet describes the features of the Vision 60 and Spirit 40 products, including stairclimbing. Ex. I at 2, 3, 5; Ex. J at 1, 3. As another example, Defendant provides support to its customers. Ex. K at 2.

172. On information and belief, despite Defendant's knowledge of the '842 patent and knowledge that customers will necessarily infringe the '842 patent when the Vision 60 and Spirit 40 products are used as instructed, Defendant continues to encourage infringement.

173. Defendant also contributes to infringement of the '842 patent by Defendant's customers in violation of 35 U.S.C. §271(c). On information and belief, Defendant offers to sell and sells within the United States the Vision 60 and Spirit 40 products knowing that they are especially made or especially adapted for use in infringing the '842 patent, and knowing that the Vision 60 and Spirit 40 products are not staple articles or commodities of commerce suitable for substantial non-infringing use.

174. Defendant has committed and continues to commit all of the above acts of infringement without license or authorization.

175. Boston Dynamics has complied with the requirements of 35 U.S.C. § 287 by, among other things, and giving actual notice of the '842 patent to Defendant no later than May 9, 2022. Defendant also knew or should have known of the '842 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

176. As a result of Defendant's infringement of the '842 patent, Plaintiff has suffered damages and will continue to suffer damages.

177. On information and belief, the infringement of the '842 patent by Defendant has been and continues to be willful. Defendant has had knowledge of the '842 patent and knowledge that the Vision 60 and Spirit 40 products are covered by the '842 patent since at least May 9, 2022. Defendant has thus sold the Vision 60 and Spirit 40 products knowing of the risk of infringement and/or in view of a risk of infringement that was sufficiently obvious that it should have been known to Defendant. Despite this risk, Defendant has deliberately continued to infringe in a wanton, malicious, and egregious manner, with reckless disregard for Boston Dynamics' patent

rights. Thus, Defendant's infringing actions have been and continue to be knowingly wrongful, entitling Boston Dynamics to increased damages under 35 U.S.C. § 284.

178. Under 35 U.S.C. § 283, Boston Dynamics is entitled to a permanent injunction against further infringement. Defendant's wrongful conduct has caused and will continue to cause Boston Dynamics to suffer irreparable harm resulting from the loss of its lawful patent right to exclude others from making, using selling, offering to sell, and/or importing Boston Dynamics' patented inventions. On information and belief, Defendant will continue to infringe the '842 patent unless permanently enjoined by the Court.

COUNT VI—INFRINGEMENT OF THE '855 PATENT

179. The allegations in the preceding paragraphs are incorporated by reference as if fully set forth herein.

180. Defendant has directly infringed, and continues to directly infringe, claims 1-5, 8, 9, 11, and 13 of the '855 patent by making, using, offering for sale, selling, and/or importing into the United States the Vision 60 product.

181. For example, and without limitation, on information and belief, the Vision 60 meets every limitation of at least independent claims 1 and 13 of the '855 patent and Defendant's making, using, offering for sale, selling, and/or importing into the United States the Vision 60 directly infringes claims 1 and 13 of the '855 patent under 35 U.S.C. § 271(a).

182. For example, claim 1 of the '855 patent recites:

1. A robot comprising:

a leg having an upper leg member and a lower leg member coupled to the upper leg member at a knee joint;

a screw actuator disposed within the upper leg member, wherein the screw actuator has a screw shaft and a nut mounted coaxial to the screw shaft such that the screw shaft is rotatable within the nut;

a motor mounted at an upper portion of the upper leg member and coupled to the screw shaft;

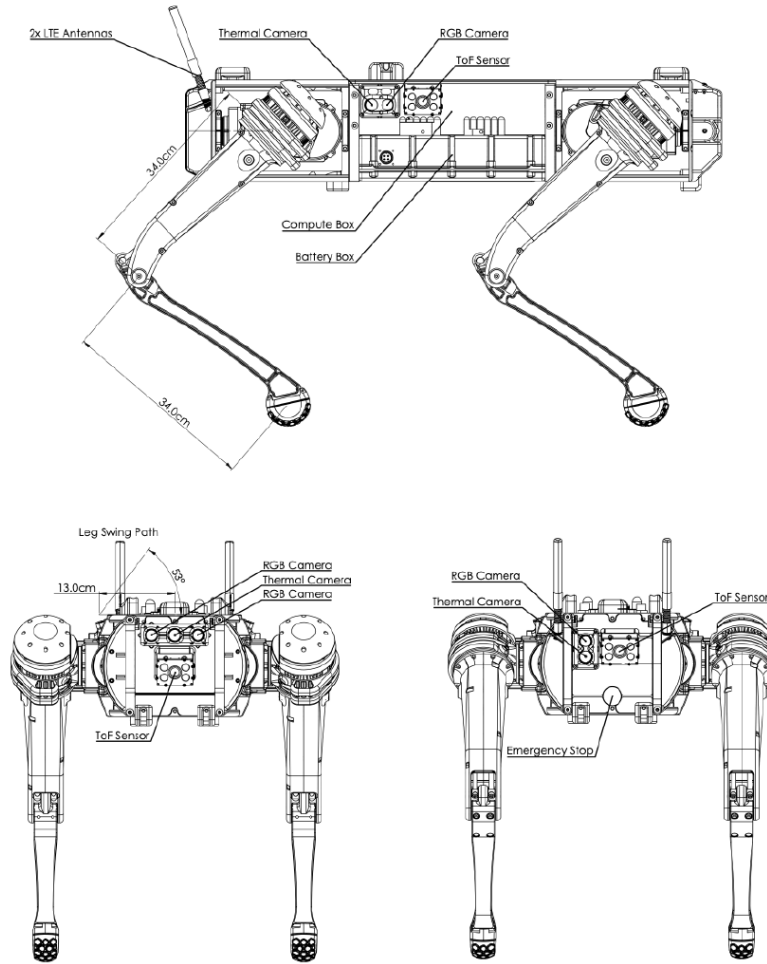
a carrier coupled and mounted coaxial to the nut such that the nut is disposed at a proximal end of the carrier;

a linkage coupled to the carrier, wherein the linkage is coupled to the lower leg member at the knee joint; and

a foot member coupled to the lower leg member, wherein the upper leg member is coupled to the lower leg member at a knee pivot at the knee joint, wherein the linkage is coupled to the lower leg member at a linkage joint disposed between the knee pivot and the foot member such that as the robot rests on a surface via the foot member, the screw shaft is subjected to a compressive force,

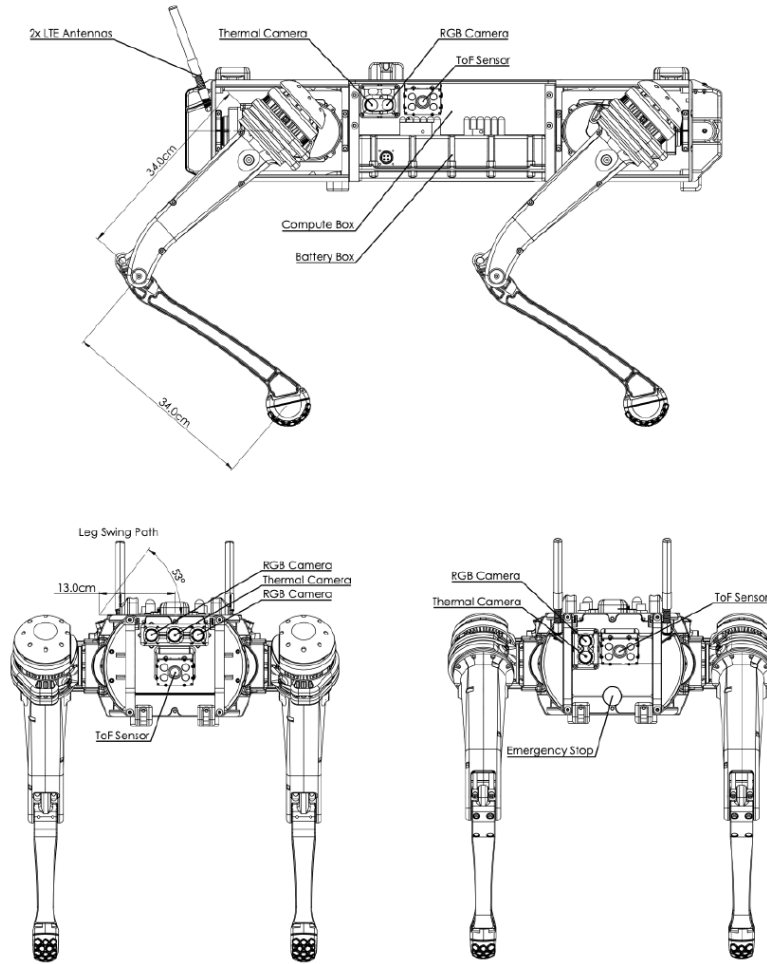
wherein rotation of the motor causes the screw shaft to rotate, which further causes (i) the nut and the carrier to travel along an axis of the screw shaft, and (ii) the linkage to rotate the lower leg member relative to the upper leg member at the knee joint.

183. The Vision 60 product is a robot comprising a leg having an upper leg member and a lower leg member coupled to the upper leg member at a knee joint. For example, Vision 60 product documentation illustrates that it has a leg having an upper leg member and a lower leg member coupled to the upper leg member at a knee joint:



Ex. I at 7.

184. The Vision 60 product has a screw actuator disposed within the upper leg member, wherein the screw actuator has a screw shaft and a nut mounted coaxial to the screw shaft such that the screw shaft is rotatable within the nut. For example, Defendant’s product information states that Vision 60 product “uses a standard drive-train with no exotic motors” and does not require “leg force sensors . . . to move across unstructured environments.” Ex. I at 2. It further states that Vision 60 uses “high-bandwidth actuators” in its legs. *Id.* A diagram in Defendant’s product information also shows linkages extending from the upper leg member and joining the lower leg member at the knee joint of the Vision 60 product, as shown below:

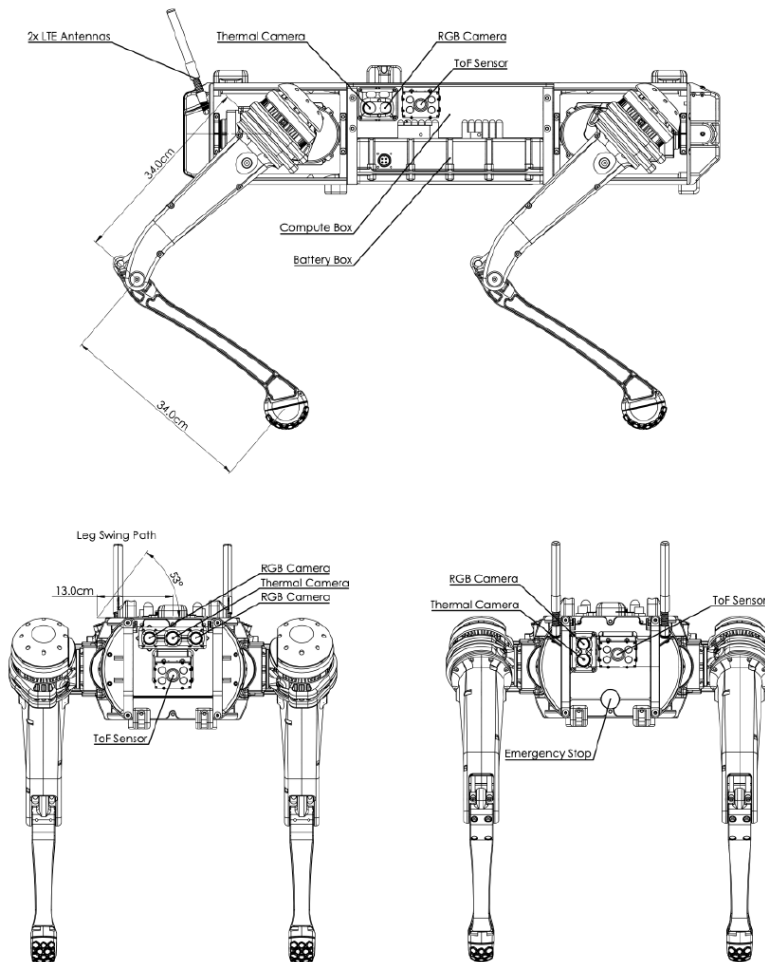


Ex. I at 7.

185. On information and belief, the linkages extending from the upper leg member to the knee where it joins the lower leg member of the Vision 60 product is indicative of a screw actuator with a screw shaft and a nut mounted coaxial to the screw shaft that is disposed in the upper leg member.

186. The Vision 60 product has a motor mounted at an upper portion of the upper leg member and coupled to the screw shaft. For example, Defendant’s product information states that “motors [are] located proximally [to the leg pod] to minimize inertia.” Ex. I at 6. A diagram in

Defendant's product information also shows a motor is located at the upper portion of each of the upper leg members, as shown below:

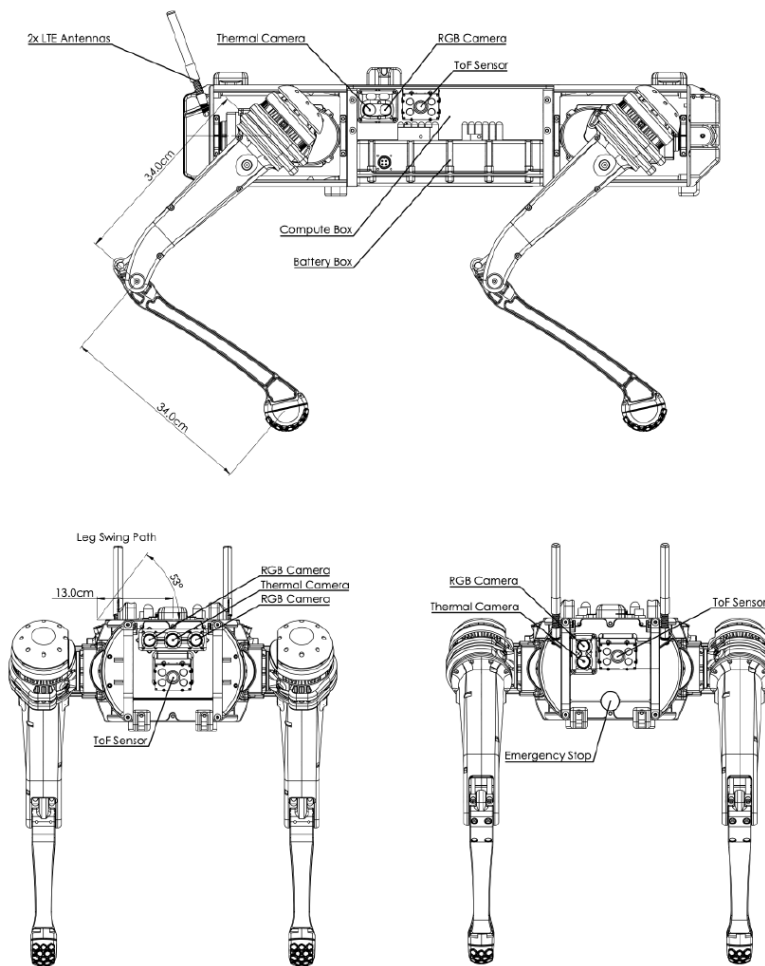


Ex. I at 7.

187. The Vision 60 product has a carrier coupled and mounted coaxial to the nut such that the nut is disposed at a proximal end of the carrier. On information and belief, the Vision 60 product contains a screw actuator that is rotated by a motor mounted on the upper portion of the upper leg member, causing the lower leg member to rotate at the knee joint. On information and belief, Vision 60 product contains a carrier mounted coaxially to the nut at the proximal end of the

carrier to facilitate the rotation of the lower leg member and transfer the force exerted on the foot member from the surface on which the foot member is resting to the screw shaft.

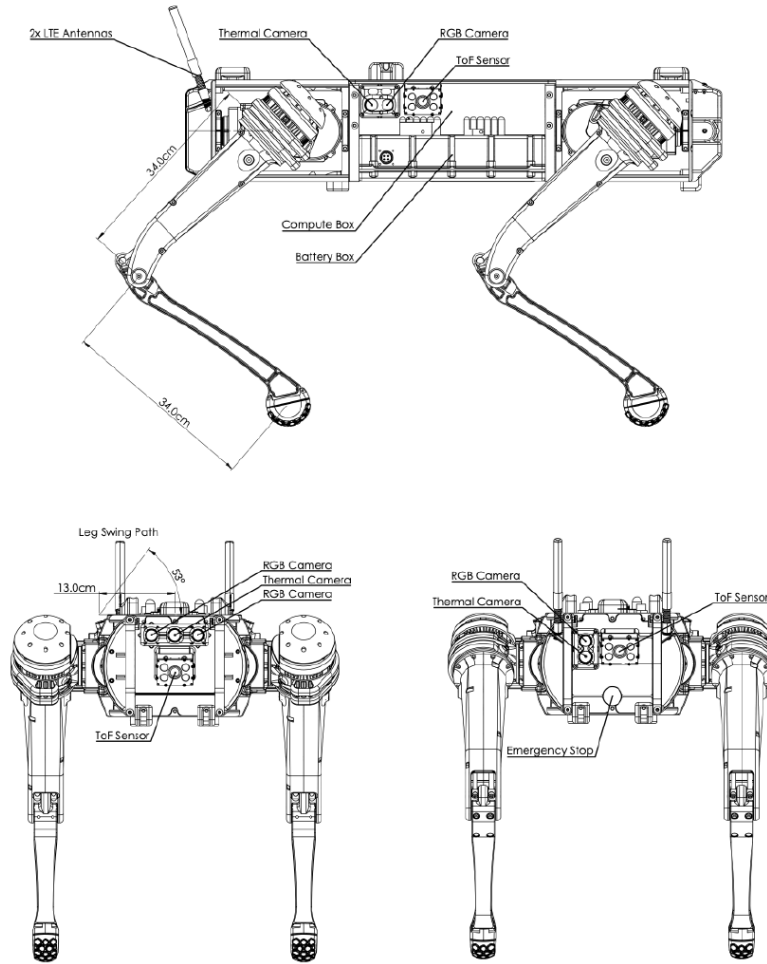
188. The Vision 60 product has a linkage coupled to the carrier, wherein the linkage is coupled to the lower leg member at the knee joint. A diagram in Defendant's product information shows linkages extending from the upper leg member joining the lower leg member at the knee joint of the Vision 60 product, as shown below:



Ex. I at 7.

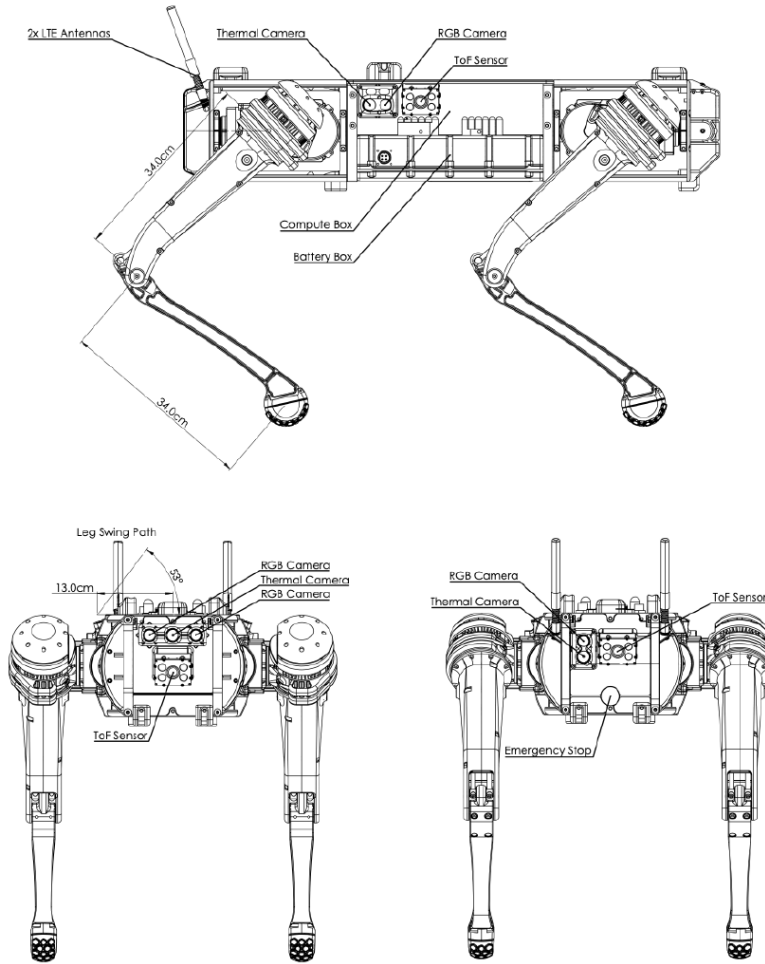
189. On information and belief, the linkage extending from the upper leg member is coupled on one end, to the carrier in the upper leg member, and on the other end, to the lower leg member at the knee joint.

190. The Vision 60 product has a foot member coupled to the lower leg member, wherein the upper leg member is coupled to the lower leg member at a knee pivot at the knee joint, wherein the linkage is coupled to the lower leg member at a linkage joint disposed between the knee pivot and the foot member such that as the robot rests on a surface via the foot member, the screw shaft is subjected to a compressive force. For example, Defendant's product information states that forces are measured by the legs of the Vision 60 product "through its high-bandwidth actuators," removing the need for leg force sensors. Ex. I at 2, 5. It also states that Vision 60 product uses Vibram toes, specifically "[r]emovable Vibram standard & substrate-specific toes," on its foot members. Ex. I at 2, 6. A diagram in Defendant's product information shows a foot member coupled to the lower leg member, an upper leg member coupled to the lower leg member at the knee joint, and the linkages extending from the upper leg member that is coupled to the lower leg member is configured to apply a compressive force on the screw shaft when the robot rests its foot member on a surface, as shown below:



Ex. I at 7.

191. The Vision 60 product's rotation of the motor causes the screw shaft to rotate, which further causes (i) the nut and the carrier to travel along an axis of the screw shaft, and (ii) the linkage to rotate the lower leg member relative to the upper leg member at the knee joint. On information and belief, the motor rotates the screw shaft, causing the nut and carrier mounted coaxially to the screw shaft to travel up and down the screw shaft, which in turn causes the linkages extending from the upper leg member that is coupled to the lower leg member to rotate the lower leg member at the knee joint. Defendant's product information supports this:



Ex. I at 7.

192. As another example, claim 13 of the '855 patent recites:

13. A robot comprising:

a leg having an upper leg member and a lower leg member coupled to the upper leg member at a knee joint;

a screw actuator disposed within the upper leg member, wherein the screw actuator has a screw shaft and a nut mounted coaxial to the screw shaft such that the screw shaft is rotatable within the nut;

a motor mounted at an upper portion of the upper leg member and coupled to the screw shaft;

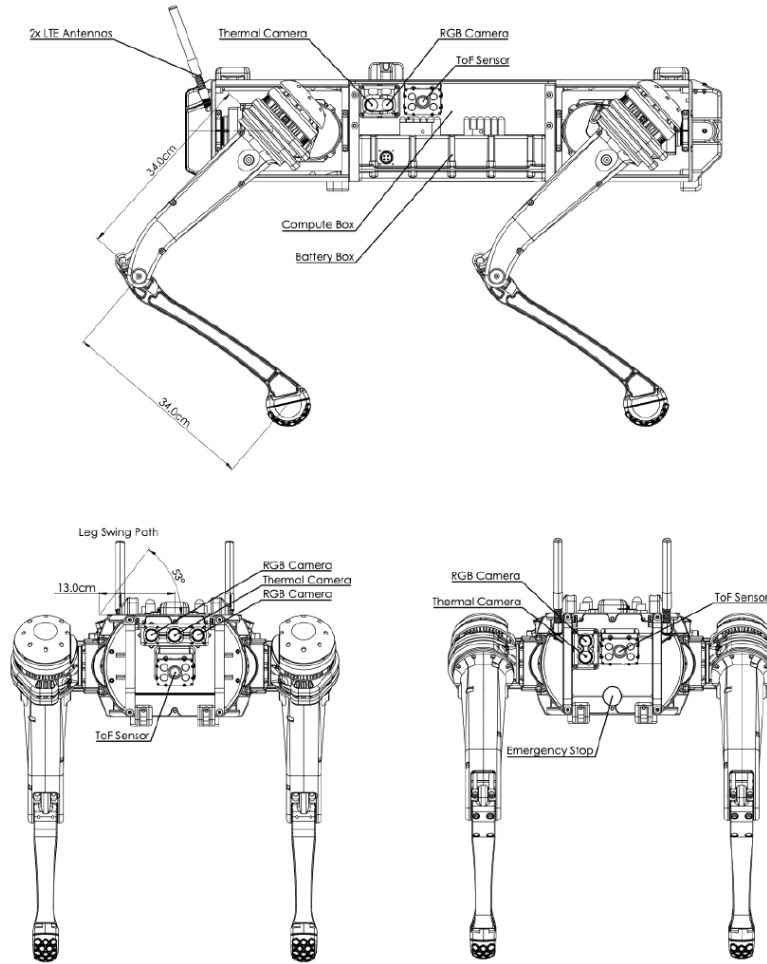
a carrier coupled and mounted coaxial to the nut such that the nut is disposed at a proximal end of the carrier; and

a linkage coupled to the carrier, wherein the linkage is coupled to the lower leg member at the knee joint,

wherein rotation of the motor causes the screw shaft to rotate, which further causes (i) the nut and the carrier to travel along an axis of the screw shaft, and (ii) the linkage to rotate the lower leg member relative to the upper leg member at the knee joint, and

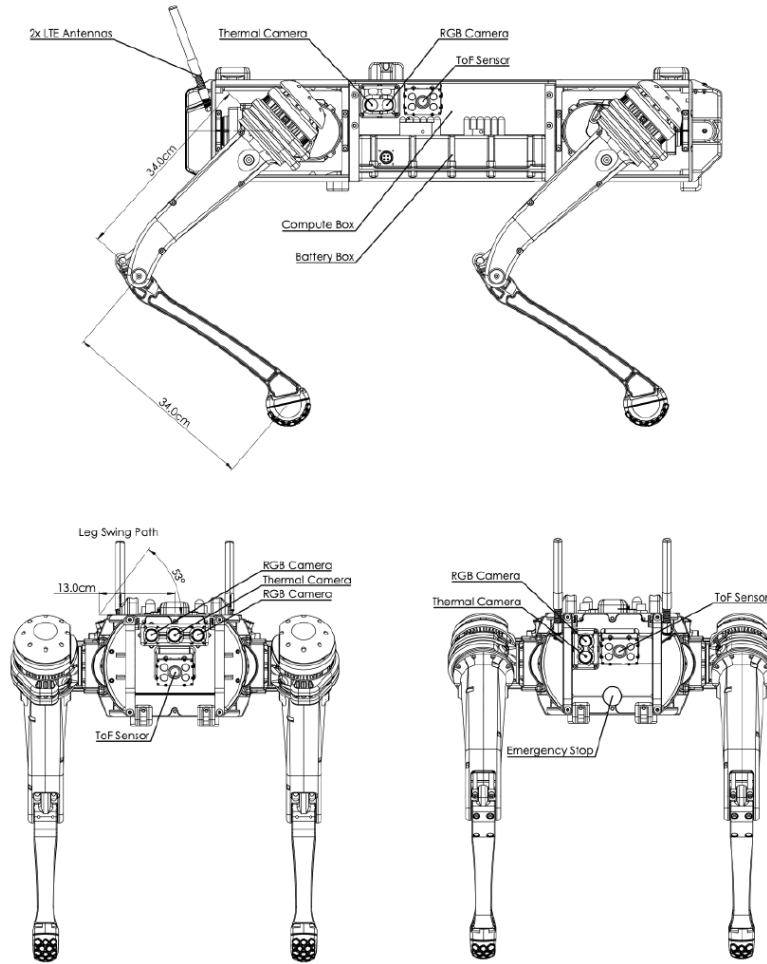
wherein the motor is mounted at a hip joint of the robot.

193. The Vision 60 product is a robot comprising a leg having an upper leg member and a lower leg member coupled to the upper leg member at a knee joint. The Defendant's product information supports this.



Ex. I at 7.

194. The Vision 60 product has a screw actuator disposed within the upper leg member, wherein the screw actuator has a screw shaft and a nut mounted coaxial to the screw shaft such that the screw shaft is rotatable within the nut. For example, Defendant’s product information states that Vision 60 product “uses a standard drive-train with no exotic motors” and does not require “leg force sensors ... to move across unstructured environments.” Ex. I at 2. It further states that Vision 60 product uses “high-bandwidth actuators” in its legs. *Id.* A diagram in Defendant’s product information also shows linkages extending from the upper leg member and joining the lower leg member at the knee joint of the Vision 60 product, as shown below:

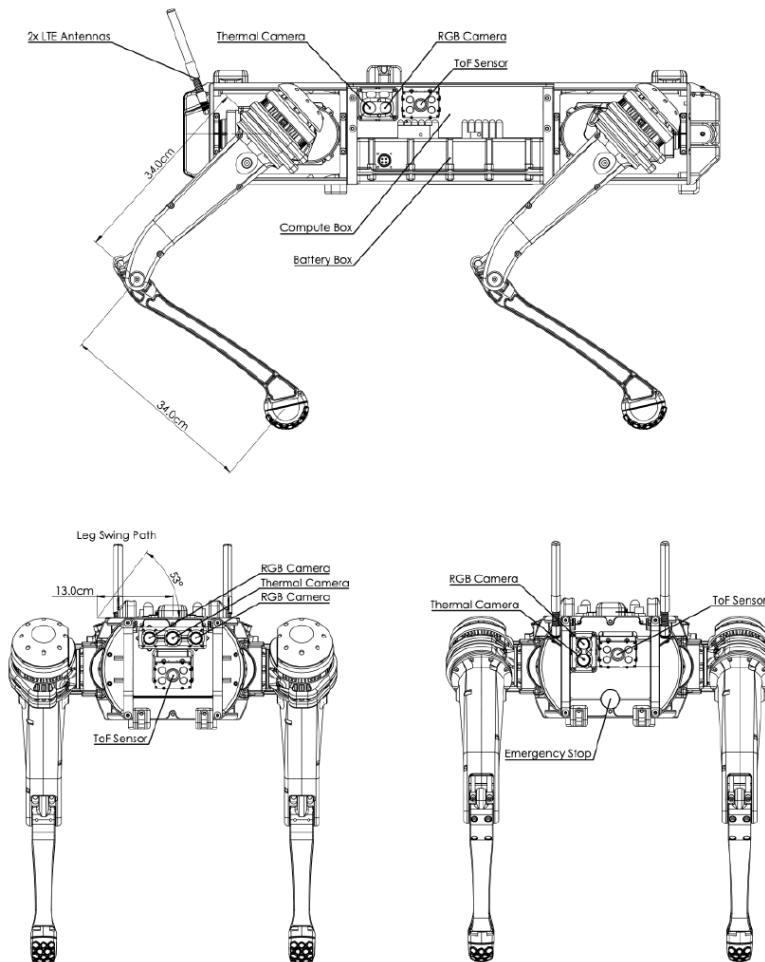


Ex. I at 7.

195. On information and belief, the linkages extending from the upper leg member to the knee where it joins the lower leg member of the Vision 60 product is indicative of a screw actuator with a screw shaft and a nut mounted coaxial to the screw shaft that is disposed in the upper leg member.

196. The Vision 60 product has a motor mounted at an upper portion of the upper leg member and coupled to the screw shaft. For example, Defendant’s product information states that “motors [are] located proximally [to the leg pod] to minimize inertia.” Ex. I at 6. A diagram in

Defendant's product information also shows a motor is located at the upper portion of each of the upper leg members, as shown below:

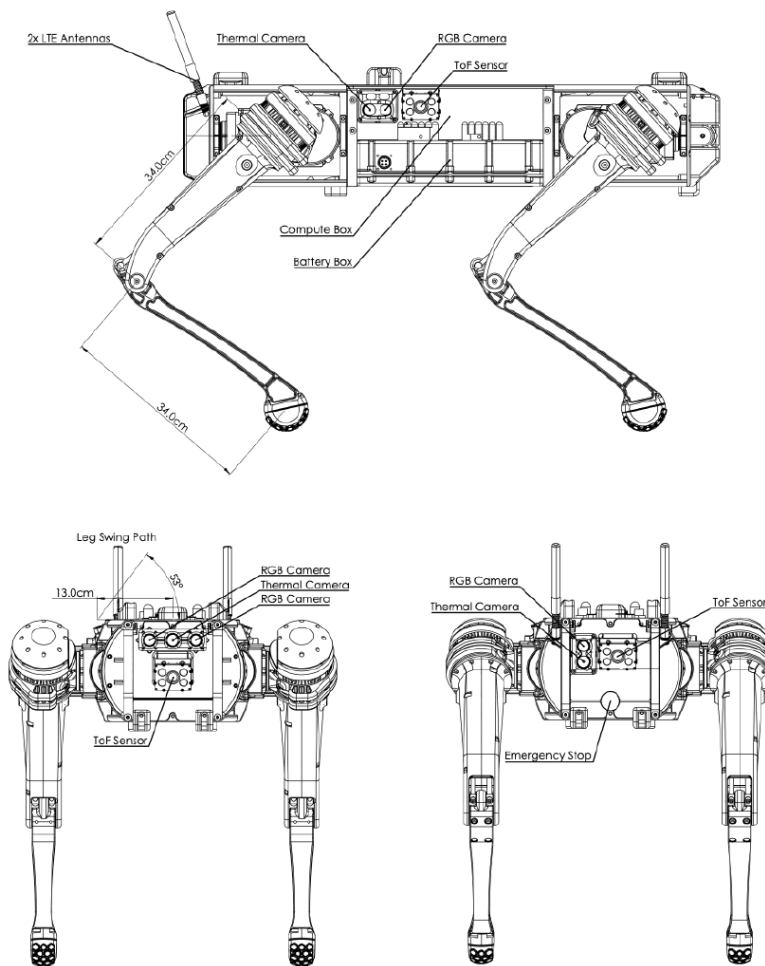


Ex. I at 7.

197. The Vision 60 product has a carrier coupled and mounted coaxial to the nut such that the nut is disposed at a proximal end of the carrier. On information and belief, the Vision 60 product contains a screw actuator that is rotated by a motor mounted on the upper portion of the upper leg member, causing the lower leg member to rotate at the knee joint. On information and belief, Vision 60 contains a carrier mounted coaxially to the nut at the proximal end of the carrier

to facilitate the rotation of the lower leg member and transfer the force exerted on the foot member from the surface on which the foot member is resting to the screw shaft.

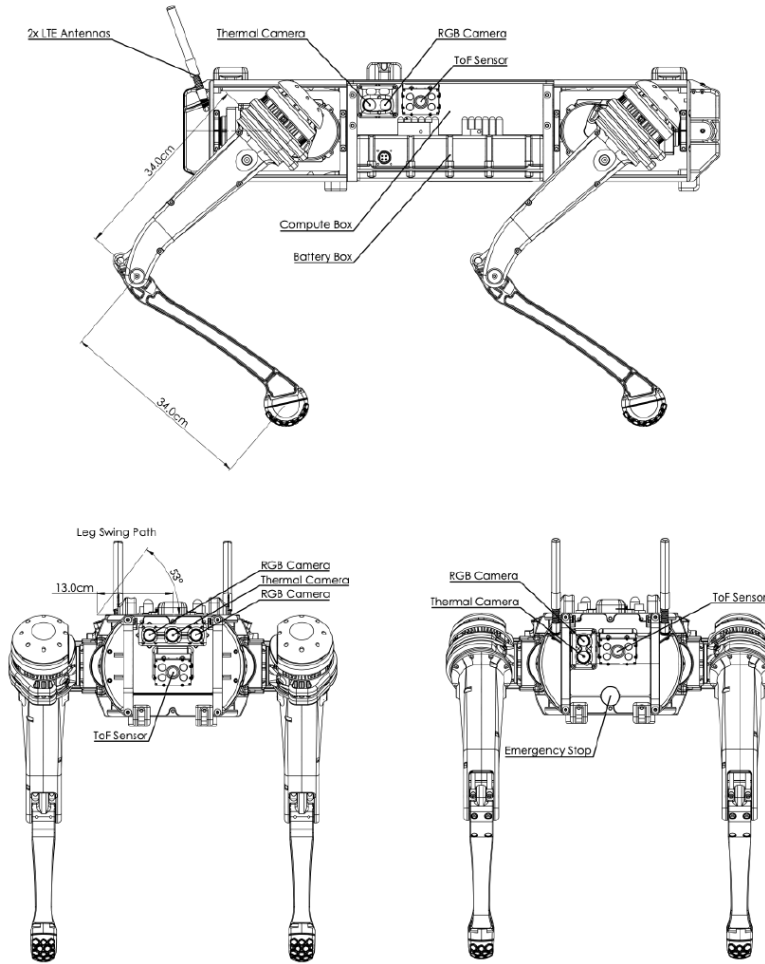
198. The Vision 60 product has a linkage coupled to the carrier, wherein the linkage is coupled to the lower leg member at the knee joint. A diagram in Defendant's product information shows linkages extending from the upper leg member joining the lower leg member at the knee joint of the Vision 60 product, as shown below:



Ex. I at 7.

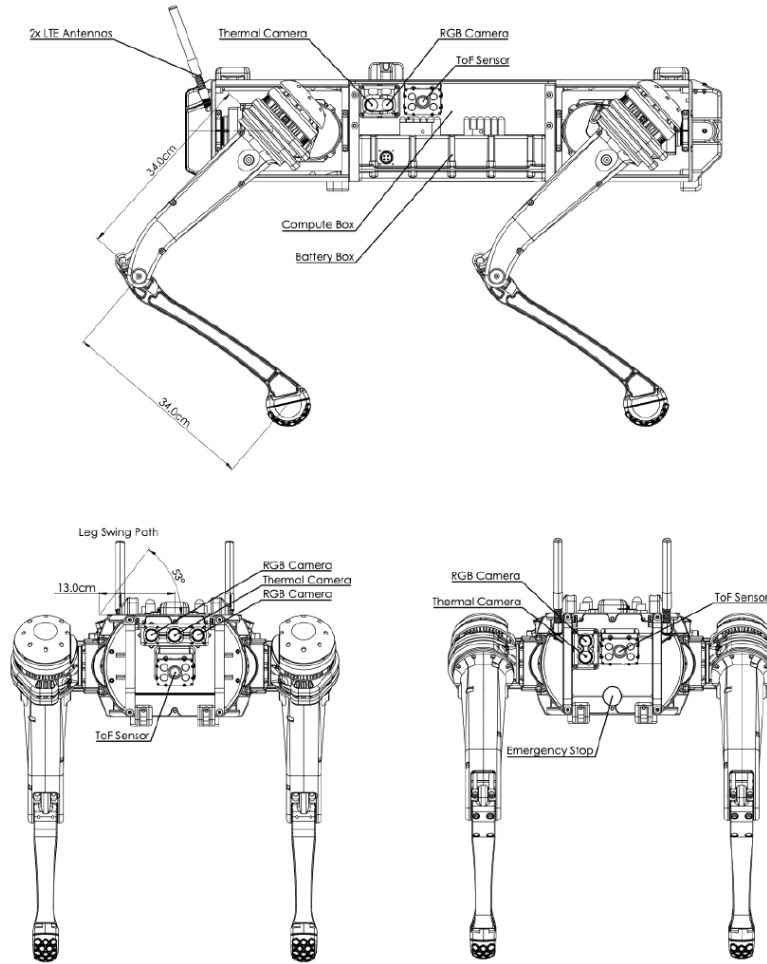
199. On information and belief, the linkage extending from the upper leg member is coupled on one end, to the carrier in the upper leg member, and on the other end, to the lower leg member at the knee joint.

200. The Vision 60 product's rotation of the motor causes the screw shaft to rotate, which further causes (i) the nut and the carrier to travel along an axis of the screw shaft, and (ii) the linkage to rotate the lower leg member relative to the upper leg member at the knee joint. On information and belief, the motor rotates the screw shaft, causing the nut and carrier mounted coaxially to the screw shaft to travel up and down the screw shaft, which in turn causes the linkages extending from the upper leg member that is coupled to the lower leg member to rotate the lower leg member at the knee joint. Defendant's product information supports this:



Ex. I at 7.

201. The Vision 60 product has a motor mounted at a hip joint of the robot. For example, Defendant's product information states that "motors [are] located proximally [to the leg pod] to minimize inertia." Ex. I at 6. A diagram in Defendant's product information also shows a motor is located at the hip joint, as shown below:



Ex. I at 7.

202. Thus, the Vision 60 product meets every limitation of at least independent claims 1 and 13 of the '855 patent. Defendant directly infringes at least claims 1 and 13 by making, using, offering for sale, selling, and/or importing into the United States the Vision 60 product in violation of 35 U.S.C. § 271(a).

203. Defendant has committed and continues to commit all of the above acts of infringement without license or authorization.

204. Boston Dynamics has complied with the requirements of 35 U.S.C. § 287 by, among other things, marking its products with the '855 patent, and giving actual notice to

Defendant no later than March 1, 2021, and giving actual notice again no later than May 9, 2022. Defendant also knew or should have known of the '855 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

205. As a result of Defendant's infringement of the '855 patent, Plaintiff has suffered damages and will continue to suffer damages.

206. On information and belief, the infringement of the '855 patent by Defendant has been and continues to be willful. Defendant has had knowledge of the '855 patent and knowledge that the Vision 60 product is covered by the '855 patent since at least March 1, 2021 and again on May 9, 2022. Defendant also knew or should have known of the '855 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

207. Defendant has thus sold the Vision 60 product knowing of the risk of infringement and/or in view of a risk of infringement that was sufficiently obvious that it should have been known to Defendant. Despite this risk, Defendant has deliberately continued to infringe in a wanton, malicious, and egregious manner, with reckless disregard for Boston Dynamics' patent rights. Thus, Defendant's infringing actions have been and continue to be knowingly wrongful, entitling Boston Dynamics to increased damages under 35 U.S.C. § 284.

208. Under 35 U.S.C. § 283, Boston Dynamics is entitled to a permanent injunction against further infringement. Defendant's wrongful conduct has caused and will continue to cause Boston Dynamics to suffer irreparable harm resulting from the loss of its lawful patent right to exclude others from making, using selling, offering to sell, and/or importing Boston Dynamics'

patented inventions. On information and belief, Defendant will continue to infringe the '855 patent unless permanently enjoined by the Court.

COUNT VII—INFRINGEMENT OF THE '368 PATENT

209. The allegations in the preceding paragraphs are incorporated by reference as if fully set forth herein.

210. Defendant has directly infringed, and continues to directly infringe, claims 1, 2, 5-9, 11, 12, 13, 14, 18 and 19 of the '368 patent by making, using, offering for sale, selling, and/or importing into the United States the Vision products.

211. For example, and without limitation, on information and belief, the Vision 60 product meets every limitation of at least independent claims 1 and 14 of the '368 patent and Defendant's making, using, offering for sale, selling, and/or importing into the United States the Vision 60 directly infringes claims 1 and 14 of the '368 patent under 35 U.S.C. § 271(a).

212. For example, claim 1 of the '368 patent recites:

1. A robot comprising:

a leg having an upper leg member and a lower leg member coupled to the upper leg member at a knee joint;

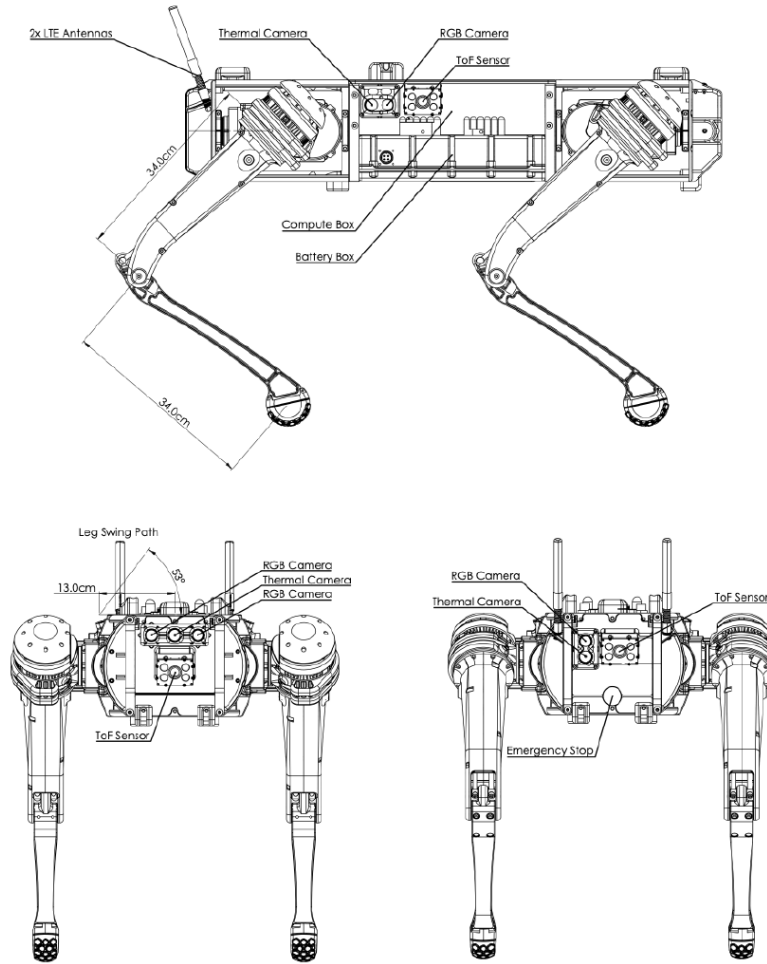
a screw actuator disposed within the upper leg member, the screw actuator comprising a screw shaft and a nut mounted coaxial to the screw shaft such that the screw shaft is rotatable within the nut;

a motor mounted at an upper portion of the upper leg member at or adjacent to a hip joint of the robot and coupled to the screw shaft, wherein rotation by the motor causes the screw shaft to rotate;

a carrier coupled and mounted coaxial to the nut such that the nut is disposed at a proximal end of the carrier; and
a linkage coupled to the carrier, the linkage coupled to the lower leg member at a knee pivot of the knee joint,
wherein rotation by the screw shaft causes:

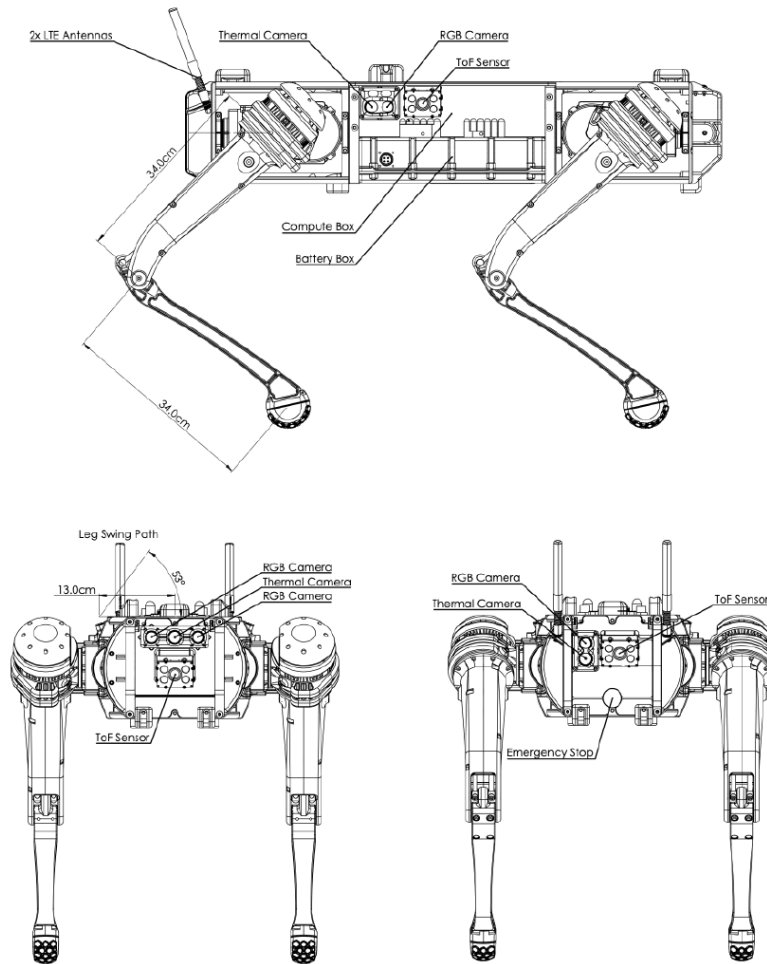
the nut and the carrier to travel along an axis of the screw shaft; and
the linkage to rotate the lower leg member relative to the upper leg member at the knee pivot of the knee joint.

213. The Vision 60 product is a robot comprising a leg having an upper leg member and a lower leg member coupled to the upper leg member at a knee joint. The Defendant's product information supports this:



Ex. I at 7.

214. The Vision 60 product has a screw actuator disposed within the upper leg member, the screw actuator comprising a screw shaft and a nut mounted coaxial to the screw shaft such that the screw shaft is rotatable within the nut. For example, Defendant’s product information states that Vision 60 product “uses a standard drive-train with no exotic motors” and does not require “leg force sensors ... to move across unstructured environments.” Ex. I at 2. It further states that Vision 60 product uses “high-bandwidth actuators” in its legs. *Id.* A diagram in Defendant’s product information also shows linkages extending from the upper leg member and joining the lower leg member at the knee joint of the Vision 60, as shown below:

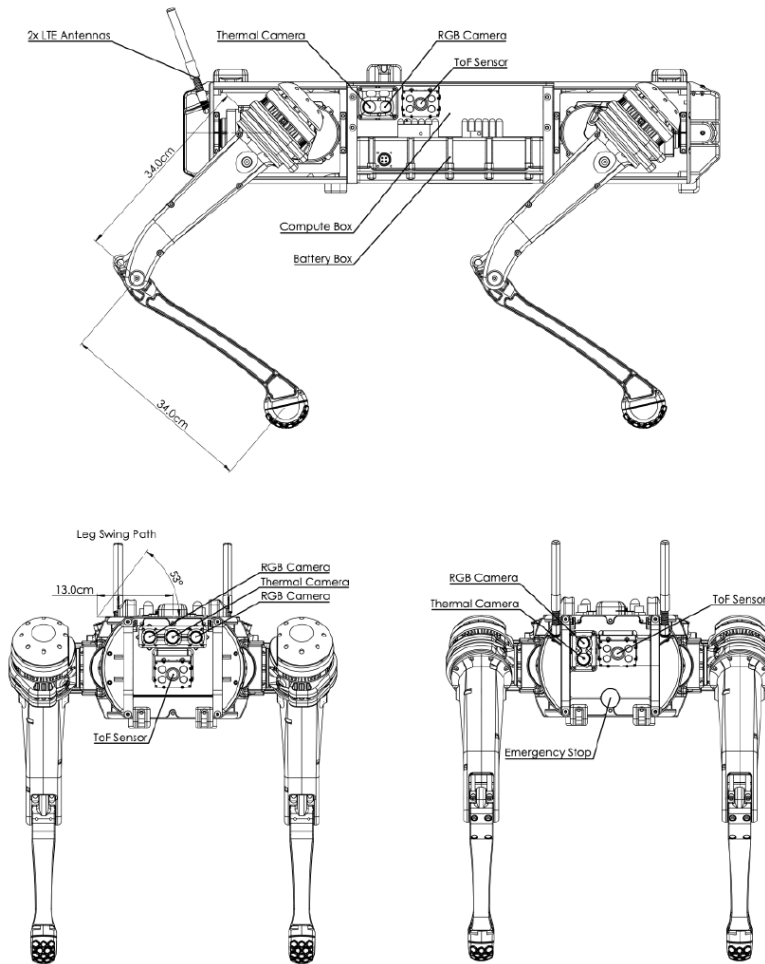


Ex. I at 7.

215. On information and belief, the linkages extending from the upper leg member to the knee where it joins the lower leg member of the Vision 60 product is indicative of a screw actuator with a screw shaft and a nut mounted coaxial to the screw shaft that is disposed in the upper leg member.

216. The Vision 60 product has a motor mounted at an upper portion of the upper leg member at or adjacent to a hip joint of the robot and coupled to the screw shaft, wherein rotation by the motor causes the screw shaft to rotate. For example, Defendant’s product information states that “motors [are] located proximally [to the leg pod] to minimize inertia.” Ex. I at 6. A diagram

in Defendant's product information also shows a motor is located at the upper portion or at least adjacent to the hip joint of each of the upper leg members and would cause the screw shaft to rotate, as shown below:

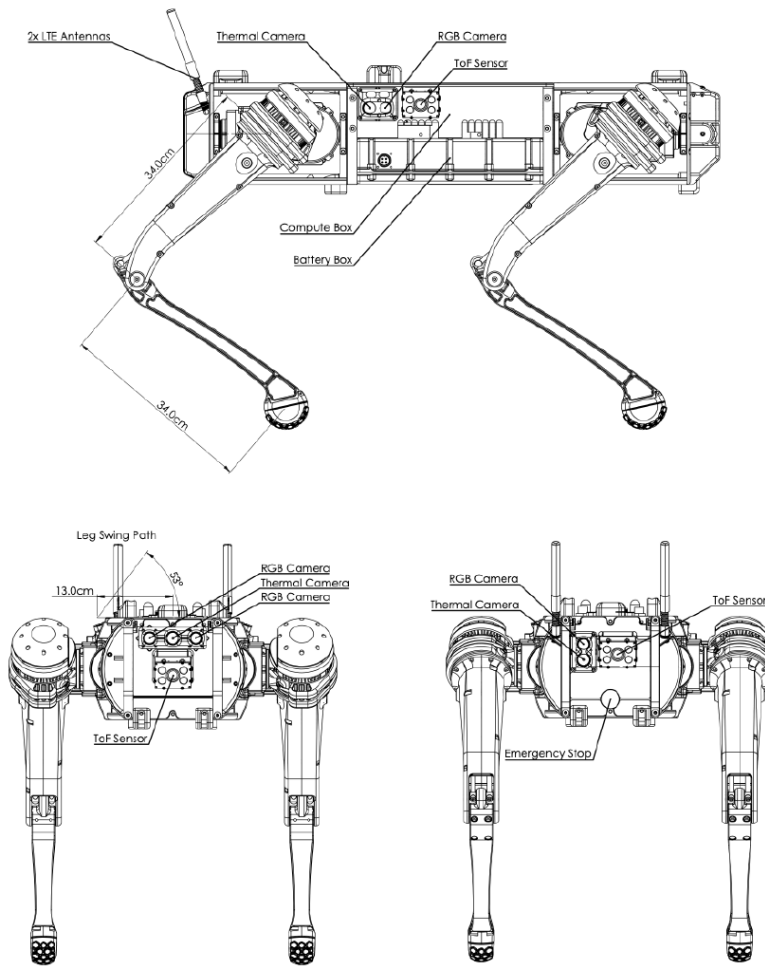


Ex. I at 7.

217. The Vision 60 product has a carrier coupled and mounted coaxial to the nut such that the nut is disposed at a proximal end of the carrier. On information and belief, the Vision 60 product contains a screw actuator that is rotated by a motor mounted on the upper portion of the upper leg member, causing the lower leg member to rotate at the knee joint. On information and belief, the Vision 60 product contains a carrier mounted coaxially to the nut at the proximal end

of the carrier to facilitate the rotation of the lower leg member and transfer the force exerted on the foot member from the surface on which the foot member is resting to the screw shaft.

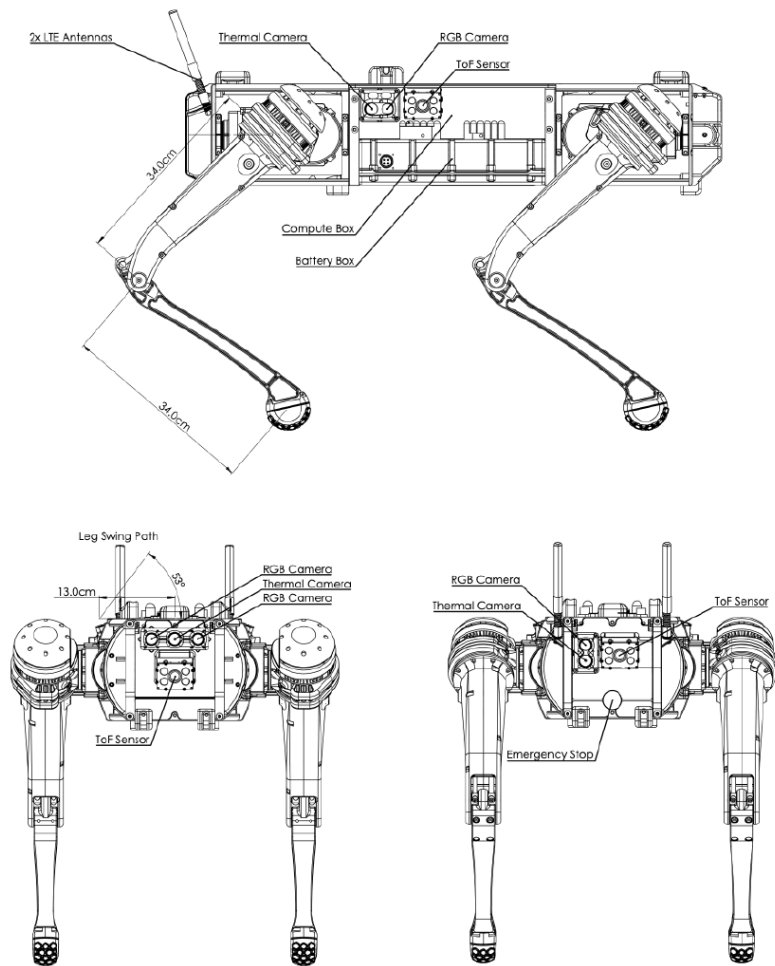
218. The Vision 60 product has a linkage coupled to the carrier, the linkage coupled to the lower leg member at a knee pivot of the knee joint. A diagram in Defendant's product information shows linkages extending from the upper leg member joining the lower leg member at the knee joint of the Vision 60, as shown below:



Ex. I at 7.

219. On information and belief, the linkage extending from the upper leg member is coupled on one end, to the carrier in the upper leg member, and on the other end, to the lower leg member at the knee joint.

220. The Vision 60 product's rotation by the screw shaft causes the nut and the carrier to travel along an axis of the screw shaft; and the linkage to rotate the lower leg member relative to the upper leg member at the knee pivot of the knee joint. On information and belief, the motor rotates the screw shaft, causing the nut and carrier mounted coaxially to the screw shaft to travel up and down the screw shaft, which in turn causes the linkages extending from the upper leg member that is coupled to the lower leg member to rotate the lower leg member at the knee joint. Defendant's product information supports this:



Ex. I at 7.

221. As another example, claim 14 of the '368 patent recites:

14. An assembly comprising:

a first member;

a second member coupled to the first member at a first joint;

a screw actuator disposed within the first member, wherein the screw actuator has a screw shaft and a nut mounted coaxial to the screw shaft such that the screw shaft is rotatable within the nut;

a motor mounted at an upper portion of the first member at or adjacent to a second joint and coupled to the screw shaft, wherein rotation by the motor causes the screw shaft to rotate, and wherein the second joint is disposed at an end portion of the first member opposite the first joint;

a carrier coupled and mounted coaxial to the nut such that the nut is disposed at a proximal end of the carrier; and

a linkage coupled to the carrier, wherein the linkage is coupled to the second member at a pivot of the first joint,

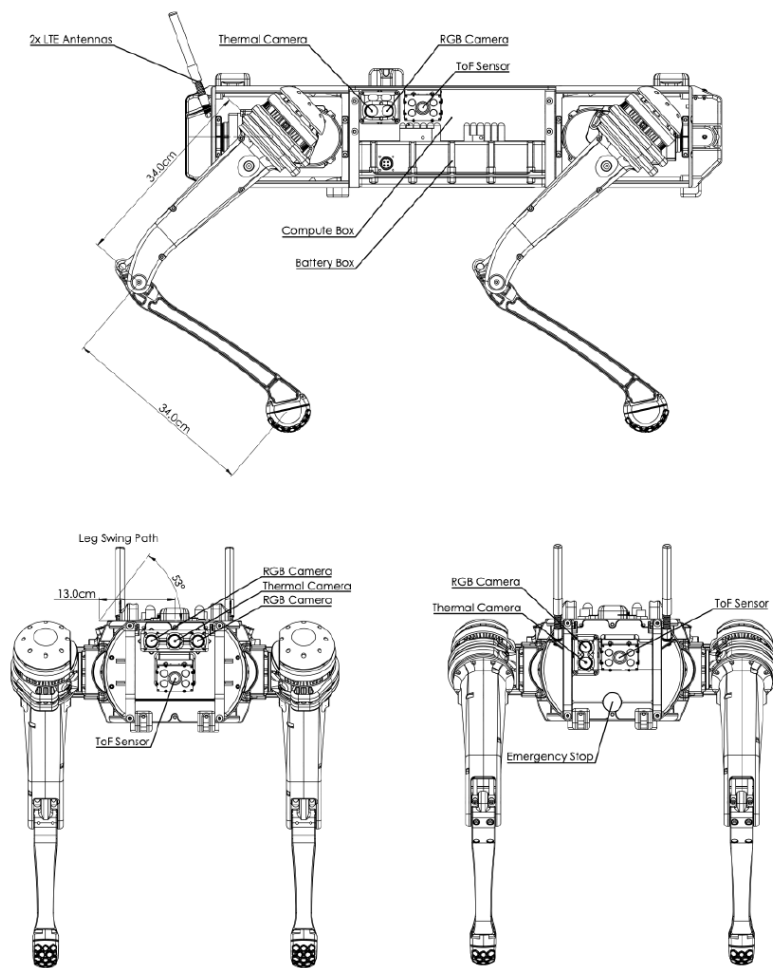
wherein rotation by the screw shaft causes:

the nut and the carrier to travel along an axis of the screw shaft; and

the linkage to rotate the second member relative to the first member

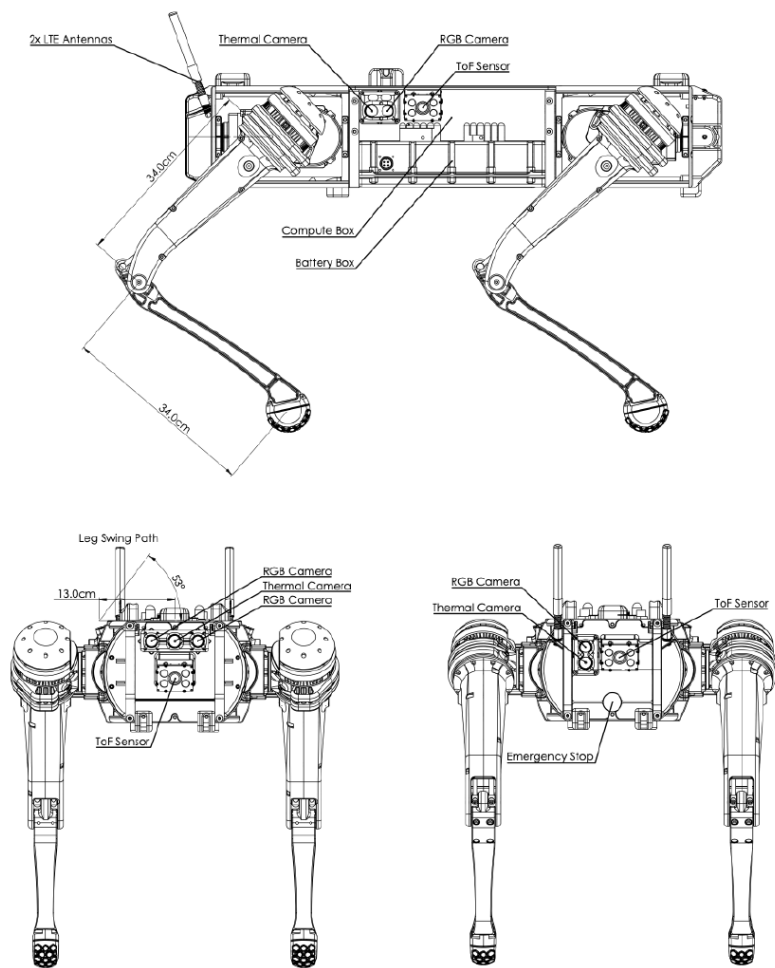
at the pivot of the first joint.

222. The Vision 60 product is an assembly comprising a first member and a second member coupled to the first member at a first joint. The Defendant's product information supports this.



Ex. I at 7.

223. The Vision 60 product has a screw actuator disposed within the first member, wherein the screw actuator has a screw shaft and a nut mounted coaxial to the screw shaft such that the screw shaft is rotatable within the nut. For example, Defendant's product information states that Vision 60 product "uses a standard drive-train with no exotic motors" and does not require "leg force sensors ... to move across unstructured environments." Ex. I at 2. It further states that Vision 60 product uses "high-bandwidth actuators" in its legs. *Id.* A diagram in Defendant's product information also shows linkages extending from the upper leg member and joining the lower leg member at the knee joint of the Vision 60 product, as shown below:

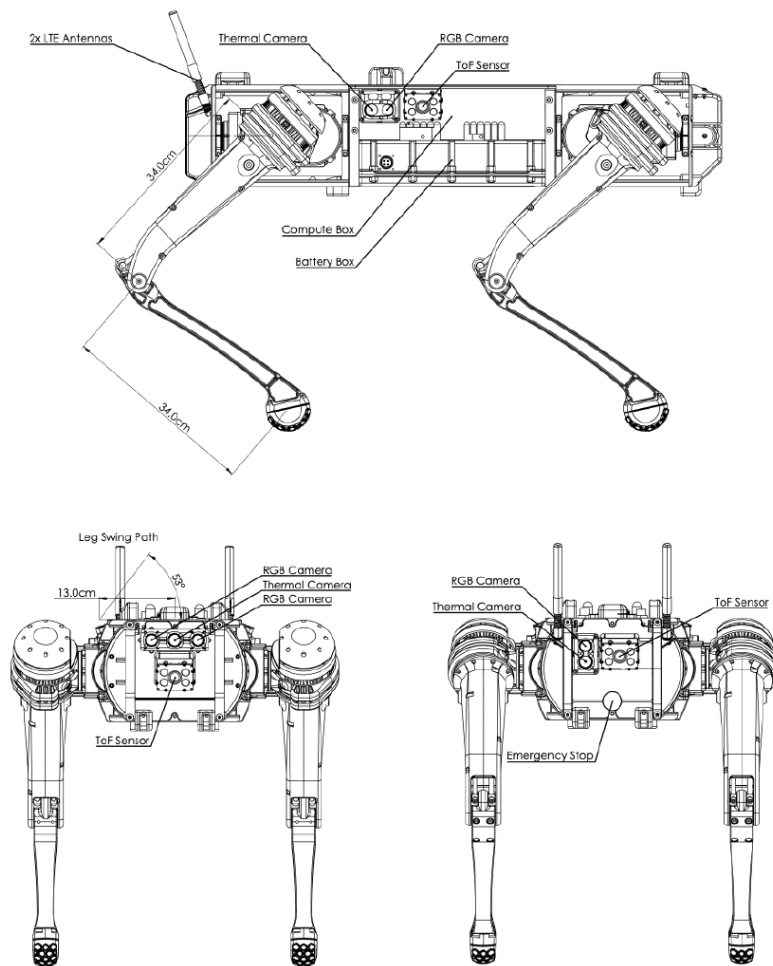


Ex. I at 7.

224. On information and belief, the linkages extending from the upper leg member to the knee where it joins the lower leg member of the Vision 60 product is indicative of a screw actuator with a screw shaft and a nut mounted coaxial to the screw shaft that is disposed in the upper leg member.

225. The Vision 60 product has a motor mounted at an upper portion of the first member at or adjacent to a second joint and coupled to the screw shaft, wherein rotation by the motor causes the screw shaft to rotate, and wherein the second joint is disposed at an end portion of the first member opposite the first joint. For example, Defendant’s product information states that “motors

[are] located proximally [to the leg pod] to minimize inertia.” Ex. I at 6. On information and belief, the Vision 60 product’s rotation of the motor will cause the screw shaft to rotate. A diagram in Defendant’s product information also shows a motor is located at least at the upper portion of the first member or second joint and that the second joint is at the end of the first member opposite of the first joint, as shown below:

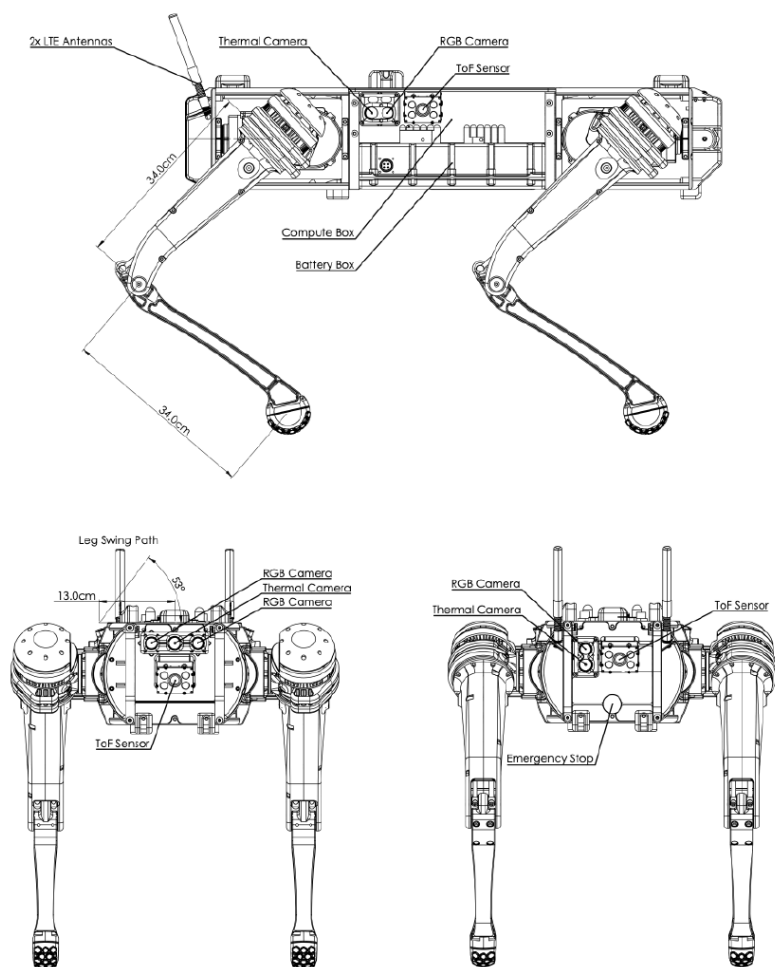


Ex. I at 7.

226. The Vision 60 product has a carrier coupled and mounted coaxial to the nut such that the Vision 60 product contains a screw actuator that is rotated by a motor mounted on the upper portion of the upper leg member, causing the lower leg member to rotate at the knee joint.

On information and belief, the Vision 60 product contains a carrier mounted coaxially to the nut at the proximal end of the carrier to facilitate the rotation of the lower leg member and transfer the force exerted on the foot member from the surface on which the foot member is resting to the screw shaft.

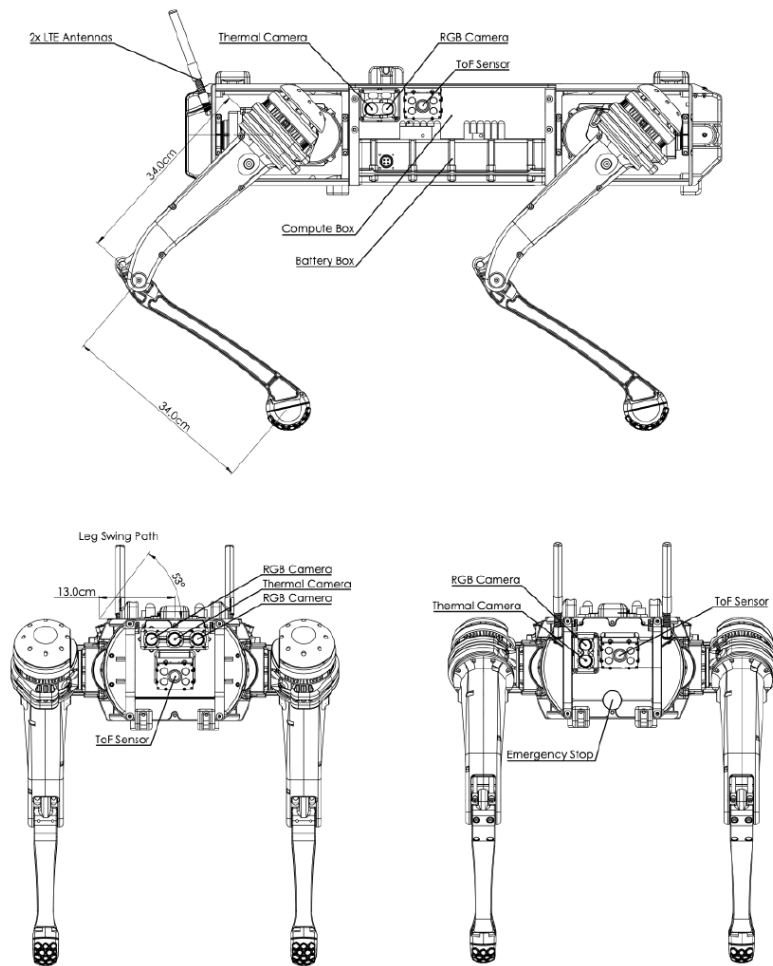
227. The Vision 60 product has a linkage coupled to the carrier, wherein the linkage is coupled to the second member at a pivot of the first joint. A diagram in Defendant's product information shows linkages extending from the first member joining the second member at the knee joint of the Vision 60 product, as shown below:



Ex. I at 7.

228. On information and belief, the linkage extending from the first member is coupled on one end, to the carrier in the first member, and on the other end, to the second member at the knee joint.

229. The Vision 60 product's rotation by the screw shaft causes the nut and the carrier to travel along an axis of the screw shaft; and the linkage to rotate the second member relative to the first member at the pivot of the first joint. On information and belief, the motor rotates the screw shaft, causing the nut and carrier mounted coaxially to the screw shaft to travel up and down the screw shaft, which in turn causes the linkages extending from the upper leg member that is coupled to the second member to rotate the second member at the knee joint. Defendant's product information supports this:



Ex. I at 7.

230. Thus, the Vision 60 product meets every limitation of at least independent claims 1 and 14 of the '368 patent. Defendant directly infringes at least claims 1 and 14 by making, using, offering for sale, selling, and/or importing into the United States the Vision 60 product in violation of 35 U.S.C. § 271(a).

231. Defendant has committed and continues to commit all of the above acts of infringement without license or authorization.

232. Boston Dynamics has complied with the requirements of 35 U.S.C. § 287 by, among other things, giving actual notice of the '368 patent to Defendant by service of this

Complaint. Defendant also knew or should have known of the '368 patent because Boston Dynamics cites the patent on its website (*see* <https://www.bostondynamics.com/patents> (last visited Nov. 10, 2022)).

233. As a result of Defendant's infringement of the '368 patent, Plaintiff has suffered damages and will continue to suffer damages.

234. Under 35 U.S.C. § 283, Boston Dynamics is entitled to a permanent injunction against further infringement. Defendant's wrongful conduct has caused and will continue to cause Boston Dynamics to suffer irreparable harm resulting from the loss of its lawful patent right to exclude others from making, using selling, offering to sell, and/or importing Boston Dynamics' patented inventions. On information and belief, Defendant will continue to infringe the '368 patent unless permanently enjoined by the Court.

JURY DEMAND

235. Pursuant to Federal Rule of Civil Procedure 38(b), Plaintiff demands a trial by jury of all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff requests that judgment be entered in favor of Plaintiff and against Defendant as follows:

- a. A judgment that Defendant has been, and is currently directly and/or indirectly infringing each of the Asserted Patents;
- b. An order awarding damages under 35 U.S.C. § 284 in an amount sufficient to compensate Plaintiff for its damages arising from infringement by Defendant, including, but not limited to, lost profits and/or a reasonable royalty, together with pre-judgment and post-judgment interest, and costs;

- c. An order awarding treble damages for willful infringement by Defendant, pursuant to 35 U.S.C. § 284;
- d. That this Court preliminarily and permanently enjoin Defendant from infringing any of the Asserted Patents;
- e. An accounting and/or supplemental damages for all damages occurring after any discovery cutoff and through the Court's decision regarding the imposition of a permanent injunction;
- f. A judgment declaring that this case is exceptional and awarding Plaintiff its reasonable costs and attorneys' fees pursuant to 35 U.S.C. § 285; and

Such other relief as this Court or a jury may deem proper and just under the circumstances.

MORRIS, NICHOLS, ARSHT & TUNNELL LLP

/s/ Brian P. Egan

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