

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
24 March 2022 (24.03.2022)



(10) International Publication Number
WO 2022/060495 A1

(51) International Patent Classification:

H01L 21/67 (2006.01) *H04N 5/30* (2006.01)
H04N 5/225 (2006.01)

(21) International Application Number:

PCT/US2021/045731

(22) International Filing Date:

12 August 2021 (12.08.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

17/021,992 15 September 2020 (15.09.2020) US

(71) Applicant: **APPLIED MATERIALS, INC.** [US/US];
3050 Bowers Avenue, Santa Clara, CA 95054 (US).

(72) Inventors: **UMMETHALA, Uendra**; 11605 Oak Spring
Court, Cupertino, CA 95014 (US). **KRAUS, Philip**; 1006

Broadway Avenue, San Jose, CA 95125 (US). **BERDING, Keith**; 6481 Camelia Drive, San Jose, CA 95120 (US). **ERICKSON, Blake**; 8720 Arbor Street, Gilroy, CA 95020 (US). **TAE, Patrick**; 4294 Wilkie Way, Apt. O, Palo Alto, CA 94306 (US). **NARA, Shivaraj Manjunath**; Habitat Irenic Apartment, Flat #414, B Block, Choodasandra Road, Near Nandini, Bangalore, KA 560099 (IN). **PARAMESHWARAPPA, Anandakumar**; #137, Goolihatti, Hosadurga, Chitradurga, KA 577527 (IN). **NAGARAJAN, Sivasankar**; House No 6, 1215, 4th Main, HSR Layout 7th Sector, Bangalore, KA 560102 (IN). **KUMAR, Dharendra**; 129, 1st Floor, 9th Main, V R Layout, Mathikere, Bangalore, KA 560054 (IN).

(74) Agent: **BERNADICOU, Michael A.** et al.; Schwabe, Williamson & Wyatt, P.C., 1211 SW 5th Avenue, Suite 1900, Portland, OR 97204 (US).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM,

(54) Title: SMART CAMERA SUBSTRATE

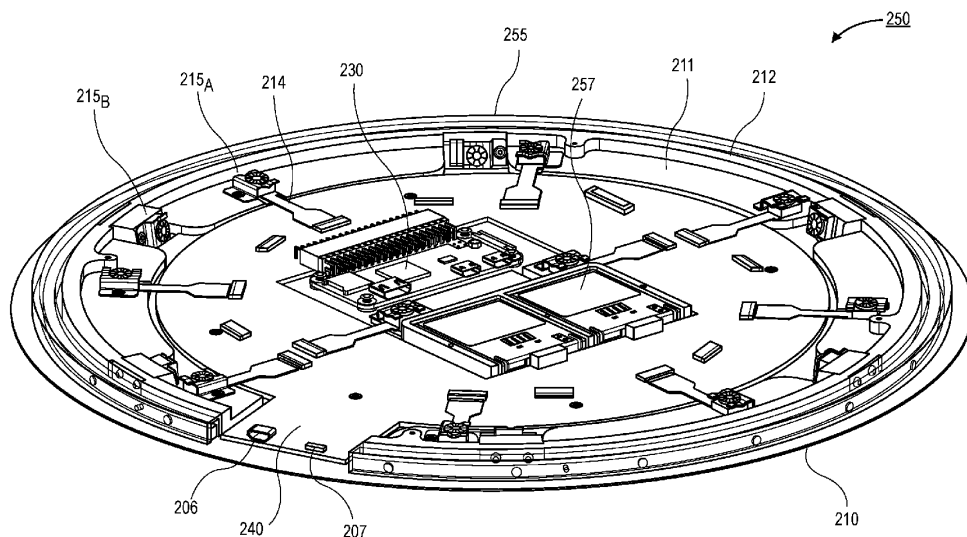


FIG. 2A

(57) **Abstract:** Embodiments disclosed herein include a diagnostic substrate, comprising a baseplate, and a first plurality of image sensors on the baseplate, where the first plurality of image sensors are oriented horizontal to the baseplate. In an embodiment, the diagnostic substrate further comprises a second plurality of image sensors on the baseplate, where the second plurality of image sensors are oriented at a non-orthogonal angle to the baseplate. In an embodiment, the diagnostic substrate further comprises a printed circuit board (PCB) on the baseplate, and a controller on the baseplate, where the controller is communicatively coupled to the first plurality of image sensors and the second plurality of image sensors by the PCB. In an embodiment, the diagnostic substrate further comprises a diffuser lid over the baseplate, the PCB, and the controller.

[Continued on next page]

WO 2022/060495 A1

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))