

**UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS**

MATSUTEK ENTERPRISES CO., LTD.,

Plaintiff,

v.

IROBOT CORPORATION,

Defendant.

Civil Action No.: 1:17-cv-12483

**COMPLAINT FOR PATENT
INFRINGEMENT**

(JURY TRIAL DEMANDED)

Plaintiff, Matsutek Enterprises Co., Ltd. (“Matsutek”), for its Complaint for Patent Infringement and Demand for Jury Trial against Defendant iRobot Corporation (“iRobot” or “Defendant”), states and alleges as follows:

NATURE OF THE ACTION

1. This is an action for patent infringement of United States Patent No. 8,310,684 entitled “System and Method for Localizing a Carrier, Estimating a Posture of the Carrier and Establishing a Map” (“the ’684 patent” or “patent-in-suit”) regarding Defendant iRobot’s robotic vacuum cleaning devices. Upon information and belief, iRobot’s robotic vacuum cleaning devices infringe Plaintiff Matsutek’s patent-in-suit.

THE PARTIES

2. Matsutek is a company incorporated under the laws of Taiwan and has its principal place of business at 2F, 2, Lane 15 Tzu Chiang Street, New Taipei City, Taiwan 23678.

3. Defendant iRobot, upon information and belief, is a company incorporated under the laws of the State of Delaware and has its principal place of business at 8 Crosby Drive, Bedford, Massachusetts 01730.

JURISDICTION AND VENUE

4. This is an action in law and equity for patent infringement, arising under the patent laws of the United States, Title 35 of the United States Code.

5. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. Venue is proper in this Court under 28 U.S.C. §§ 1391 and 1400(b) because, upon information and belief, the District of Massachusetts is a judicial district where iRobot has committed acts of patent infringement as alleged in this Complaint, and has a regular and established place of business, e.g., its headquarter in Bedford, Massachusetts.

7. This Court has general personal jurisdiction over iRobot because, upon information and belief, iRobot's principal place of business is in Bedford, Massachusetts.

8. This Court also has specific personal jurisdiction over iRobot because, upon information and belief, iRobot transacts business in the State of Massachusetts, has purposefully availed itself of the privileges of doing business in Massachusetts, and has committed acts of patent infringement in Massachusetts as alleged in this Complaint.

9. iRobot, upon information and belief, has offered for sale and sold products that infringe Matsutec's '684 patent in this judicial district, including at least the Roomba 900 Series robotic vacuum cleaning devices.

THE ASSERTED PATENT

10. On November 13, 2012, the United States Patent and Trademark Office duly and legally issued the '684 patent, a copy of which is attached as Exhibit A to this Complaint. The '684 patent discloses a system for localizing a carrier, estimating a posture of the carrier and establishing a map.

11. Matsutec is the sole owner and assignee of the '684 patent. The '684 patent has

not lapsed and is currently in full force and effect.

COUNT I

INFRINGEMENT OF U.S. PATENT NO. 8,310,684

12. Matsutek incorporates Paragraphs 1-11 of this Complaint as if set forth fully herein.

13. On information and belief, iRobot has been and is now directly infringing the '684 patent by making, using, selling, and/or offering for sale in the United States and/or importing into the United States robotic vacuum cleaning devices that practice or embody at least claims 1 and 10 of the '684 patent, including at least the Roomba 900 Series robotic vacuum cleaning devices (the "Accused Products"). iRobot is therefore liable for direct infringement of the '684 patent under 35 U.S.C. § 271(a).

14. For example, on information and belief, each Accused Product comprises a system for localizing a carrier, estimating a posture of the carrier and establishing a map, as shown below:

How Roomba Cleans Your Home

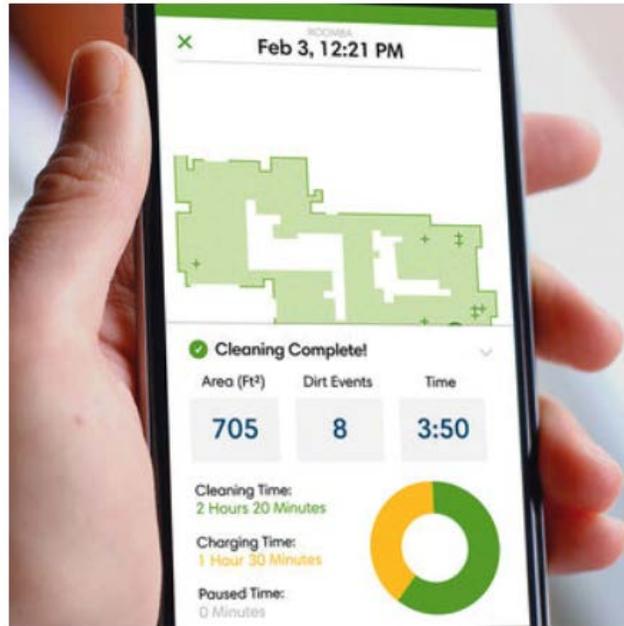
Roomba is designed to intelligently navigate and clean an entire level of your home. Here's a look at how it does its job:

- At the start of a cleaning cycle, Roomba uses iAdapt® 2.0 Navigation with Visual Localization to map out a series of small areas, cleaning them efficiently, one at a time. Using this map, Roomba tracks where it has and has not been to ensure complete coverage.

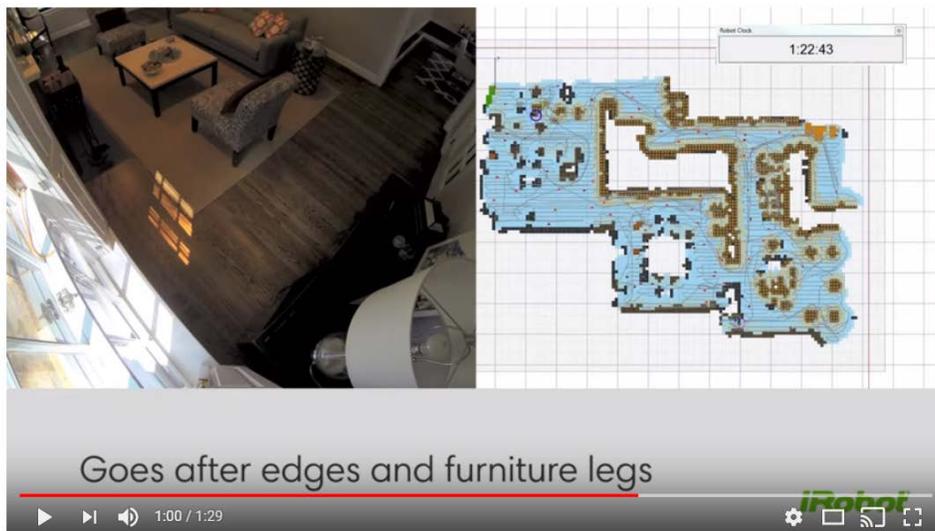


(iRobot Roomba 900 Owner's Manual at 10, <http://www.irobotweb.com/->

[/media/Files/Support/Home/Roomba/900/manual.pdf?sc_lang=en](http://www.irobotweb.com/-/media/Files/Support/Home/Roomba/900/manual.pdf?sc_lang=en))



(<http://store.irobot.com/default/roomba-vacuuming-robot-vacuum-irobot-roomba-980/R980020.html>)



(<https://www.youtube.com/watch?v=oj3Vawn-kRE>)

15. For example, on information and belief, each Accused Product comprises an inertial measurement device, for measuring a motion state and a rotation state of the carrier, as shown below:

Having vision allows the Roomba 980 to perform VSLAM (Visual Simultaneous Localization and Mapping). The camera looks for distinctive features and remembers them, and when it sees the same pattern of features again, it knows where it is. By combining this with relative positioning (which the robot does using wheel odometry, plus gyro and IMU data), the robot can build a map of its environment as it goes.

(<https://spectrum.ieee.org/automaton/robotics/home-robots/review-irobot-roomba-980>)

16. For example, on information and belief, each Accused Product comprises a vision measurement device, disposed on a surface of the carrier for picturing at least an environment feature in an indoor environment where the carrier locates, as shown below:



(iRobot Roomba 900 Owner's Manual at 14, http://www.irobotweb.com/-/media/Files/Support/Home/Roomba/900/manual.pdf?sc_lang=en)



(<https://www.youtube.com/watch?v=XIPzSmwCIJ8>)



(<https://www.youtube.com/watch?v=XIPzSmwCIJ8>)

17. For example, on information and belief, each Accused Product comprises a controller, for controlling the inertial measurement device and the vision measurement device, receiving a measuring result from the inertial measurement device and a measuring result from the vision measurement device to estimate a posture information, a location information and a velocity information of the carrier and establishing a map having the environment feature, as

shown below:

Having vision allows the Roomba 980 to perform VSLAM (Visual Simultaneous Localization and Mapping). The camera looks for distinctive features and remembers them, and when it sees the same pattern of features again, it knows where it is. By combining this with relative positioning (which the robot does using wheel odometry, plus gyro and IMU data), the robot can build a map of its environment as it goes.

(<https://spectrum.ieee.org/automaton/robotics/home-robots/review-irobot-roomba-980>)

Smart: Roomba Cleans an Entire Level of a Home with Intelligent Navigation

By combining iRobot's iAdapt[®] Responsive Cleaning Technology with new sensors, the Roomba 980 vacuum cleaning robot independently cleans an entire floor level in a home. With Roomba 980, iRobot is implementing its proprietary visual simultaneous localization and mapping (vSLAM[®]) technology for the first time in a consumer product. This groundbreaking technology is part of iRobot's new iAdapt[®] 2.0 Navigation with Visual Localization, which allows Roomba 980 to build a map of its environment as it cleans, keeping track of its location until it has cleaned an entire level. Using the map, Roomba 980 will run continuously for up to two hours¹, then automatically return to its Home Base[®] to recharge and resume until the cleaning is done. Roomba 980 will clean efficiently in open areas by moving in parallel lines while also taking advantage of the robot's suite of sensors to adapt its pattern when necessary, seamlessly navigating under furniture and around clutter.

(<http://investor.irobot.com/news-releases/news-release-details/irobot-enters-smart-home-roombar-980-vacuum-cleaning-robot>)

18. For example, on information and belief, in each Accused Product the controller estimates based on a corrected measuring result of one of the inertial measurement device and the vision measurement device, then the controller controls the other one of the inertial measurement device and the vision measurement device to measure and accordingly correct the posture information, the location information and the velocity information of the carrier and the map. Before controlling the inertial measurement device to measure, the controller estimates the posture information, the location information and the velocity information of the carrier. If the controller already calculated the corrected measuring result of the vision measurement device before the controller estimates, the controller estimates based on the corrected measuring result of the vision measurement device. Under control of the controller, the inertial measurement

device measures the motion state and the rotation state of the carrier and sends the measuring result back to the controller. The controller corrects the posture information, the location information and the velocity information based on the measuring result of the inertial measurement device. An example is shown below:

Having vision allows the Roomba 980 to perform VSLAM (Visual Simultaneous Localization and Mapping). The camera looks for distinctive features and remembers them, and when it sees the same pattern of features again, it knows where it is. By combining this with relative positioning (which the robot does using wheel odometry, plus gyro and IMU data), the robot can build a map of its environment as it goes.

(<https://spectrum.ieee.org/automaton/robotics/home-robots/review-irobot-roomba-980>)

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(<http://investor.irobot.com/news-releases/news-release-details/irobot-enters-smart-home-roombar-980-vacuum-cleaning-robot>)

19. On information and belief, iRobot also has been and is now indirectly infringing at least claims 1 and 10 of the '684 patent.

20. On information and belief, iRobot has knowledge of the '684 patent and has been and is now actively inducing others, including its distributors, customers and end-users who use, sell or offer to sell the Accused Products, to directly infringe at least claims 1 and 10 of the '684 patent.

21. On information and belief, iRobot provides and continues to provide manuals,

training, guides, videos and/or demonstrations that induce its distributors, customers and/or end-users to perform acts intended by iRobot to directly infringe the '684 patent. iRobot is therefore liable for inducing infringement of the '684 patent under 35 U.S.C. § 271(b).

22. On information and belief, iRobot has knowledge of the '684 patent and has been and is now contributing to infringement of at least claims 1 and 10 of the '684 patent by others, including its distributors, customers and end-users. On information and belief, iRobot contributes to such infringement by providing and continuing to provide the Accused Products to its distributors, customers and end-users, which are specially made or adapted for use in a manner that infringes the '684 patent and are not staple articles of commerce suitable for substantial non-infringing use.

23. On information and belief, iRobot has knowledge of the fact that the Accused Products are specially made or adapted for use to infringe the '684 patent and are not staple articles of commerce suitable for substantial non-infringing use. iRobot is therefore liable for contributory infringement of the '684 patent under 35 U.S.C. § 271(c).

24. As a result of its infringement of the '684 patent, iRobot has damaged Matsutek. iRobot is liable to Matsutek in an amount to be determined at trial that adequately compensates Matsutek for the infringement, which by law can be no less than a reasonable royalty.

25. iRobot's acts have caused, and unless restrained and enjoined, will continue to cause, irreparable injury and damage to Matsutek for which there is no adequate remedy at law.

26. Upon information and belief, unless enjoined by this Court, iRobot will continue to infringe, both directly and indirectly, the '684 patent.

PRAYER FOR RELIEF

WHEREFORE, Matsutek prays that this Court:

- A. Enter judgment that iRobot has infringed the '684 patent;
- B. Enter an order preliminarily and permanently enjoining iRobot, its officers, agents, servants, employees, attorneys, and all persons acting in concert or participation with it, from infringing the '684 patent;
- C. Award Matsutek its damages resulting from iRobot's patent infringement pursuant to 35 U.S.C. § 284, including its lost profits;
- D. Find that iRobot's patent infringement has been willful and increase the damages awarded to Matsutek up to three times the amount assessed, pursuant to 35 U.S.C. § 284;
- E. Find this to be an exceptional case and award Matsutek its attorneys' fees and costs, pursuant to 35 U.S.C. § 285;
- F. Award Matsutek its prejudgment interest and post judgment interest on its damages, attorneys' fees and cost; and
- G. Award Matsutek such other and further relief as this Court deems just and proper, including but not limited to an accounting for pre-judgment infringements made but not otherwise awarded to Matsutek.

JURY DEMAND

Matsutek hereby demands a trial by jury on all issues triable to a jury in this case.

Dated: December 18, 2017

Respectfully submitted,

/s/ Christopher Centurelli

Christopher Centurelli (BBO #:640974)

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