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(54) **Title:** METHOD AND APPARATUS FOR CATEGORIZING DEVICE USE CASE

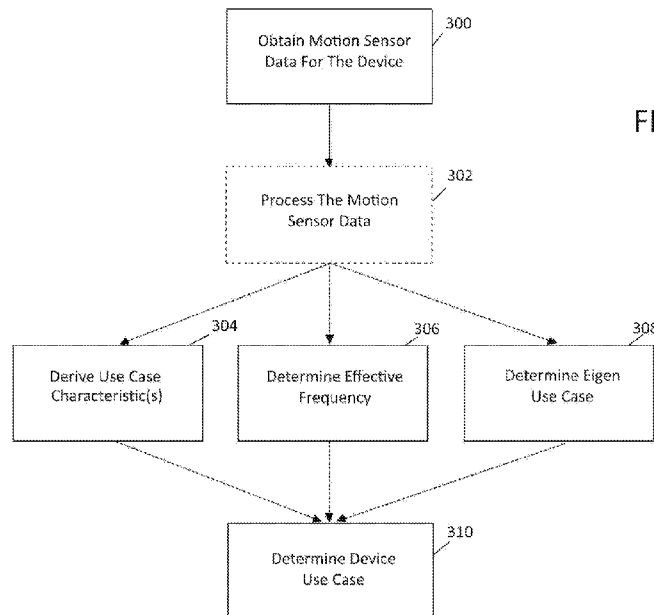


FIG. 3

(57) **Abstract:** Systems and methods are disclosed for categorizing a device use case for on foot motion with a portable device. Motion sensor data corresponding to motion of the portable device may be obtained, such as from a sensor assembly of the device. The motions sensor data is processed. Further, a use case characteristic may be determined from the processed and/or raw motion sensor data, an effective frequency may be determined from the processed and/or raw motion sensor data and/or an Eigen use case may be determined. The device use case may then be classified using the processed and/or raw motion sensor data and at least one of the use case characteristic, the effective frequency and the Eigen use case.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER
IPC: **G01P 13/00** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G01P 13/00 (2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)
classify, activity type, motion sensor, motion detection, classify, categorize, use, eigen, portable device, smartphone, and related keywords.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 120254100 A1 (GROKOP et al.) 4 October 2012 (04-10-2012) *Abstract, Figures 1 and 2, paragraphs 0003, 0019, 0026-0030 and 0058*	1-48
X	KHAN et al. "Human Activity Recognition via An Accelerometer-Enabled-Smartphone Using Kernel Discriminant Analysis". 5th International Conference on Future Information Technology (FutureTech), IEEE, 21-23 May 2010, Pages 1-6. *Abstract, Section "II. Methods", first paragraph, Figures 1 and 5, Conclusion*	1-48
X	GUIDOUX et al. "A smartphone-driven methodology for estimating physical activities and energy expenditure in free living conditions". Journal of Biomedical Informatics, 52, 15 July 2014, Pages 271-278. *Abstract, Figures 3 and 4, and Section "1.3. TEE evaluation with smartphone accelerometers"***	1-48

Further documents are listed in the continuation of Box C.

See patent family annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance	"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
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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DUARTE et al. "Activity Classification using a SmartPhone". IEEE 15th International Conference on e-Health Networking, Applications and Services, 2013, Pages 549-553. *Abstract, Figures 1, 3 and 6*	1-48
X	CA 2758710 A1 (BONAC) 7 May 2013 (07-05-2013) *Abstract, paragraphs 0013 and 0014, and Figure 2*	1-48
A	JP 2006317405 A (TOSHIKI et al.) 24 November 2006 (24-11-2006) *Whole document*	1-48
A	WO 2014110672 A1 (ALI et al.) 24 July 2014 (24-07-2014) *Whole document*	1-48

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

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Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US2012254100A1	04 October 2012 (04-10-2012)	US2012254100A1 US8930300B2 CN103460221A EP2691918A1 JP2014513285A KR20130138321A KR101573196B1 WO2012135767A1	04 October 2012 (04-10-2012) 06 January 2015 (06-01-2015) 18 December 2013 (18-12-2013) 05 February 2014 (05-02-2014) 29 May 2014 (29-05-2014) 18 December 2013 (18-12-2013) 01 December 2015 (01-12-2015) 04 October 2012 (04-10-2012)
CA2758710A1	07 May 2013 (07-05-2013)	None	
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