UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SHENZHEN SILVER STAR INTELLIGENT TECHNOLOGY CO., LTD.,
Petitioner,

v.

IROBOT CORP.,
Patent Owner.

_____

Case IPR2018-00897
Patent 6,809,490 B2

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Before WILLIAM V. SAINDON, TERRENCE W. McMILLIN, and
AMANDA F. WIEKER, *Administrative Patent Judges*.

SAINDON, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. §314(a)

I.   INTRODUCTION

Shenzhen Silver Star Intelligent Technology Co., Ltd. ("Petitioner") filed a Petition requesting an *inter partes* review of claims 1, 2–5, 7, 8, and 12 ("the challenged claims") of U.S. Patent No. 6,809,490 B2 (Ex. 1001, "the '490 patent"). Paper 3 ("Pet."). iRobot Corp. ("Patent Owner") filed a Preliminary Response. Paper 7 ("Prelim. Resp."); *see also* Paper 8 (denying Petitioner's request to file a Reply, for lack of good cause).

We have authority under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary Response shows that "there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314; *see also* 37 C.F.R § 42.4(a) ("The Board institutes the trial on behalf of the Director.").

For the reasons that follow, we do not institute an *inter partes* review of any of the challenged claims of the '490 patent.

A. Related Matters

The parties identify the following matters related to the '233 patent (Pet. 1–2; Paper 4, 2–3):

In re Certain Robotic Vacuum Cleaning Devices And Components Thereof Such As Spare Parts, Inv. No. 337-TA-1057 (USITC);

iRobot Corporation v. Hoover, Inc., et al., Case No. 1:17-cv-10647 (D. Mass.);

iRobot Corporation v. The Black & Decker Corp., et al., Case No. 1:17-cv-10648 (D. Mass.);

iRobot Corporation v. Bissell Homecare, Inc., et al., Case No. 1:17-cv-10649 (D. Mass.);

iRobot Corporation v. Bobsweep, Inc., et al., Case No. 1:17-cv-10651(D. Mass.);

iRobot Corp. v. Shenzhen Zhiyi Technology Co. Ltd., Case No. 1:17-cv-10652 (D. Mass.); and

Shenzhen Zhiyi Technology Co., Ltd. v. iRobot Corp., IPR2017-02061 (PTAB) (the "-2061 IPR")

B. The '490 Patent

The '490 patent is directed to a mobile robot used, e.g., in vacuum cleaning or mowing. Ex. 1001, 1:9–12. A challenge in the prior art is designing an algorithm that allows the robot to cover all of an area of unknown geometry in an efficient amount of time. *Id.* at 1:22–2:19. The '490 patent discloses a robot that moves through various operational modes, including spot cleaning, edge cleaning, and room cleaning modes to effectively cover the area. *Id.* at 8:35–47. These high-level operating modes are, in turn, effected by the robot giving priority to various behaviors dictating how the robot reacts in various situations (e.g., hitting a wall). *Id.* at 8:48–9:5, 13:26–35.

C. Challenged Claim

Petitioner challenges claims 1, 2–5, 7, 8, 12, and 42 of the '490 patent. Independent claims 1 and 42 are reproduced below.

> 1. A mobile robot comprising:
> (a) means for moving the robot over a surface;
> (b) an obstacle detection sensor;
> (c) and a control system operatively connected to said obstacle detection sensor and said means for moving;

(d) said control system configured to operate the robot in a plurality of operational modes and to select from among the plurality of modes in real time in response to signals generated by the obstacle detection sensor, said plurality of operational modes comprising: a spot-coverage mode whereby the robot operates in an isolated area, an obstacle following mode whereby said robot travels adjacent to an obstacle, and a bounce mode whereby the robot travels substantially in a direction away from an obstacle after encountering the obstacle, and wherein, when in the obstacle following mode, the robot travels adjacent to an obstacle for a distance at least twice the work width of the robot.

42. A mobile robot comprising:
(a) means for moving the robot over a surface;
(b) an obstacle detection sensor;
(c) a cliff sensor; and
(d) a control system operatively connected to said obstacle detection sensor, said cliff sensor, and said means for moving;
(e) said control system configured to operate the robot in a plurality of operational modes, said plurality of operational modes comprising: a spot-coverage mode whereby the robot operates in an isolated area, an obstacle following mode whereby said robot travels adjacent to an obstacle for a distance at least twice the work width of the robot, and a bounce mode whereby the robot travels substantially in a direction away from an obstacle after encountering the obstacle.

D. Prior Art and Asserted Grounds

Petitioner asserts that claims 1, 2–5, 7, 8, 12, and 42 would have been obvious on the following grounds:

Reference(s)	Claim(s) Challenged
Ueno[1]	1, 2–5, 7, 8, and 12

[1] Japanese Unexamined Patent App. Pub. H11-212642, pub. Aug. 6, 1999

Reference(s)	Claim(s) Challenged
Ueno and AAAI Article[2]	1, 2–5, 7, 8, and 12
Ueno and Kawagoe[3]	1, 2–5, 7, 8, and 12
Ueno and Bisset[4]	12
Ueno, AAAI Article, and Bisset	12
Ueno, Kawagoe, and Bisset	12
Ueno and Erwin[5]	12
Ueno, AAAI Article, and Erwin	12
Ueno, Kawagoe, and Erwin	12
Ueno and Bottomley[6]	42
Ueno, AAAI Article, and Bottomley	42
Ueno, Kawagoe, and Bottomley	42
Ueno and Öhman[7]	42
Ueno, AAAI Article, and Öhman	42
Ueno, Kawagoe, and Öhman	42
Uneo and Bissett-612[8]	42
Bottomley and AAAI Article	1 and 42

(certified translation) (Ex. 1007); *see also* Ex. 1014 (original Japanese).

[2] Keith L. Doty and Reid R. Harrison, "*Sweep Strategies for a Sensory-Driven, Behavior-Based Vacuum Cleaning Agent,*" AAAI 1993 Fall Symposium Series Instantiating Real-World Agents (Oct. 22–24, 1993) (Ex. 1019).

[3] U.S. Patent No. 6,574,536 B1, iss. June 3, 2003 (Ex. 1007).

[4] WO 00/38025, pub. June 29, 2000 (Ex. 1010).

[5] German Patent App. 19849978 A1, pub. May 11, 2000 (translated copy) (Ex. 1011); *see also* Ex. 1015 (original German).

[6] WO 00/04430, pub. Jan. 27, 2000 (Ex. 1006).

[7] WO 93/03399, pub. Feb. 18, 1993 (Ex. 1008).

[8] U.S. Patent No. 6,493,612 B1, iss. Dec. 10, 2002 (Ex. 1026).

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