

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
06 January 2022 (06.01.2022)



(10) International Publication Number
WO 2022/005406 A1

(51) International Patent Classification:

A61B 5/00 (2006.01) *A61B 5/024* (2006.01)
A61B 5/01 (2006.01) *G01K 7/02* (2021.01)

(21) International Application Number:

PCT/SG2021/050387

(22) International Filing Date:

02 July 2021 (02.07.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10202006454P 03 July 2020 (03.07.2020) SG

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(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,

(54) Title: EAR-BASED CORE BODY TEMPERATURE MONITORING SYSTEM

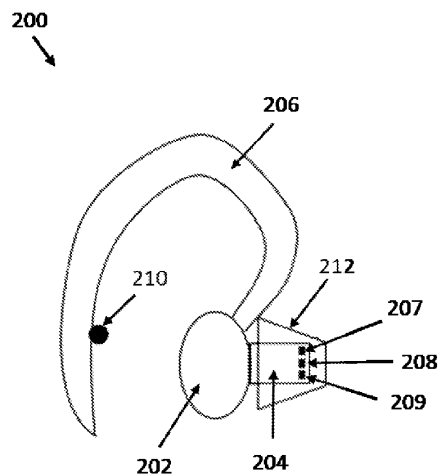


Fig. 2

(57) Abstract: A non-invasive method and system for monitoring core body temperature (T_c) of a user continuously so as to prevent the risk of over-heating. The system comprises a detection unit to be worn in the user's ear for measuring physiological data of the user by a plurality of sensors and an analysis unit connected to the detection unit via a communication link for computing T_c of the user with a prediction model using the physiological data measured by the detection unit where the effects of heart rate and external environmental temperature on auditory canal temperature of the user are taken into account. The sensors comprise two sensors (207, 208) for measuring auditory canal temperatures and sensors (209, 210) for measuring heart rate and external auricle temperature respectively. The prediction model is preferably a random forest prediction model or a linear or polynomial regression model. An over-heating state of the user is determined when the computed T_c is above a threshold level (e.g. above 40 °C).

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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))*