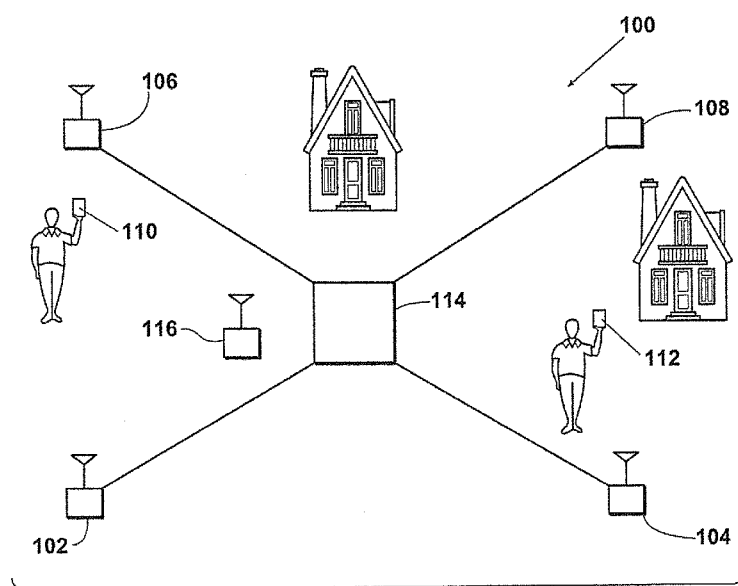




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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, 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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[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR CELL PHONE TARGETING AND TRACKING

**Fig. 1**

(57) Abstract: In one preferred embodiment the present invention will provide a system and method for tracking a plurality of user cell phones within a defined coverage area, including indoor areas of a building and/or within sub-surface structures. Such a system will include: at least one cell phone located within a pre-defined coverage area; a direction finding receiver, comprising a plurality of sensors, for receiving transmissions from the cell phone; and a location server for calculating the position and tracking movement of the cell phone. In another preferred embodiment, the inventive system will further comprise at least one local cell through which the tracked cell phone communicates with a cellular phone network.

**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))*

(88) Date of publication of the international search report:
7 February 2013

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/35876

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - H04W 24/00 (2012.01)

USPC - 455/456.1

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)

USPC: 455/456.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
IPC(8): H04W 24/00 (2012.01); USPC: 455/456.1, 456.5, 456.6, 457 (keyword limited; terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST (PGPB, USPT, EPAB, JPAB); Google Scholar; Google Patents

Keywords: Cellphone; location; interferometers; azimuthal direction; leading edge; time of arrival

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0207694 A1 (GUIGNE et al.) 20 August 2009 (20.08.2009), entire document, especially; para [0006], [0010], [0025], [0045], [0048], [0054], [0055], [0084], [0089]-[0091], [0100], [0106]	1-3, 6-7, 9, 11-14
Y	US 6,225,949 B1 (GUARD) 01 May 2001 (01.05.2001), entire document, especially; col. 1, ln 11-25	1-3, 6-7, 9, 11-14
A	US 5,150,310 A (GREENSPUN et al.) 22 September 1992 (22.09.1992), entire document	1-3, 6-7, 9, 11-14
A	US 6,255,992 B1 (MADDEN) 03 July 2001 (03.07.2001), entire document	1-3, 6-7, 9, 11-14
A	US 3,789,413 A (ROSS et al.) 29 January 1974 (29.01.1974), entire document	1-3, 6-7, 9, 11-14
A	US 2003/0092448 A1 (FORSTROM et al.) 15 May 2003 (15.05.2003), entire document	1-3, 6-7, 9, 11-14
A	US 5,327,144 A (STILP et al.) 05 July 1994 (05.07.1994), entire document	1-3, 6-7, 9, 11-14
A	US 4,797,679 A (CUS DIN et al.) 10 January 1989 (10.01.1989), entire document	1-3, 6-7, 9, 11-14
A	US 6,407,703 B1 (MINTER et al.) 18 June 2002 (18.06.2002), entire document	1-3, 6-7, 9, 11-14

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"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).

"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

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search

17 September 2012 (17.09.2012)

Date of mailing of the international search report

16 OCT 2012

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

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/35876

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:

Group I: Claims 1-3, 6-7, 9, 11-14

Group II: Claims 4-5, 8

Group III: Claim 10

--see extra 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 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.:
1-3, 6-7, 9, 11-14

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.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/US 12/35876

BOX NO. 3 Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: Claims 1-3, 6-7, 9, 11-14, drawn to a system and corresponding method for determining a location of a cell phone with an azimuthal detector at least for detecting a first time of arrival; at least one outrigger sensor positionable to be located remotely from said azimuthal detector, and a location server in communication with said azimuthal detector and with each of said at least one outrigger sensor.

Group II: Claims 4-5, 8, drawn to a system and corresponding method for determining a location of a cell phone with at least three outrigger sensors positionable to be located remotely from each other, and a location server in communication with each of the at least one outrigger sensors.

Group III: Claim 10: drawn to providing a phone database containing cell phone IDs, comprising the further steps of: obtaining identifying information from the cell phone; accessing the phone database; comparing identifying information from the cell phone with authorized cell phone IDs to determine whether the cell phone is authorized; if the cell phone is not authorized, generating an alarm; and, if the cell phone is authorized, continuing to determine the location of the cell phone.

The inventions listed as Groups I through III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Groups II-III do not require an azimuthal detector at least one outrigger sensor positionable to be located remotely from said azimuthal detector, as required by group I.

Groups I and III do not require at least three outrigger sensors positionable to be located remotely from each other, as required by group II.

Groups I-II do not require authorized cell phone ID detection and processing, as required by group III.

Groups I through III therefore lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.