

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
16 December 2021 (16.12.2021)



(10) International Publication Number
WO 2021/249617 A1

(51) International Patent Classification:
B07C 5/34 (2006.01)

(21) International Application Number:
PCT/EP2020/065866

(22) International Filing Date:
08 June 2020 (08.06.2020)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicants: COMMISSARIAT À L'ÉNERGIE ATOMIQUE ET AUX ÉNERGIES ALTERNATIVES [FR/FR]; 25, rue Leblanc Batiment "Le Ponant D", 75015 PARIS (FR). NANYANG TECHNOLOGICAL UNIVERSITY [SG/SG]; 50 Nanyang Ave, SINGAPOUR 639798 (SG).

(72) Inventors: GABRIEL, Jean-Christophe; 1616 route de Clémencière, 38950 QUAIX-EN-CHARTREUSE (FR). MAURICE, Ange; 3 passage du bois dur, 34570 MON-TARNAUD (FR). BRAMBILLA, Andreas; 13 Lotissement Le Présvert, 38113 VEUREY-VORROISE (FR).

(74) Agent: TANTY, François; CABINET NONY, 11 rue Saint Georges, 75009 PARIS (FR).

(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, 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))

(54) Title: SORTING SYSTEM FOR SORTING OBJECTS BELONGING TO AT LEAST TWO CLASSES OF OBJECTS HAVING DIFFERENT ACOUSTIC SIGNATURES WHEN IMPACTING AN IMPACT BODY AND ASSOCIATED METHODS

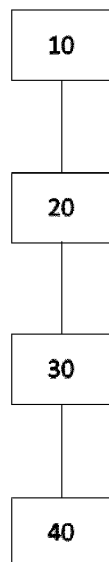


Figure 1

(57) Abstract: The present invention relates to a sorting system for sorting objects (100) belonging to at least two classes of objects having different acoustic signatures when impacting an impact body (50, 104), the system comprising: - at least one acoustic detector (60) configured to capture acoustic data corresponding to the impact of a candidate object (100) to sort on the impact body (50, 104), - a processor (66) for processing acoustic data to identify the class of the candidate object (100) executing a machine learning algorithm trained to identify the class to which a candidate object (100) belongs based on acoustic data of objects previously captured by the acoustic detector (60) and additional information describing said objects, and to generate a sorting information based on the identified class for the candidate object, - feedback means (80, 120) for providing to the processor (66) an additional information on the candidate object depending on the sorting information generated by the processor (66).

WO 2021/249617 A1