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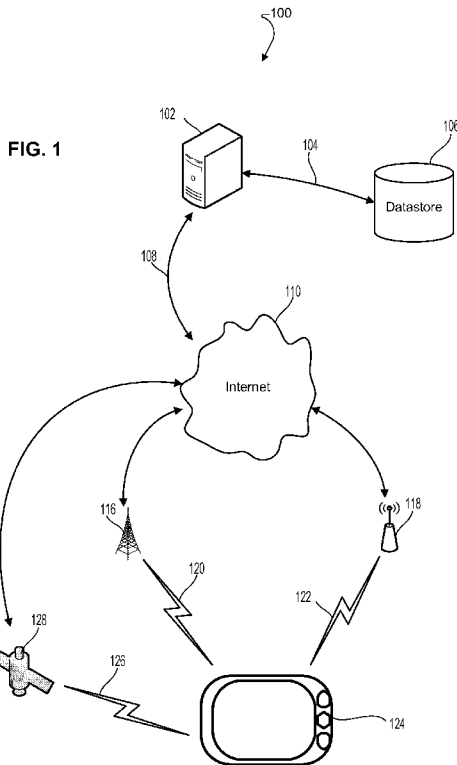
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kind of national protection available): AE, AG, AL, AM,
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DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR,
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MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
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TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,

[Continued on next page]

(54) Title: METHODS AND SYSTEMS FOR RETRIEVING AND CACHING GEOFENCE DATA



(57) Abstract: Mobile device systems and methods for monitoring geofences cache a subset of geofences within a likely travel perimeter determined based on speed and direction of travel, available roads, current traffic, etc. A server (102) may download to mobile devices (124) subsets of geofences within a likely travel perimeter determined based on a threshold travel time possible from a current location given current travel speed, direction and roads. Mobile device (124) may receive a list of local geofences from a server (102), which may maintain or have access to a database (106) containing all geofences. The mobile device (124) may use the cached geofences in the normal manner, by comparing its location to the cached list of local geofences to detect matches. In an embodiment, the mobile device (124) may calculate or receive from the server (102) an update perimeter, which when crossed may prompt the mobile device (124) to request an update to the geofences stored in cache.

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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:

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- 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))

(88) Date of publication of the international search report:

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
 INV. H04W4/02 G06F17/30 H04W4/18 H04L29/08
 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)
 H04W G06F H04L

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, COMPENDEX, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011/148626 A1 (ACEVEDO WILLIAM C [US]) 23 June 2011 (2011-06-23)	1,2,11, 20,29, 36,43, 50,57,64
A	figures 1,2B paragraphs [0003] - [0004] paragraphs [0009] - [0012] paragraph [0014] paragraphs [0017] - [0023] paragraphs [0027] - [0030] ----- -/--	3-8, 12-17, 21-26, 30-34, 37-41, 44-48, 52-56, 59-63, 66-70

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<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 7 February 2014	Date of mailing of the international search report 04/04/2014
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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 Jeampierre, Gérald
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INTERNATIONAL SEARCH REPORT

International application No

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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	<p>US 2007/143013 A1 (BREEN THOMAS B [US]) 21 June 2007 (2007-06-21)</p> <p>figures 1-4 paragraphs [0001] - [0007] paragraph [0018] paragraphs [0022] - [0024] paragraphs [0028] - [0041]</p> <p>-----</p>	<p>1-8, 11-17, 20-26, 29-34, 36-41, 43-48, 50, 52-57, 59-64, 66-70</p>
X	<p>WO 2009/155039 A1 (ALCATEL LUCENT USA INC [US]; HAMPEL KARL GEORG [US]; PERINKULAM SURYAN) 23 December 2009 (2009-12-23)</p>	<p>1,2,11, 20,29, 36,43, 50,57,64</p>
A	<p>figures 1A,2A,2B,3 page 2, lines 13-26 page 5, lines 20-25 page 7, line 3 - page 12, line 11 page 13, lines 12-16</p> <p>-----</p>	<p>3-8, 12-17, 21-26, 30-34, 37-41, 44-48, 52-56, 59-63, 66-70</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/043434

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2011148626 A1	23-06-2011	US 2011148626 A1	23-06-2011
		WO 2010080938 A2	15-07-2010

US 2007143013 A1	21-06-2007	US 2007143013 A1	21-06-2007
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		WO 2007078816 A2	12-07-2007

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		CN 102047695 A	04-05-2011
		EP 2286604 A1	23-02-2011
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		US 2009298513 A1	03-12-2009
		WO 2009155039 A1	23-12-2009

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/043434

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.:

see additional sheet(s)

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: 1-8, 11-17, 20-26, 29-34, 36-41, 43-48, 50, 52-57, 59-64, 66-70

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2. claims: 1, 2, 9, 11, 18, 20, 27, 29, 35-37, 42, 43, 49-51, 57, 58, 64, 65

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3. claims: 1, 2, 10, 11, 19, 20, 28, 29, 36, 43, 50, 57, 64

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