



- (51) **International Patent Classification:**
B64C 39/02 (2006.01) *H02S 50/00* (2014.01)
- (21) **International Application Number:**
PCT/SG2022/050071
- (22) **International Filing Date:**
17 February 2022 (17.02.2022)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
10202103967Y 19 April 2021 (19.04.2021) SG
- (71) **Applicant: QUANTIFIED ENERGY LABS PTE. LTD.**
[SG/SG]; 51 Goldhill Plaza, #07-10/11, Singapore 308900 (SG).
- (72) **Inventors: BEDRICH, Karl Georg;** c/o Quantified Energy Labs Pte. Ltd., 51 Goldhill Plaza, #07-10/11, Singapore 308900 (SG). **KHOO, Yong Sheng;** c/o Quantified Energy Labs Pte. Ltd., 51 Goldhill Plaza, #07-10/11, Singapore 308900 (SG). **WANG, Yan;** c/o Quantified Energy Labs Pte. Ltd., 51 Goldhill Plaza, #07-10/11, Singapore 308900 (SG).
- (74) **Agent: NG, Bingxiu Edward;** Marks & Clerk Singapore LLP, Tanjong Pagar Post Office, P.O. Box 636, Singapore 910816 (SG).
- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

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, JM, 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).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

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

(54) **Title:** AUTOMATED IMAGING OF PHOTOVOLTAIC DEVICES USING AN AERIAL VEHICLE AND AUTOMATED FLIGHT OF THE AERIAL VEHICLE FOR PERFORMING THE SAME

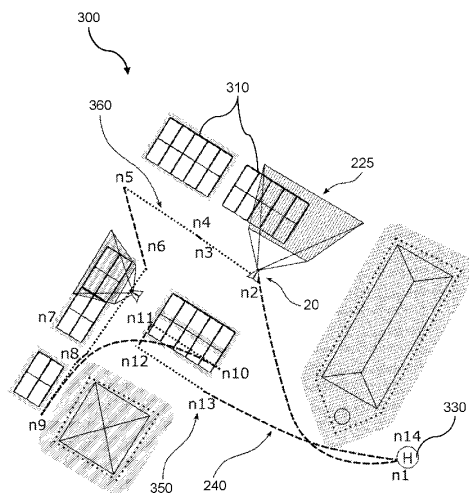


Figure 3B

(57) **Abstract:** An aspect of the present disclosure relates to automated imaging of photovoltaic devices using an aerial vehicle (20). In one aspect, there is a method (440) for automated imaging of a PV array (310) using an aerial vehicle (20), the PV array (310) corresponding to target points (350) for the aerial vehicle (20). The method (440) comprises: positioning the aerial vehicle (20) at one of the target points (350) corresponding to the PV array (310); and controlling the aerial vehicle (20) for automated manoeuvre between the target points (350) to capture visual datasets of the PV array (310). The automated manoeuvre comprises: aligning a field-of-view (225) of a camera (222) of the aerial vehicle (20) to a PV array subsection of the PV array (310); determining a scanning direction (360) for moving the aerial vehicle (20) between the target points (350); and capturing, using the camera (222), the visual datasets of the PV array (310) starting from the PV array subsection as the aerial vehicle (20) moves along the scanning direction (360) between the target points (350).