



US006654683B2

(12) **United States Patent**
Jin et al.

(10) **Patent No.: US 6,654,683 B2**
(45) **Date of Patent: Nov. 25, 2003**

(54) **METHOD AND SYSTEM FOR REAL-TIME NAVIGATION USING MOBILE TELEPHONES**

5,528,248 A 6/1996 Steiner et al. 342/357
5,579,535 A 11/1996 Orlen et al. 455/33.1
5,610,821 A 3/1997 Gazis et al. 364/444.2

(List continued on next page.)

(76) Inventors: **HaiPing Jin**, 2502 Arrowood La., San Jose, CA (US) 95130; **Yi-Chung Chao**, 1027 Nova Ct., Milpitas, CA (US) 95035; **Longxue Li**, 20875 Valley Green Dr. #31, Cupertino, CA (US) 95014; **Ruslan Adikovich Meshenberg**, 1000 Keily Blvd., Santa Clara, CA (US) 95051; **Kentaro Tokusei**, 810 Coleman Ave. #15, Menlo Park, CA (US) 94025; **Salman Dhanani**, 9634 179th Pl. NE. #4, Redmond, WA (US) 98052

FOREIGN PATENT DOCUMENTS

DE 196 21 424 A1 12/1997
WO 99/27742 6/1999

OTHER PUBLICATIONS

Supplementary European Search Report, dated Nov. 14, 2002, for Application Number Ep 00967228.
International Search Report, dated Dec. 19, 2002, for International Application No. PCT/US02/02323, filed Jan. 24, 2002.
International Search Report, dated Mar. 26, 2001, for International Application No. PCT/US00/35075, filed Dec. 21, 2000.
International Search Report, dated Jan. 4, 2001, for International Application No. PCT/US00/27083, filed Sep. 27, 2000.
International Search Report, dated Jan. 12, 2001, for International Application No. PCT/US00/26921, filed Sep. 27, 2000.

Primary Examiner—Tan Nguyen

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 41 days.

(21) Appl. No.: **09/884,841**

(22) Filed: **Jun. 18, 2001**

(65) **Prior Publication Data**

US 2002/0029107 A1 Mar. 7, 2002

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/547,421, filed on Apr. 11, 2000, now Pat. No. 6,266,615.

(60) Provisional application No. 60/156,225, filed on Sep. 27, 1999, and provisional application No. 60/211,994, filed on Jun. 16, 2000.

(51) **Int. Cl.**⁷ **G01C 21/26**

(52) **U.S. Cl.** **701/207; 701/210; 340/995**

(58) **Field of Search** 701/201, 202, 701/205, 207, 209, 208, 210; 455/456; 340/990, 995

(56) **References Cited**

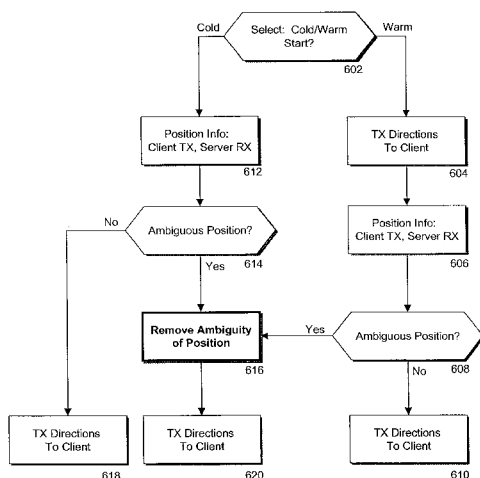
U.S. PATENT DOCUMENTS

5,278,424 A * 1/1994 Kagawa 250/559.37

(57) **ABSTRACT**

In an Interactive Real-Time Distributed Navigation system a method and system is disclosed for implementing a warm start/cold start option. Through selection of the warm start option, an interactive session for providing navigational directions to a user is more quickly established because a user's position is assumed not to be ambiguous. A method of the invention verifies this assumption. Through selection of the cold start option, the method of the invention seeks to remove ambiguity in a user's position before providing navigational directions. If, however, a user's position is not ambiguous, the method of the invention reverts to a warm start condition to immediately transmit navigational directions to the user.

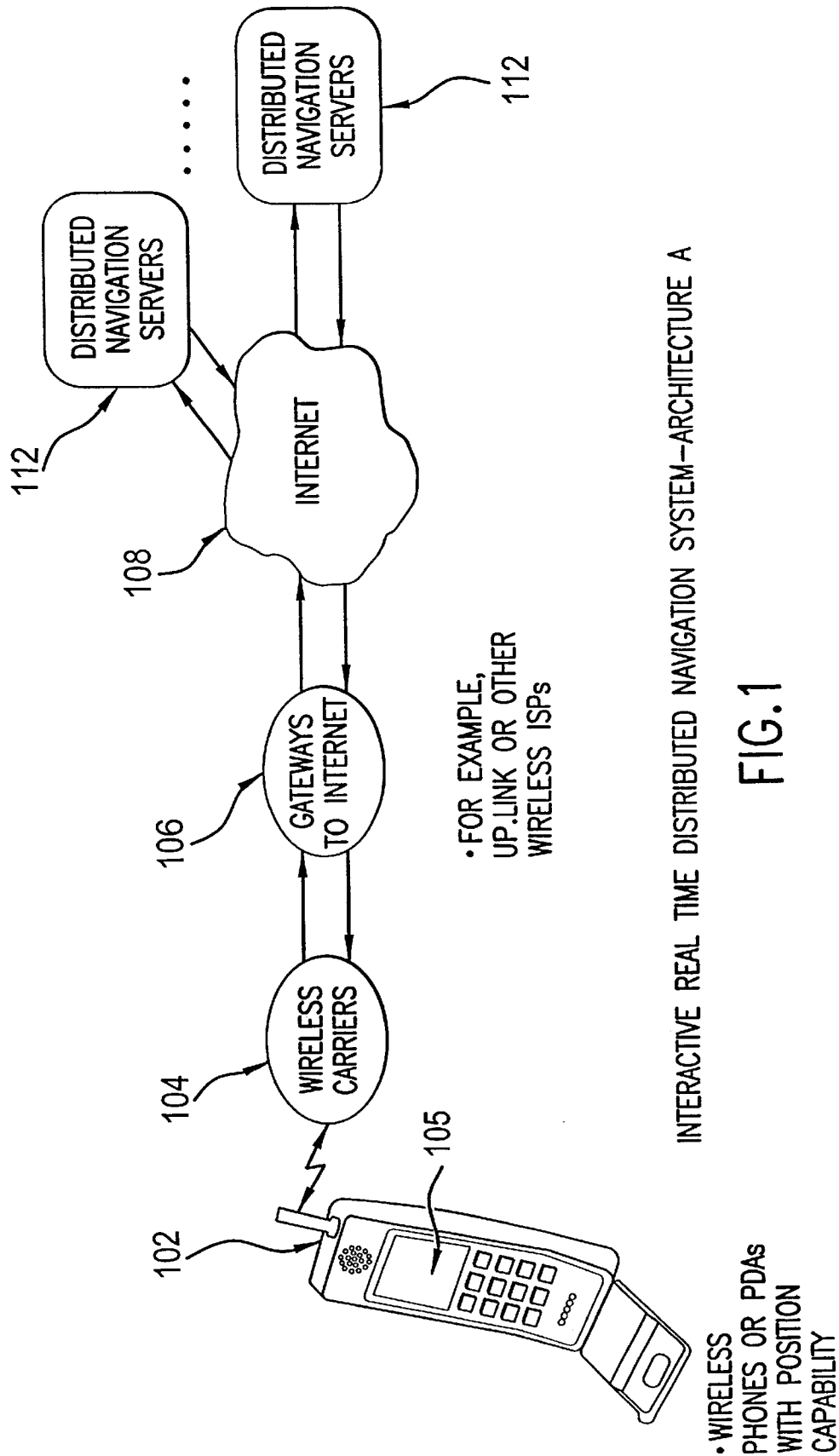
32 Claims, 7 Drawing Sheets

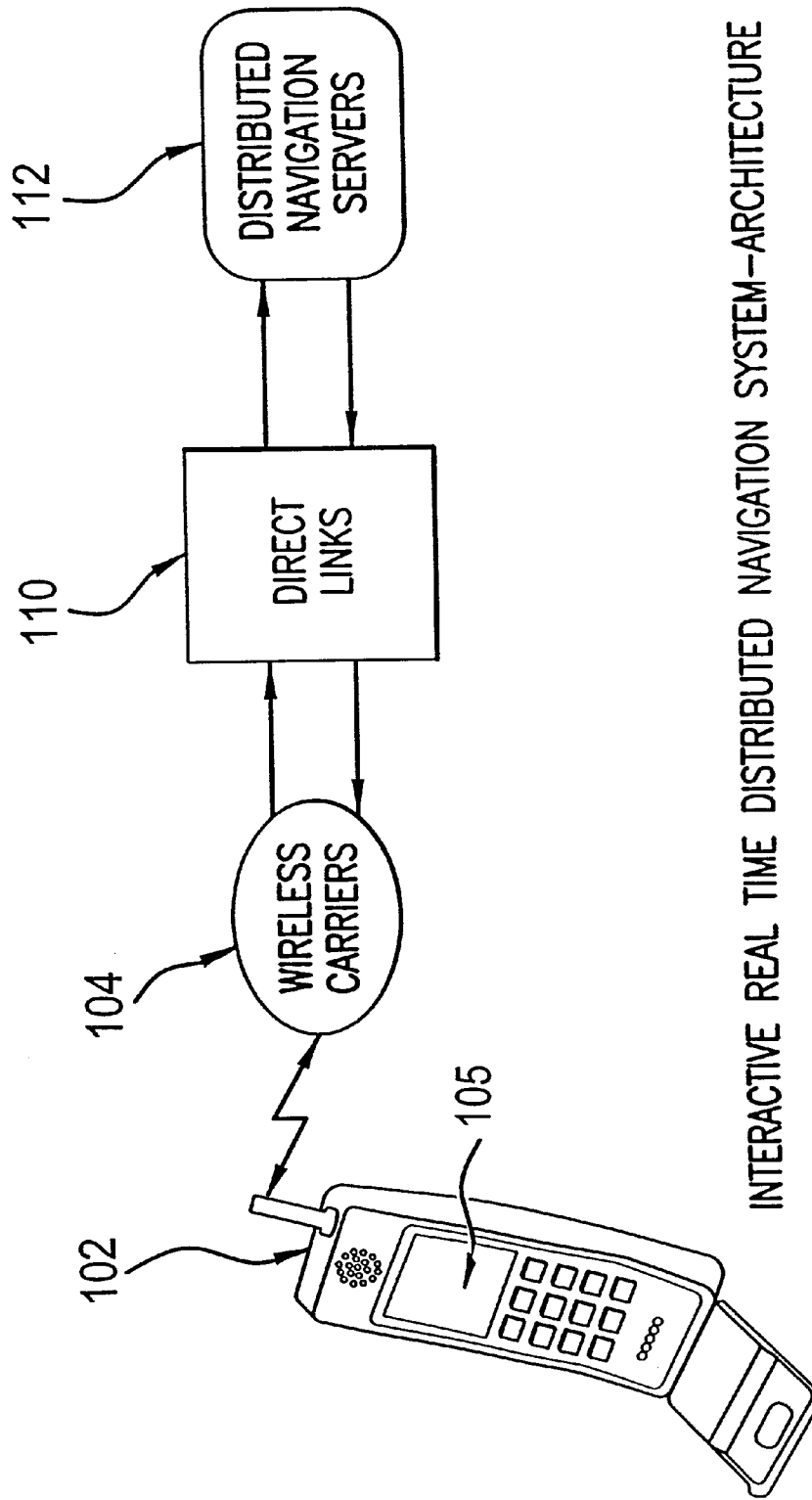


U.S. PATENT DOCUMENTS

5,742,131 A	4/1998	Sprout et al.	455/456	6,029,069 A	2/2000	Takaki	455/456
5,742,509 A	4/1998	Goldberg et al.	364/449.5	6,032,098 A	*	Takahashi et al.	701/210
5,774,828 A	6/1998	Brunts et al.	701/210	6,055,478 A	4/2000	Heron	701/213
5,774,829 A	6/1998	Cisneros et al.	701/213	6,070,123 A	5/2000	Beyer et al.	701/209
5,838,562 A	11/1998	Gudat et al.	364/424.02	6,107,944 A	8/2000	Behr et al.	340/995
5,884,218 A	3/1999	Nimura et al.	701/208	6,112,099 A	8/2000	Ketola	455/466
5,902,350 A	5/1999	Tamai et al.	701/211	6,115,700 A	9/2000	Ferkinhoff et al.	706/13
5,904,728 A	5/1999	Tamai et al.	701/211	6,148,261 A	11/2000	Obradovich et al.	701/208
5,910,177 A	6/1999	Zuber	701/202	6,154,658 A	11/2000	Caci	455/466
5,912,635 A	6/1999	Oshizawa et al.	340/988	6,175,806 B1	1/2001	Thuente	701/213
5,922,042 A	7/1999	Sekine et al.	701/210	6,175,807 B1	1/2001	Buchler et al.	701/220
5,928,295 A	7/1999	Geier	701/29	6,199,045 B1	3/2001	Giniger et al.	705/1
5,928,307 A	7/1999	Oshizawa et al.	701/210	6,205,400 B1	3/2001	Lin	701/214
5,933,100 A	8/1999	Golding	340/995	6,208,295 B1	3/2001	Dogan et al.	342/378
5,938,720 A	8/1999	Tamai	701/209	6,243,657 B1	6/2001	Tuck et al.	702/150
5,938,721 A	8/1999	Dussell et al.	701/211	6,266,615 B1	7/2001	Jin	701/213
5,987,381 A	11/1999	Oshizawa	701/209	6,269,306 B1	7/2001	Ibrahim et al.	701/214
6,014,090 A	1/2000	Rosen et al.	340/905	6,401,035 B2	6/2002	Jin	701/213
6,021,371 A	2/2000	Fultz	701/200	6,405,123 B1	6/2002	Rennard et al.	701/200

* cited by examiner





INTERACTIVE REAL TIME DISTRIBUTED NAVIGATION SYSTEM—ARCHITECTURE B

FIG.2

- WIRELESS PHONES OR PDAS WITH POSITION CAPABILITY

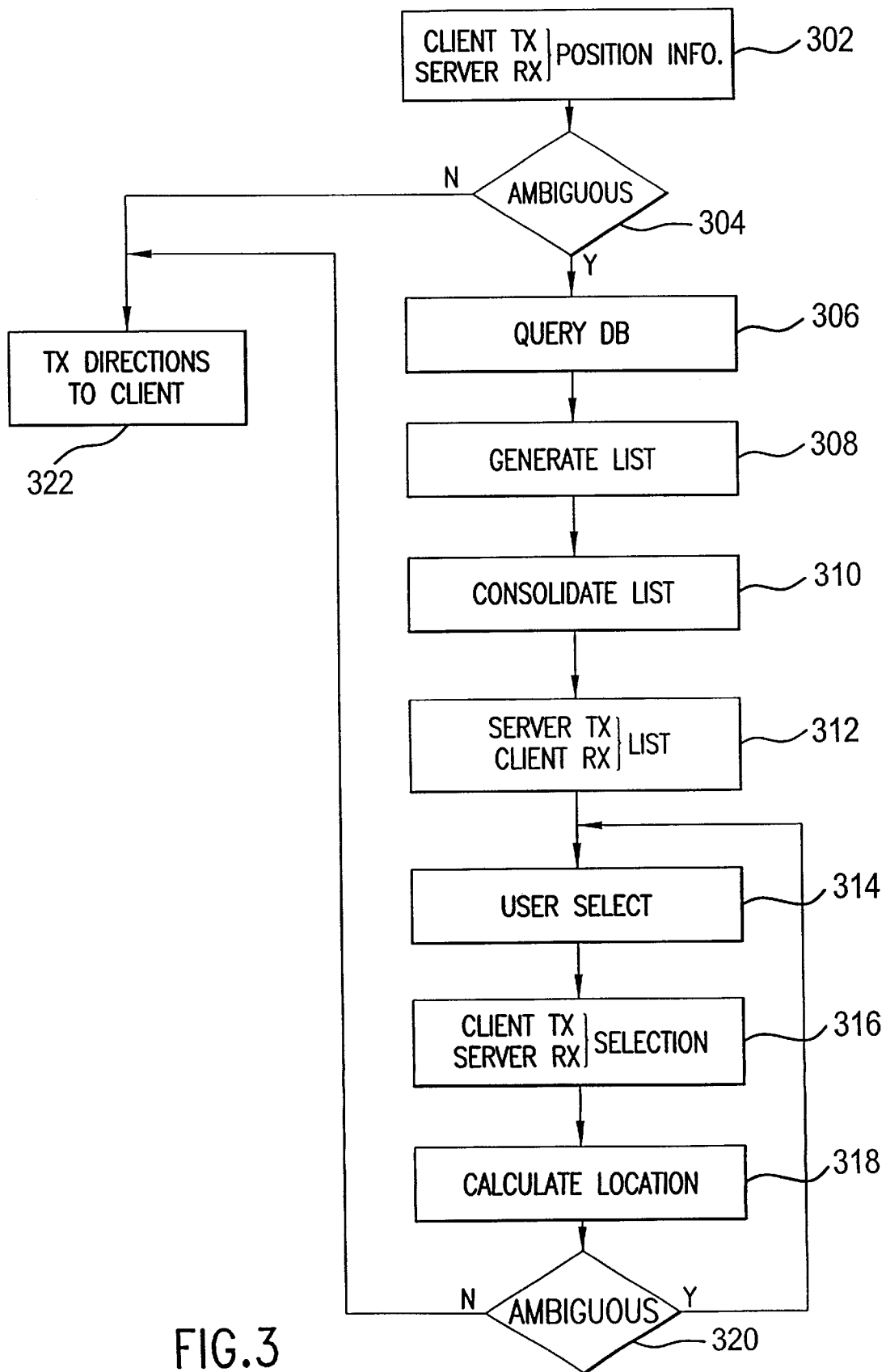


FIG. 3

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.