



- (51) **International Patent Classification:**
A61B 5/11 (2006.01)
- (21) **International Application Number:**
PCT/US2014/063943
- (22) **International Filing Date:**
4 November 2014 (04.11.2014)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/899,848 4 November 2013 (04.11.2013) US
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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, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, 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, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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).

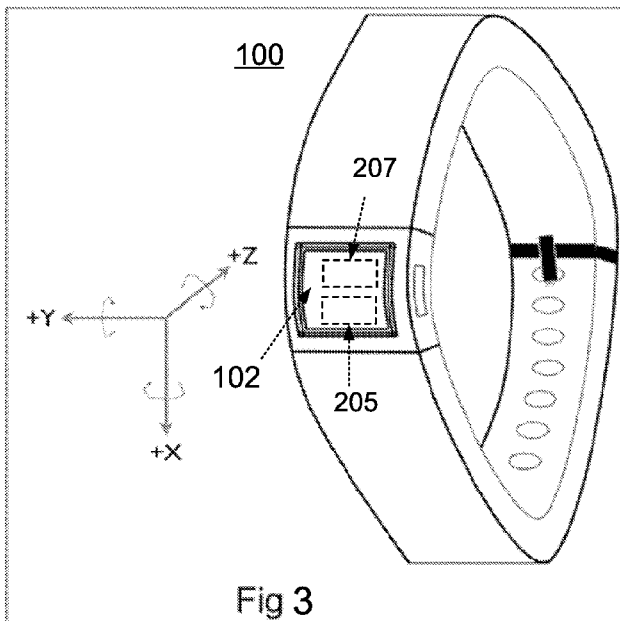
Published:

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

[Continued on nextpage]

(54) **Title:** DETECTION OF BIKING, WALKING, AND RUNNING

(57) **Abstract:** A wearable device automatically identifies an activity in which a user of the device is engaged while wearing the device. The wearable device receives motion data of the user collected during the activity and determines a magnitude and a frequency of the motion data. Based on the magnitude and frequency of the motion data, the wearable device identifies the activity in which the user is engaged.




WO 2015/066718 A3

(88) Date of publication of the international search report:
19 November 2015

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/063943

<p>A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A61 B 5/1 1 (201 5.01) CPC - A61 B5/1 118 (201 5.01) According to International Patent Classification (IPC) or to both national classification and IPC</p>																										
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC(8) - A61B 5/1 1 (2015.01) USPC - 600/595, 702/141</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched CPC - A61B5/1 118, A61B5/1038, A61B5/7267, G01C22/006 (2015.01) (keyword delimited)</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Orbit, Google Patents, Google Search terms used: identify, classify, categorize, determine, activity, walk, run, train, motion.sensor, data, analyze, magnitude, frequency</p>																										
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Category*</th> <th style="width:70%;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="width:20%;">Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>US 2013/0191034 A 1 (WEAST et al) 25 July 2013 (25.07.2013) entire document</td> <td>1-4, 8-13, 17-18</td> </tr> <tr> <td>--</td> <td></td> <td>-----</td> </tr> <tr> <td>Y</td> <td></td> <td>5-7, 14-16</td> </tr> <tr> <td>Y</td> <td>US 2013/0029681 A 1 (GROKOP) 31 January 2013 (31 .01.2013) entire document</td> <td>5-7, 14-16</td> </tr> <tr> <td>A</td> <td>US 201 1/0054359 A 1 (SAZONOV et al) 03 March 201 1 (03.03.201 1) entire document</td> <td>1-18</td> </tr> <tr> <td>A</td> <td>US 2012/0232432 A 1 (KAHN et al) 13 September 2012 (13.09.2012) entire document</td> <td>1-18</td> </tr> <tr> <td>X,P</td> <td>US 2014/0167973 A 1 (LETCNER et al) 19 June 2014 (19.06.2014) entire document</td> <td>1-18</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	US 2013/0191034 A 1 (WEAST et al) 25 July 2013 (25.07.2013) entire document	1-4, 8-13, 17-18	--		-----	Y		5-7, 14-16	Y	US 2013/0029681 A 1 (GROKOP) 31 January 2013 (31 .01.2013) entire document	5-7, 14-16	A	US 201 1/0054359 A 1 (SAZONOV et al) 03 March 201 1 (03.03.201 1) entire document	1-18	A	US 2012/0232432 A 1 (KAHN et al) 13 September 2012 (13.09.2012) entire document	1-18	X,P	US 2014/0167973 A 1 (LETCNER et al) 19 June 2014 (19.06.2014) entire document	1-18
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<p>II Further documents are listed in the continuation of Box C. 1 1</p>																										
<table border="0" style="width:100%;"> <tr> <td style="width:50%; vertical-align: top;"> <p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="width:50%; vertical-align: top;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p> </td> </tr> </table>			<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>																						
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Date of the actual completion of the international search 07 January 2015	Date of mailing of the international search report 13 FEB 2015																									
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver  PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774																									