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(54) **LOCATION QUERY SERVICE FOR WIRELESS NETWORKS**

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(58) **Field of Classification Search** **455/435.1, 455/404.1, 404.2, 456.1, 457, 521, 426.1; 340/988, 991, 992, 993**
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,757,267 A	7/1988	Riskin	379/113
5,303,393 A	4/1994	Noreen et al.	455/3.2
5,511,111 A	4/1996	Serbetcioğlu et al.	379/67
5,512,908 A	4/1996	Herrick	342/387
5,566,235 A	10/1996	Hetz	379/221.02
5,588,042 A	12/1996	Comer	379/59
5,596,625 A	1/1997	LeBlanc	379/60
5,610,973 A	3/1997	Comer	379/59
5,625,364 A	4/1997	Herrick et al.	342/449
5,657,375 A	8/1997	Connolly et al.	455/436
5,663,734 A	9/1997	Krasner	
5,701,301 A	12/1997	Weisser, Jr.	370/428
5,712,899 A *	1/1998	Pace, II	455/456.2
5,727,057 A	3/1998	Emery et al.	379/211

5,771,283 A	6/1998	Chang et al.	379/142
5,794,210 A	8/1998	Goldhaber et al.	705/14
5,819,155 A	10/1998	Worthy et al.	455/2
5,838,774 A	11/1998	Weisser, Jr.	379/92.02
5,852,775 A	12/1998	Hidary	455/412.1
5,875,401 A	2/1999	Rochkind	455/466

(Continued)

FOREIGN PATENT DOCUMENTS

EP 000964542 A2 12/1999 705/14 X

(Continued)

OTHER PUBLICATIONS

“Wireless Application Protocol”, Oct. 1999 Wireless Internet Today, pp. 1-20.

(Continued)

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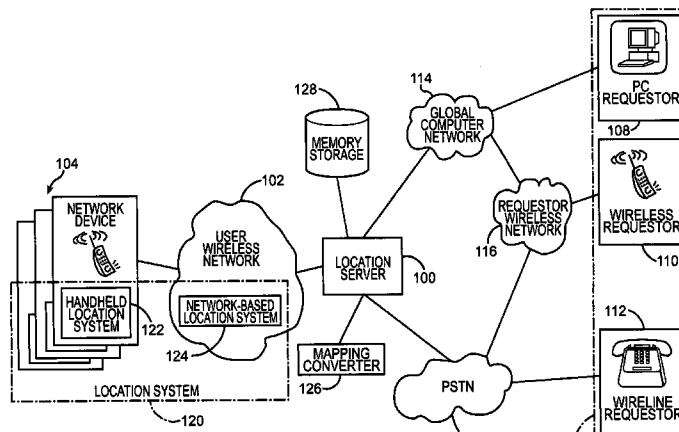
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(57) **ABSTRACT**

A location query service for use with a wireless network that tracks the location of network devices, such as a network complying with enhanced 911 standards. The service provides requesters with the locations of network users, based on the locations of the users' wireless network devices. The service receives a location query from a requester, retrieves location information associated with the network user, and returns the location information to the requester. Alternately, before returning the location information to the requester, the service authenticates that the requestor is authorized by the network user to receive the network user's location information. A requestor can submit a location query, for example, by voice calls through the Public Switched Telephone Network (PSTN) to an interactive voice response unit (IVRU), personal computer access through a global computer network, and cellular telephone access through a global computer network.

22 Claims, 4 Drawing Sheets



U.S. PATENT DOCUMENTS

5,903,636	A	5/1999	Malik	379/142.01
5,949,867	A	9/1999	Sonnenberg	379/221.02
5,961,593	A	10/1999	Gabber et al.	709/219
6,011,975	A	1/2000	Emery et al.	455/456.1
6,028,921	A	2/2000	Malik et al.	379/201
6,047,327	A	4/2000	Tso et al.	709/232
6,085,086	A	7/2000	La Porta et al.	455/432
6,091,956	A	7/2000	Hollenberg	455/456.5
6,101,381	A	8/2000	Tajima et al.	455/414
6,112,186	A	8/2000	Bergh et al.	705/10
6,122,520	A	9/2000	Want et al.	455/456.2
6,133,853	A	10/2000	Obradovich et al.	340/905
6,138,003	A *	10/2000	Kingdon et al.	455/410
6,157,829	A	12/2000	Grube et al.	455/414
6,184,829	B1	2/2001	Stilp	342/387
6,185,426	B1	2/2001	Alperovich et al.	455/456
6,208,854	B1	3/2001	Roberts et al.	455/417
6,208,866	B1	3/2001	Rouhollahzadeh et al.	455/456.5
6,233,329	B1	5/2001	Urban et al.	379/142.1
6,259,405	B1	7/2001	Stewart et al.	342/457
6,311,069	B1 *	10/2001	Havinis et al.	455/456.4
6,317,718	B1	11/2001	Fano	705/1
6,321,092	B1	11/2001	Fitch et al.	455/456.5
6,324,396	B1	11/2001	Vasa et al.	455/415
6,332,127	B1	12/2001	Bandera et al.	705/14
6,353,664	B1	3/2002	Cannon et al.	379/142.1
6,377,810	B1	4/2002	Geiger et al.	455/456.2
6,385,591	B1	5/2002	Mankoff	705/14
6,418,308	B1	7/2002	Heinonen et al.	455/414
6,421,441	B1	7/2002	Dzuban	379/221.09
6,427,073	B1	7/2002	Kortesalmi et al.	455/414.1
6,442,391	B1	8/2002	Johansson et al.	455/456
6,442,687	B1	8/2002	Savage	713/156
6,449,497	B1	9/2002	Kirbas et al.	455/564
6,463,533	B1	10/2002	Calamera et al.	713/163
6,470,378	B1	10/2002	Tracton et al.	709/203
6,473,626	B1	10/2002	Nevoux et al.	455/560
6,477,382	B1	11/2002	Mansfield et al.	455/458
6,484,148	B1	11/2002	Boyd	705/14
6,496,931	B1	12/2002	Rajchel et al.	713/168
6,505,046	B1	1/2003	Baker	455/456.3
6,505,048	B1	1/2003	Moles et al.	455/456.1
6,505,049	B1	1/2003	Dorenbosch	455/456
6,505,163	B1	1/2003	Zhang et al.	704/275
6,522,876	B1	2/2003	Weiland et al.	455/414.1
6,526,275	B1	2/2003	Calvert	455/418
6,545,596	B1	4/2003	Moon	340/425.5
6,546,257	B1	4/2003	Stewart	455/456.3
6,560,442	B1	5/2003	Yost et al.	455/67.1
6,560,461	B1	5/2003	Fomukong et al.	455/456
6,594,482	B1	7/2003	Findikli et al.	455/411
6,618,474	B1	9/2003	Reese	379/142.17
6,618,593	B1	9/2003	Drutman et al.	455/456
6,622,016	B1	9/2003	Sladek et al.	455/414.1
6,628,928	B1	9/2003	Crosby et al.	455/77
6,628,938	B1	9/2003	Rachabathuni et al.	455/414
6,647,257	B1	11/2003	Owensby	455/414.1
6,647,269	B1	11/2003	Hendrey et al.	455/456
6,662,014	B1 *	12/2003	Walsh	455/456.2
6,675,017	B1 *	1/2004	Zellner et al.	379/142.02
6,738,808	B1	5/2004	Zellner et al.	709/223
6,819,929	B1	11/2004	Antonucci et al.	455/445
6,850,758	B1	2/2005	Paul et al.	455/422.1
6,868,074	B1	3/2005	Hanson	370/328
2001/0034709	A1	10/2001	Stoifo et al.	705/51
2002/0077130	A1	6/2002	Owensby	455/466

WO WO 99/27716 6/1999

OTHER PUBLICATIONS

Mark Moeglein, et al., "An Introduction to Snap Track Server-Aided GPS Technology", available at <http://www.snaptrack.com/atwork.html>.
 U.S. Official Action dated Dec. 13, 2005 cited in U.S. Appl. No. 09/740,372.
 U.S. Official Action dated Nov. 21, 2005 cited in U.S. Appl. No. 09/740,414.
 U.S. Official Action dated Mar. 1, 2004 cited in U.S. Appl. No. 09/740,375.
 U.S. Final Official Action dated Sep. 24, 2004 cited in U.S. Appl. No. 09/740,375.
 U.S. Official Action dated Feb. 28, 2005 cited in U.S. Appl. No. 09/740,375.
 U.S. Final Official Action dated Jul. 26, 2005 cited in U.S. Appl. No. 09/740,375.
 Petronis, Scott, "Mapping Technology: The Common Thread," Wireless Review, vol. 17, No. 3, pp. 10-14, Feb. 1, 2000, ISSN: 1099-9248.
 U.S. Official Action dated May 7, 2003 cited in U.S. Appl. No. 09/740,373.
 U.S. Final Official Action dated Oct. 21, 2003 cited in U.S. Appl. No. 09/740,373.
 U.S. Official Action dated Jan. 26, 2004 cited in U.S. Appl. No. 09/740,373.
 U.S. Official Action dated Apr. 28, 2005 cited in U.S. Appl. No. 09/740,373.
 U.S. Official Action dated Aug. 30, 2005 in U.S. Appl. No. 10/704,775.
 U.S. Official Action dated Oct. 4, 2005 in U.S. Appl. No. 10/819,940.
 Co-pending U.S. Appl. No. 11/252,039, filed Oct. 17, 2005.
 U.S. Official Action dated Jul. 26, 2005 in U.S. Appl. No. 09/740,414.
 U.S. Appl. No. 09/630,134, entitled "Method and System for Delivery of a Calling Party's Location," filed Aug. 1, 2000, Inventors: Samuel N. Zellner; Mark J. Enzmann; and Robert T. Moton Jr.
 U.S. Appl. No. 09/740,414, entitled "Location Blocking Service from a Wireless Service Provider," filed Dec. 19, 2000, Inventors: Samuel N. Zellner; Mark J. Enzmann; and Robert T. Moton Jr.
 U.S. Appl. No. 09/740,372, entitled "Identity Blocking Service from a Wireless Service Provider," filed Dec. 19, 2000, Inventors: Samuel N. Zellner; Mark J. Enzmann; and Robert T. Moton Jr.
 U.S. Appl. No. 09/739,162, entitled "System and Method for Surveying Wireless Device Users by Location," filed Dec. 19, 2000, Inventors: Samuel N. Zellner; Mark J. Enzmann; and Robert T. Moton Jr.
 U.S. Appl. No. 09/739,340, entitled "System and Method for Using Location Information to Execute an Action," filed Dec. 19, 2000, Inventors: Samuel N. Zellner; Mark J. Enzmann; and Robert T. Moton Jr.
 U.S. Appl. No. 10/704,775, entitled "Location Blocking Service for Wireless Networks," filed Nov. 12, 2003, Inventors: Samuel N. Zellner; Mark J. Enzmann; and Robert T. Moton Jr.
 U.S. Appl. No. 10/819,940, entitled "Anonymous Location Service for Wireless Networks," filed Apr. 8, 2004, Inventors: Samuel N. Zellner; Mark J. Enzmann; and Robert T. Moton Jr.
 U.S. Official Action dated Feb. 12, 2003 in U.S. Appl. No. 09/630,134.
 U.S. Official Action dated Jul. 10, 2003 in U.S. Appl. No. 09/630,134.
 U.S. Official Action dated Jun. 7, 2004, in U.S. Appl. No. 09/630,134.
 U.S. Official Action dated Jan. 13, 2005 in U.S. Appl. No. 09/630,134.
 U.S. Official Action dated May 16, 2003 in U.S. Appl. No. 09/740,372.

FOREIGN PATENT DOCUMENTS

U.S. Official Action dated Apr. 15, 2004 in U.S. Appl. No. 09/740,372.
U.S. Official Action dated Nov. 2, 2004 in U.S. Appl. No. 09/740,372.
U.S. Official Action dated Mar. 12, 2004 in U.S. Appl. No. 09/739,340.
U.S. Official Action dated Dec. 10, 2004 in U.S. Appl. No. 09/739,340.
U.S. Official Action dated Nov. 10, 2003 in U.S. Appl. No. 09/739,162.
U.S. Official Action dated Mar. 9, 2004 in U.S. Appl. No. 09/739,162.
U.S. Official Action dated Sep. 9, 2004 in U.S. Appl. No. 09/739,162.
U.S. Official Action dated Nov. 10, 2003 in U.S. Appl. No. 09/740,414.
U.S. Official Action dated Apr. 21, 2004 in U.S. Appl. No. 09/740,414.
U.S. Official Action dated Oct. 5, 2004 in U.S. Appl. No. 09/740,414.
PCT International Search Report, PCT/US01/22295.
Microsoft Mobility Developer Conference 2003.
3rd Generation Partnership Project: Technical Specification Group Services and System Aspects; Functional Stage 2 Description of Location Services in UMTS (1999).
http://www.openwave.com/us/news_room/press_releases/2001/20010320, "Open Wave Announces Availability to End-to-End Set of Location Services for Wireless Internet".

U.S. Appl. No. 09/739,339.
U.S. Appl. No. 09/739,162.
U.S. Appl. No. 09/606,535.
U.S. Appl. No. 09/606,534.
U.S. Appl. No. 09/739,340.
U.S. Appl. No. 09/630,134.
U.S. Official Action dated Feb. 24, 2006 cited in U.S. Appl. No. 09/630,134.
U.S. Official Action dated Mar. 10, 2006 cited in U.S. Appl. No. 11/252,039.
U.S. Appl. No. 11/298,419, entitled "System and Method for Using Location Information to Execute an Action" filed Dec. 9, 2005, Inventors: Robert T. Moton Jr.; Mark J. Enzmann; and Samuel N. Zellner.
U.S. Appl. No. 11/298,149, entitled "System and Method for Using Location Information to Execute an Action" filed Dec. 9, 2005, Inventors: Robert T. Moton Jr.; Mark J. Enzmann; and Samuel N. Zellner.
U.S. Appl. No. 11/300,694 entitled "System and Method for Using Location Information to Execute an Action" filed Dec. 15, 2005, Inventor: Samuel N. Zellner.
U.S. Official Action dated Apr. 21, 2006 cited in U.S. Appl. No. 11/322,531.
U.S. Official Action dated Jun. 7, 2005 in U.S. Appl. No. 09/630,134.

* cited by examiner

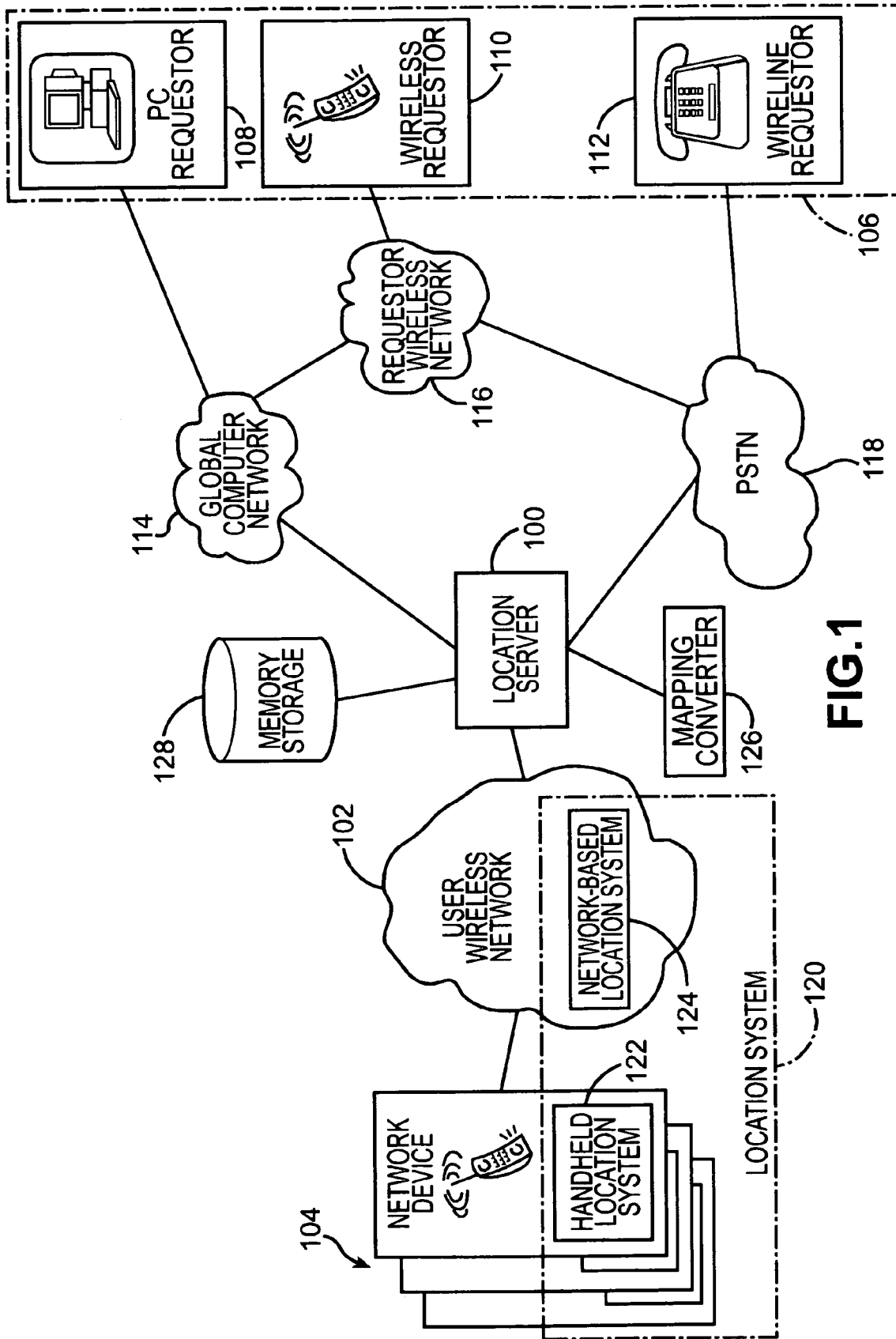


FIG. 1

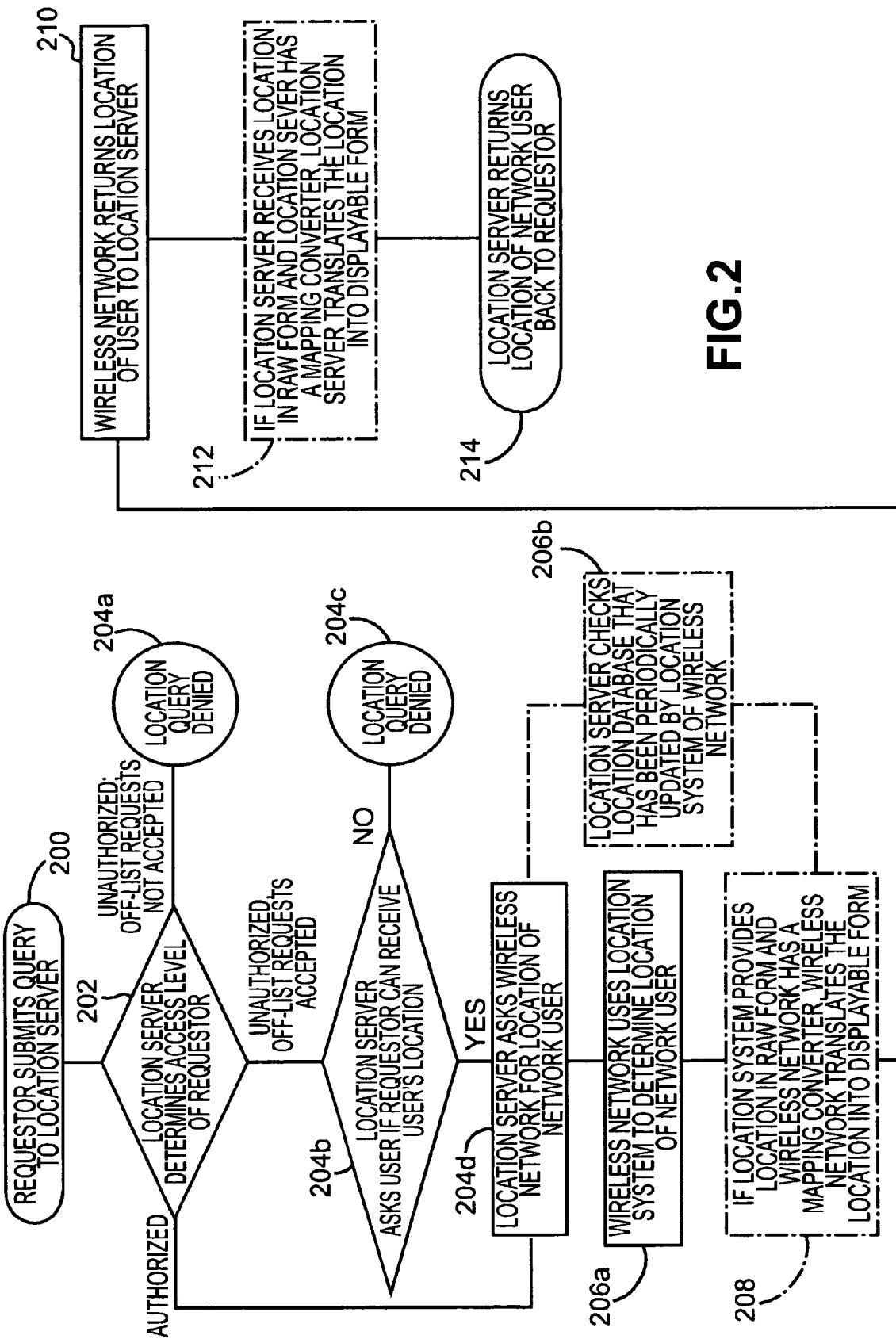


FIG.2

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