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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHENZHEN ZHIYI TECHNOLOGY CO. LTD., D/B/A ILIFE,
Petitioner,

v.

IROBOT CORP.,
Patent Owner.

Case IPR2017-02061
Patent 6,809,490 B2

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

SAINDON, *Administrative Patent Judge.*

DECISION
Granting Partial Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Shenzhen Zhiyi Technology Co. Ltd., d/b/a iLife, ("Petitioner") filed a Petition requesting an *inter partes* review of claims 1–3, 7, 12, and 42 of U.S. Patent No. 6,809,490 B2 (Ex. 1001, "the '490 patent"). Paper 1 ("Pet."). iRobot Corp. ("Patent Owner") filed a Preliminary Response. Paper 7 ("Prelim. Resp.").

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."). Taking into account the arguments presented in the Preliminary Response, we conclude that the information presented in the Petition does not establish a reasonable likelihood that Petitioner would prevail with respect to the claims challenged on the basis of anticipation (claims 1–3, 7, and 12) but does establish a reasonable likelihood that Petitioner would prevail on the basis of obviousness (claim 42). Accordingly, we institute an *inter partes* review for claim 42 only.

A. Related Matters

The parties identify the following matters related to the '490 patent (Pet. 1; Paper 4, 2–3; Paper 6, 2–3):

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

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

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

iRobot Corp. v. Bobsweep, Inc., Case No. 1:17-cv-10651 (D. Mass.); and

iRobot Corp. v. Shenzhen Zhiyi Technology Co. d/b/a iLife, Case No. 1:17-cv-10652 (D. Mass.).

In addition, Petitioner has filed petitions challenging five of Patent Owner's other patents in IPR2017-02050 (U.S. Patent No. 9,038,233 B2), IPR2017-02078 (U.S. Patent No. 7,155,308 B2), IPR2017-02133 (U.S. Patent No. 8,600,553 B2), IPR2017-02137 (U.S. Patent No. 9,486,924 B2), and IPR2018-00005 (U.S. Patent No. 8,474,090 B2).

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 acknowledged 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 Claims

Petitioner challenges claims 1–3, 7, 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 1–3, 7, and 12 are anticipated by Ueno-642,[1] and that claim 42 would have been obvious in view of Ueno-642 and Bissett-612.[2] Pet. 4.

II. PATENTABILITY ANALYSIS

A. Claim Construction

No terms require construction for purposes of this decision. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (only those terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy).

B. Anticipation by Ueno-642 (Claims 1, 2, 3, 7, and 12)

Petitioner asserts that Ueno-642 anticipates independent claim 1 (Pet. 14–32) and claims 2, 3, 7, and 12, which depend therefrom (*id.* at 32–35). As to claim 1, Petitioner asserts that Ueno-642 discloses a robot having wheels 3, 4 for moving the robot over the surface. *Id.* at 15–16 (citing, e.g., Ex. 1004 ¶ 15). Petitioner asserts that the robot in Ueno-642 has an obstacle detection sensor and a control system. *Id.* at 17–18 (citing, e.g., Ex. 1004 ¶¶ 16, 21). For element 1(d), Petitioner asserts that Ueno-642 discloses a control system having a plurality of operational modes (spiral, border-following, and random) and can switch among them "in real time in

[1] Japanese Unexamined Patent Application Publication No. H11-212642, pub. Aug. 6, 1999 (Ex. 1004).

[2] U.S. Patent No. 6,493,612 B1, iss. Dec. 10, 2002 (Ex. 1005).

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