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OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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.

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Declarations under Rule 4.17:

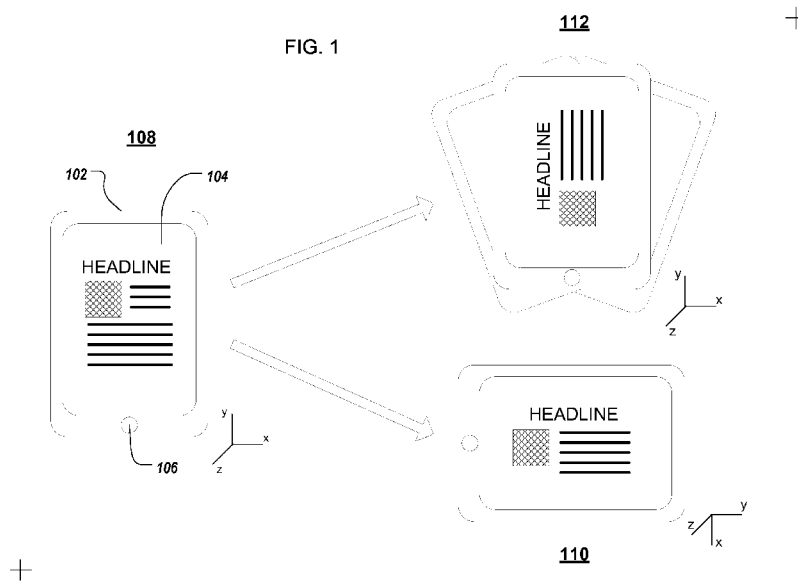
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:
30 January 2014

(54) Title: MULTI-STAGE DEVICE ORIENTATION DETECTION



(57) Abstract: In general, in one aspect, a method includes receiving data from one or more motion sensors of a mobile device and calculating, after the period of time, a statistical measurement of the motion sensor data. The method also includes comparing the calculated statistical measurement to one or more threshold values, and, based on the comparing, determining a dynamic state of the mobile device. The method also includes, based on the determined dynamic state, determining an orientation of the mobile device.

WO 2013/184997 A3

INTERNATIONAL SEARCH REPORT

International application No PCT/US2013/044652

A. CLASSIFICATION OF SUBJECT MATTER
 INV. G06F1/16
 ADD.
 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)
 G06F
 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2010/214320 A1 (MO HYUN-YOUNG [KR]) 26 August 2010 (2010-08-26) paragraph [0009] - paragraph [0012] paragraph [0022] - paragraph [0037] figures 1-3 -----	1-19
Y A	US 2010/033422 A1 (MUCIGNAT ANDREA [US] ET AL) 11 February 2010 (2010-02-11) paragraph [0003] - paragraph [0006] paragraph [0030] - paragraph [0031] paragraph [0038] paragraph [0040] - paragraph [0064] figures 3-9 ----- -/--	1-19 20-23,28

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 7 November 2013	Date of mailing of the international search report 26/11/2013
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Knutsson, Frédéric
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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/044652

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009/265671 A1 (SACHS DAVID [US] ET AL) 22 October 2009 (2009-10-22) paragraph [0012] - paragraph [0015] paragraph [0041] - paragraph [0042] paragraph [0081] - paragraph [0084] -----	1-19
X	EP 2 402 842 A1 (FUJITSU LTD [JP]) 4 January 2012 (2012-01-04) paragraph [0007] - paragraph [0008] paragraph [0036] - paragraph [0039] paragraph [0083] - paragraph [0104] figures 5,17,18 -----	20-23,28
A	US 2009/085867 A1 (BANG WON-CHUL [KR] ET AL) 2 April 2009 (2009-04-02) paragraph [0008] - paragraph [0014] -----	20-23,28
X	WO 2011/124070 A1 (HUAWEI DEVICE CO LTD [CN]; CHEN LEI [CN]) 13 October 2011 (2011-10-13) abstract	24,25, 27,29
Y	& EP 2 533 501 A1 (HUAWEI DEVICE CO LTD [CN]) 12 December 2012 (2012-12-12) paragraph [0007] - paragraph [0011] paragraph [0018] - paragraph [0031] paragraph [0040] - paragraph [0041] figures 1,2,4 -----	26
Y	US 2012/056801 A1 (BEVILACQUA MATHEW WILLIAM [US] ET AL) 8 March 2012 (2012-03-08) paragraph [0025] paragraph [0035] - paragraph [0039] figure 2 -----	26
X,P	US 2013/057571 A1 (HARRIS JOHN [US]) 7 March 2013 (2013-03-07) paragraph [0005] - paragraph [0007] paragraph [0020] - paragraph [0027] paragraph [0031] - paragraph [0033] figures 2a-2c -----	24,25, 27,29

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/044652

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-19

Using a statistical measurement of motion sensor data over a period of time to determine an orientation of a mobile device

2. claims: 20-23, 28

Selecting a set of thresholds from a plurality of different sets of thresholds to use in the determination of an orientation of a mobile device

3. claims: 24-27, 29

Determining that a user of a mobile device is in a lying position based on the transitions in orientation of the mobile device

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/044652

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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