

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
23 July 2009 (23.07.2009)

PCT

(10) International Publication Number
WO 2009/091650 A3

(51) International Patent Classification:
H04W 64/00 (2009.01) H04W 4/02 (2009.01)
H04L 12/28 (2006.01)

(74) Agent: WARD, John, P.; Greenberg Traurig, LLP, 2450 Colorado Avenue, Suite 400 East, Santa Monica, CA 90404 (US).

(21) International Application Number:
PCT/US2009/030322

(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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(22) International Filing Date:
7 January 2009 (07.01.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/016,949 18 January 2008 (18.01.2008) US

(71) Applicant (for all designated States except US): MITAC INTERNATIONAL CORPORATION; No.200, Wen Hua 2nd Rd., Kuei San Hsriang, Taoyuan (TW).

(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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (for US only): VAVRUS, Jon, L. [US/US]; 2542 San Andres Way, Claremont, CA 91711 (US). CLARK, Brant, Miller [US/US]; 25 Bear Drive, Mount Baldy, CA 91759 (US).

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR HYBRID ROUTING USING BREADCRUMB PATHS

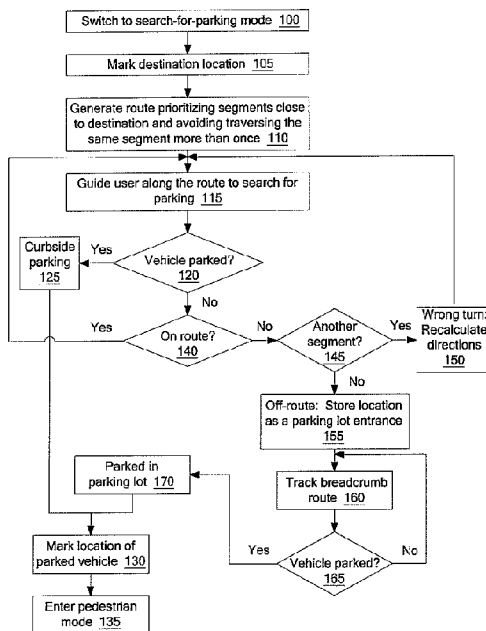


FIG. 1

(57) Abstract: A method and apparatus for routing using a positioning device and a map having a plurality of segments; generating a first route from a first location to a second location; generating signals to provide directions along the first route using positioning information from the positioning device; detecting that the positioning device is off-route at a third location, the third location being adjacent to the first route; generating a second route by tracking the position of the positioning device from the third location to a fourth location, and, in some cases, storing the second route for use in route generation.

WO 2009/091650 A3



Published:

(88) Date of publication of the international search report:
15 October 2009

- *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))*

A. CLASSIFICATION OF SUBJECT MATTER***H04W 64/00(2009.01)i, H04L 12/28(2006.01)i, H04W 4/02(2009.01)i***

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)

IPC 9: H04W, H04Q, H04L, H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility Models since 1975

Japanese Utility models and applications for Utility Models since 1975

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

eKOMPASS(KIPO internal) & keywords: "route, positioning device, map, off-route, segment, direction"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5926118 A (HAYASHIDA, KIHACHI et al.) 20 Jul. 1999 See abstract, figures 2-3,5-6,11, col.2, line 33 - col.3, line 54, col.6, lines 32-55, col.7, line 13 - col.8, line 15, col.9, lines 38-47, and claims 1-11.	1-2,4-9,11-16,18-20
A	US 2004-0049337 A1 (KNOCKEART, RONALD P. et al.) 11 Mar. 2004 See abstract, figures 2-3,6-10, paragraphs [0087]-[0089], [0101]-[0105], [0113]-[0115], [0125]-[0135], and claims 22-26.	1-20
A	US 6662105 B1 (TADA, AKIHITO et al.) 09 Dec. 2003 See abstract, figures 1,17, col.2, lines 41-54, col.8, lines 33-58, and claims 1,4.	1-20
A	WO 2007-129710 A1 (SANYO ELECTRIC CO., LTD., TOTTORI SANYO ELECTRIC CO., LTD.) 15 Nov. 2007 See abstract, figure 1, and claim 1.	1-20
A	US 6321158 B1 (DELORME, DAVID M. et al.) 20 Nov. 2001 See abstract, figure 1A1, col.5, line 56 - col.6, line 63, col.12, line 63 - col.13, line 32, and claims 1-7.	1-20

 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

"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 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

31 AUGUST 2009 (31.08.2009)

Date of mailing of the international search report

31 AUGUST 2009 (31.08.2009)

Name and mailing address of the ISA/KR


 Korean Intellectual Property Office
 Government Complex-Daejeon, 139 Seonsa-ro, Seo-
 gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

KIM, Kwang Sik

Telephone No. 82-42-481-8355



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/030322

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5926118 A	20.07.1999	EP 0751376 A3	08.04.1998
		EP 0751376 A2	02.01.1997
		EP 0751376 B1	26.03.2003
		JP 09-14984 A	17.01.1997
<hr/>			
US 2004-0049337 A1	11.03.2004	US 2008-0183376 A1	31.07.2008
		US 6621452 B2	16.09.2003
		US 6628233 B2	30.09.2003
		US 6639550 B2	28.10.2003
		US 6664924 B2	16.12.2003
		US 6680694 B1	20.01.2004
		US 6707421 B1	16.03.2004
		US 6784832 B2	31.08.2004
		US 6812888 B2	02.11.2004
		US 6909398 B2	21.06.2005
		US 6968272 B2	22.11.2005
		US 6970783 B2	29.11.2005
		US 2003-0018428 A1	23.01.2003
		US 2003-0055542 A1	20.03.2003
		US 2003-0055553 A1	20.03.2003
		US 2003-0055555 A1	20.03.2003
		US 2004-0049336 A1	11.03.2004
US 2004-0056797 A1	25.03.2004		
US 2004-0064245 A1	01.04.2004		
US 2004-0066330 A1	08.04.2004		
US 2004-0104842 A1	03.06.2004		
<hr/>			
US 6662105 B1	09.12.2003	EP 1273884 A2	08.01.2003
		EP 1102036 A1	23.05.2001
		EP 1102036 B1	21.01.2004
		EP 1273884 A3	19.01.2005
		JP 03-589124 B2	27.08.2004
		JP 2001-141492 A	25.05.2001
<hr/>			
WO 2007-129710 A1	15.11.2007	EP 2017577 A1	21.01.2009
		JP 2007-303856 A	22.11.2007
		JP 2007-303857 A	22.11.2007
		JP 2007-303858 A	22.11.2007
<hr/>			

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/030322

Patent document cited in search report	Publication date	Patent family member(s)	Publication date		
US 6321158 B1	20.11.2001	CA 2279191 C	03.06.2003		
		CA 2279191 A1	13.08.1998		
		CA 2257258 C	27.08.2002		
		CA 2280677 A1	29.02.2000		
		US 5848373 A	08.12.1998		
		US 5802492 A	01.09.1998		
		US 5559707 A	24.09.1996		
		US 5948040 A	07.09.1999		
		US 5559707 A	24.09.1996		
		US 5802492 A	01.09.1998		
		US 5848373 A	08.12.1998		
		US 5948040 A	07.09.1999		
		WO 1997-048065 A1	18.12.1997		
		WO 1998-035311 A1	13.08.1998		
		<hr/>			