

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
23 January 2003 (23.01.2003)

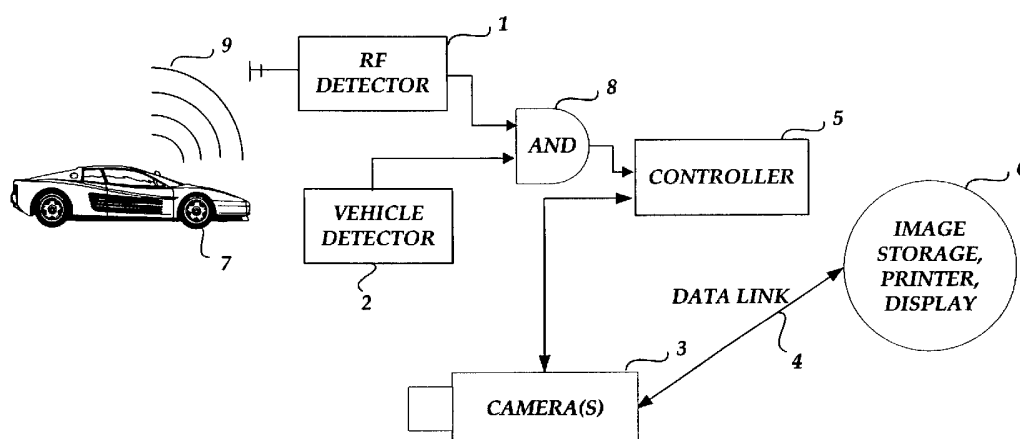
PCT

(10) International Publication Number  
**WO 03/007513 A3**

- (51) International Patent Classification<sup>7</sup>: **H04B 17/00**, 1/034, 1/38 (74) Agent: **DAIGNAULT, Ronald, A.**; Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903 (US).
- (21) International Application Number: PCT/US02/21973 (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 10 July 2002 (10.07.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/304,234 10 July 2001 (10.07.2001) US (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant (*for all designated States except US*): **VAN-DESBILT UNIVERSITY** [US/US]; Technology Transfer, 305 Kirkland Hall, Nashville, TN 37240 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **HOLMAN, Timothy, W.** [US/US]; 4800 Redcastle Ridge, Nashville, TN 37211 (US). **FELDMAN, Leonard, C.** [US/US]; 510 Belgrave Park, Nashville, TN 37215 (US). **SCHRIMPF, Ronald, D.** [US/US]; 717 Fawn Circle, Franklin, TN 37067 (US).
- Published:  
— with international search report
- (88) Date of publication of the international search report:  
24 July 2003

[Continued on next page]

(54) Title: APPARATUS AND METHODS FOR DETECTING THE USAGE OF A CELLULAR PHONE BY AN OPERATOR OF A VEHICLE



(57) Abstract: An apparatus and methods for detecting the usage of a cellular phone by an operator of a vehicle. In one embodiment of the present invention, the apparatus includes an RF detector (1) detecting a radio frequency signal in the range of at least one transmit frequency band from the usage of a cellular phone at a time and around a location, a motion detector (2) detecting motion of a vehicle (7) substantially at the same time and substantially around the same location, a controller (5) coupled to the RF detector and the motion detector determining whether the radio frequency signal from the usage of a cellular phone and the motion of a vehicle are detected substantially at the same time and substantially around the same location, and a camera coupled to the controller for obtaining information related to the identification of the vehicle.



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US02/21973

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : H04B 17/00, 1/034, 1/38

US CL : Please See Extra Sheet.

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. : 455/67.1, 67.7, 405, 423, 425, 426, 456, 457, 550, 552, 555, 566, 92, 95, 96, 99, 113, 115

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: detect, usage, cellular phone, operator, vehicle, radio signal, motion, range, identification

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,678,200 A (LEVI et al) 14 October 1997, col. 2, lines 48-col. 3, lines 41.	1-47
A	US 5,990,833 A (AHIBOM et al) 23 November 1999, col. 3, lines 20-col. 5, lines 39.	1-47
A	US 5,740,539 A (ISHII et al) 14 April 1998, Fig. 1-11.	1-47
A,P	US 6,262,657 B1 (OKUDA et al) 17 July 2001, col. 1, lines 19-col. 2, lines 51.	1-47
A,P	US 6,411,250 B1 (OSWALD et al) 25 June 2002, col. 3, lines 10-col. 6, lines 57.	1-47



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 document 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

21 SEPTEMBER 2002

Date of mailing of the international search report

19 DEC 2002

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

JOHN J. LEE

Telephone No. (703) 306-5936

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/21973

## A. CLASSIFICATION OF SUBJECT MATTER:

US CL :

455/67.1, 67.7, 405, 423, 425, 426, 456, 457, 550, 552, 555, 566, 92, 95, 96, 99, 113, 115