

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
27 January 2022 (27.01.2022)



(10) International Publication Number
WO 2022/017005 A1

(51) International Patent Classification:
G01V 11/00 (2006.01)

1101 Kitchawan Road, Yorktown Heights, New York
10598 (US).

(21) International Application Number:
PCT/CN2021/097736

(74) Agent: **KING & WOOD MALLESONS**; 20th Floor,
East Tower, World Financial Centre, No. 1 Dongsanhuan
Zhonglu, Chaoyang District, Beijing 100020 (CN).

(22) International Filing Date:
01 June 2021 (01.06.2021)

(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, 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.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
16/934,883 21 July 2020 (21.07.2020) US

(71) Applicant: **INTERNATIONAL BUSINESS
MACHINES CORPORATION** [US/US]; New Orchard
Road, Armonk, New York 10504 (US).

(71) Applicant (*for MG only*): **IBM (CHINA) CO., LIMIT-
ED** [CN/CN]; 7F, Bldg 10, Zhangjiang Innovation Park,
399 Keyuan Road, Zhangjiang High-Tech Campus, Pudong
New Area, Shanghai 201203 (CN).

(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,

(72) Inventors: **VALDES GARCIA, Alberto**; P.O. Box 218,
1101 Kitchawan Road, Yorktown Heights, New York
10598 (US). **PLOUCHART, Jean-Olivier**; P.O. Box 218,
1101 Kitchawan Road, Yorktown Heights, New York
10598 (US). **PEPELJUGOSKI, Petar K.**; P.O. Box 218,

(54) Title: CONCEALED OBJECT DETECTION

(57) Abstract: A method for detecting the presence of on-body concealed objects includes receiving a visible-domain camera image for a scene, determining, using the visible-domain camera image, a region of interest where a subject is present, receiving an infrared-domain camera image and a millimeter-wave (mmwave) radar image that each cover the region of interest, determining emissivity information for the region of interest using the infrared-domain camera image, determining reflectivity information for the region of interest using the mmwave radar image and determining a concealed object classification for the subject based on the emissivity information and the reflectivity information. A corresponding system and computer program product for executing the above method are also disclosed herein.

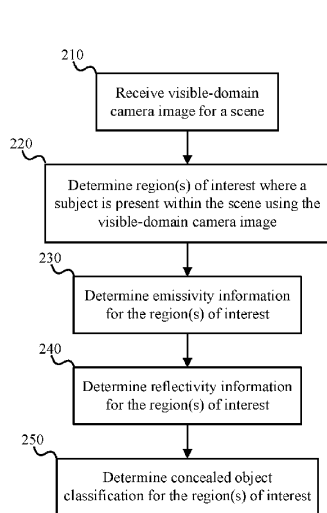


Fig. 2

WO 2022/017005 A1

[Continued on next page]

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))*