

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
1 March 2007 (01.03.2007)

PCT

(10) International Publication Number  
**WO 2007/024888 A3**

(51) International Patent Classification:  
*H04M 11/04* (2006.01) *G08B 23/00* (2006.01)  
*H04B 1/38* (2006.01)

(74) Agent: **PARKER, Stephen, B.**; WATCHSTONE P + D,  
1300 Eye Steet, NW, 400 East Tower, Washington, District  
Of Columbia 20005 (US).

(21) International Application Number:  
PCT/US2006/032824

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT,  
LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ,  
NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU,  
SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(22) International Filing Date: 22 August 2006 (22.08.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/710,354 22 August 2005 (22.08.2005) US  
11/419,575 22 May 2006 (22.05.2006) US

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,  
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US): **TEL-  
CORDIA TECHNOLOGIES, INC.** [US/US]; 1 Telcor-  
dia Drive, Suite 05G0116, Piscataway, New Jersey (US).

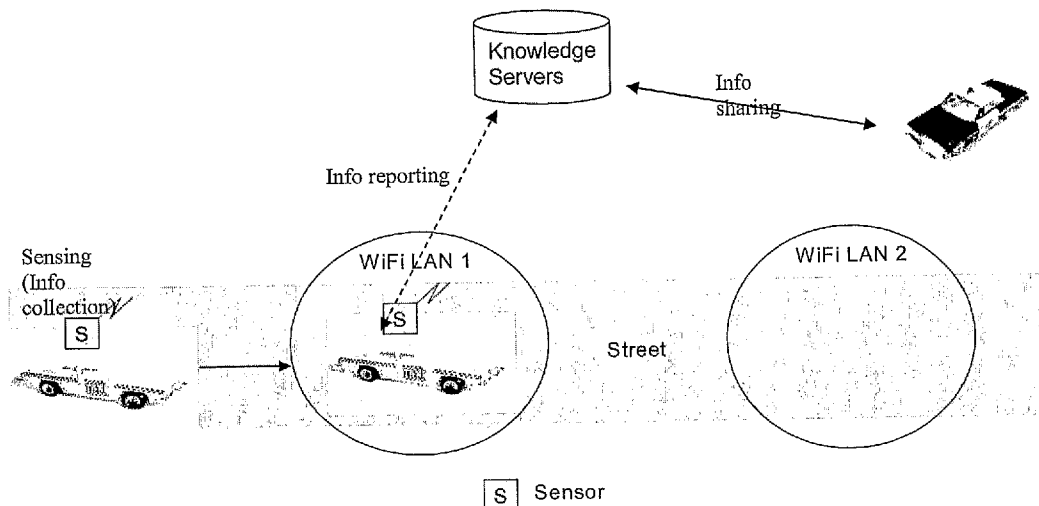
(72) Inventors; and

(75) Inventors/Applicants (for US only): **ZHANG, Tao**  
[US/US]; 427 Harmon Avenue, Fort Lee, New Jersey  
07026 (US). **MADHANI, Sunil** [IN/US]; 7700 W. Parmer  
Lane, Pl67/D2220, Austin, TX 78729 (US). **YAQUB,  
Raziq** [PK/US]; 15 Cook Court, Stewartville, NJ 08886  
(US).

**Published:**  
— with international search report  
— before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

[Continued on next page]

(54) Title: ENVIRONMENTAL MONITORING USING MOBILE DEVICES AND NETWORK INFORMATION SERVER



(57) Abstract: Sensors mounted on vehicles (e.g., buses, taxis, police cars) and public personnel (e.g., policemen) are used to monitor various conditions and situations such as air quality, potential biological and chemical attacks, and road and traffic conditions. The invention improves upon the typical approach that deploys fixed sensors at every geographical position of interest. The total number of required sensors and the size and the complexity of the network infrastructure required to connect the sensors are reduced and simplified. A method for estimating the number of mobile sensors required to cover a region of interest also is disclosed. A relatively small number of mobile sensors may be sufficient to cover a large area at a lower cost and less complexity than a fixed sensor network.

WO 2007/024888 A3



---

**(88) Date of publication of the international search report:**  
18 September 2008

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US06/32824

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC: **G08B 1/08( 2006.01);H04M 11/04( 2006.01)**  
  
 USPC: 455/557,404.1,426.1;340/531, 539.1  
 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)  
 U.S. : 455/557, 404.1, 426.1; 340/531, 539.1

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)  
 EAST SEARCH

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| Y          | US 6,023, 233 A (BAXTER, JR.) 08 February 2000 (08.02.2000), whole document        | 1-13                  |
| Y          | US 6,437,692 B1 (PETITE et al.) 20 August 2002 (20.08.2002), figure 14             | 2, 3, 10-13           |

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

|   |  |
|---|--|
| * Special categories of cited documents:  | "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  |
| "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   |
| "E" earlier application or patent published on or after the international filing date   | "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 |
| "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) | "&" document member of the same patent family  |
| "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  |  |

|   |   |
|---|---|
| Date of the actual completion of the international search<br>04 June 2008 (04.06.2008)  | Date of mailing of the international search report<br><b>16 JUL 2008</b>                  |
| Name and mailing address of the ISA/US<br>Mail Stop PCT, Attn: ISA/US<br>Commissioner for Patents<br>P.O. Box 1450<br>Alexandria, Virginia 22313-1450<br>Facsimile No. (571) 273-3201 | Authorized officer<br><b>YUWEN PAN</b><br>Telephone No. 703-306-0377<br><i>Karen Ward</i> |