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

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

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Primary Examiner—Tan Nguyen

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Related U.S. Application Data

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(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

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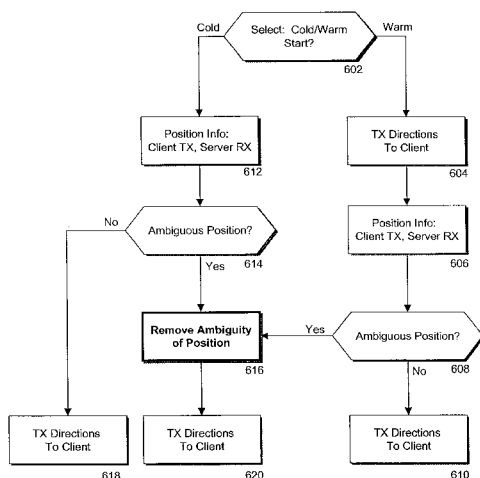
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(57) **ABSTRACT**

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.

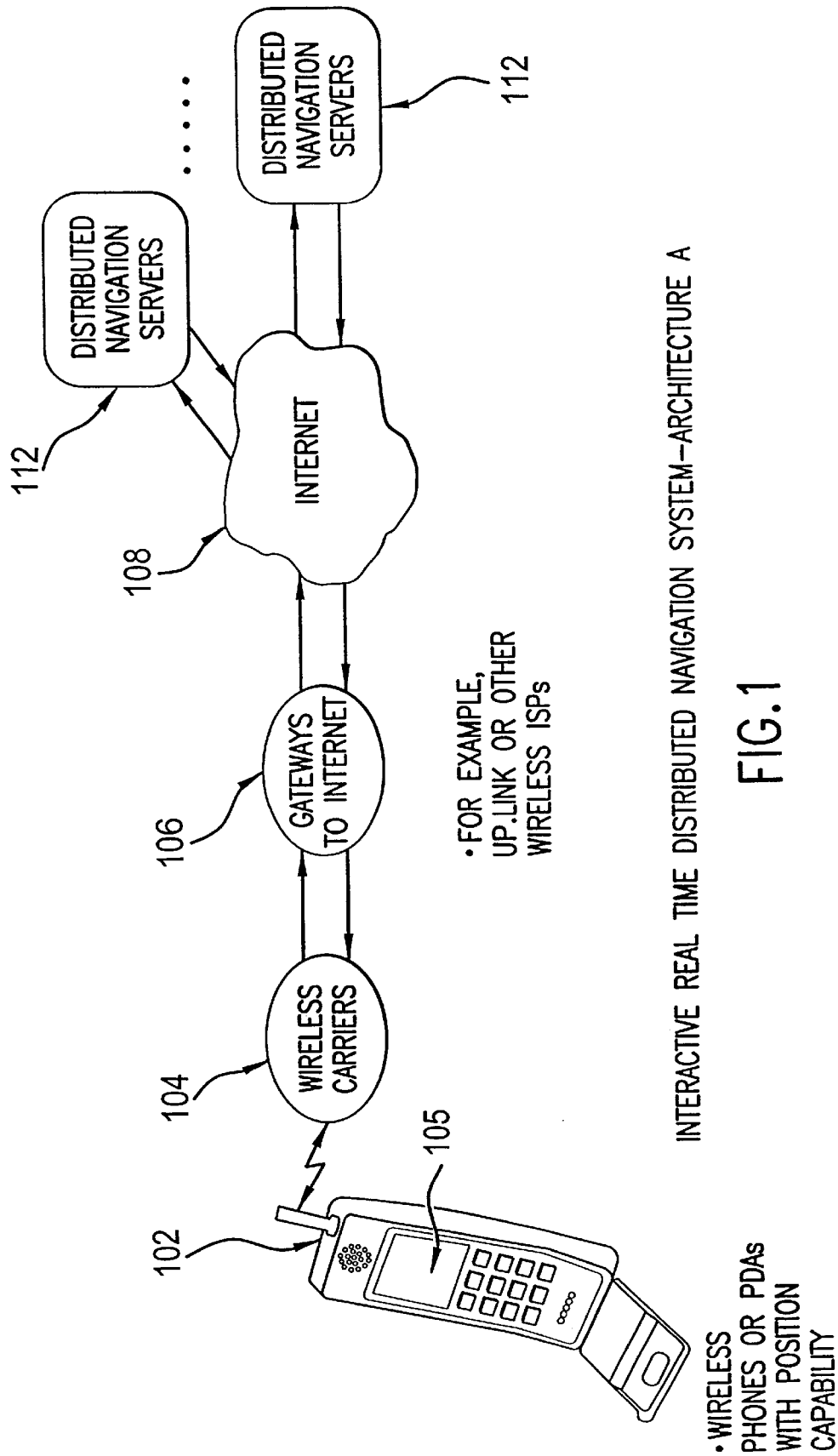
32 Claims, 7 Drawing Sheets

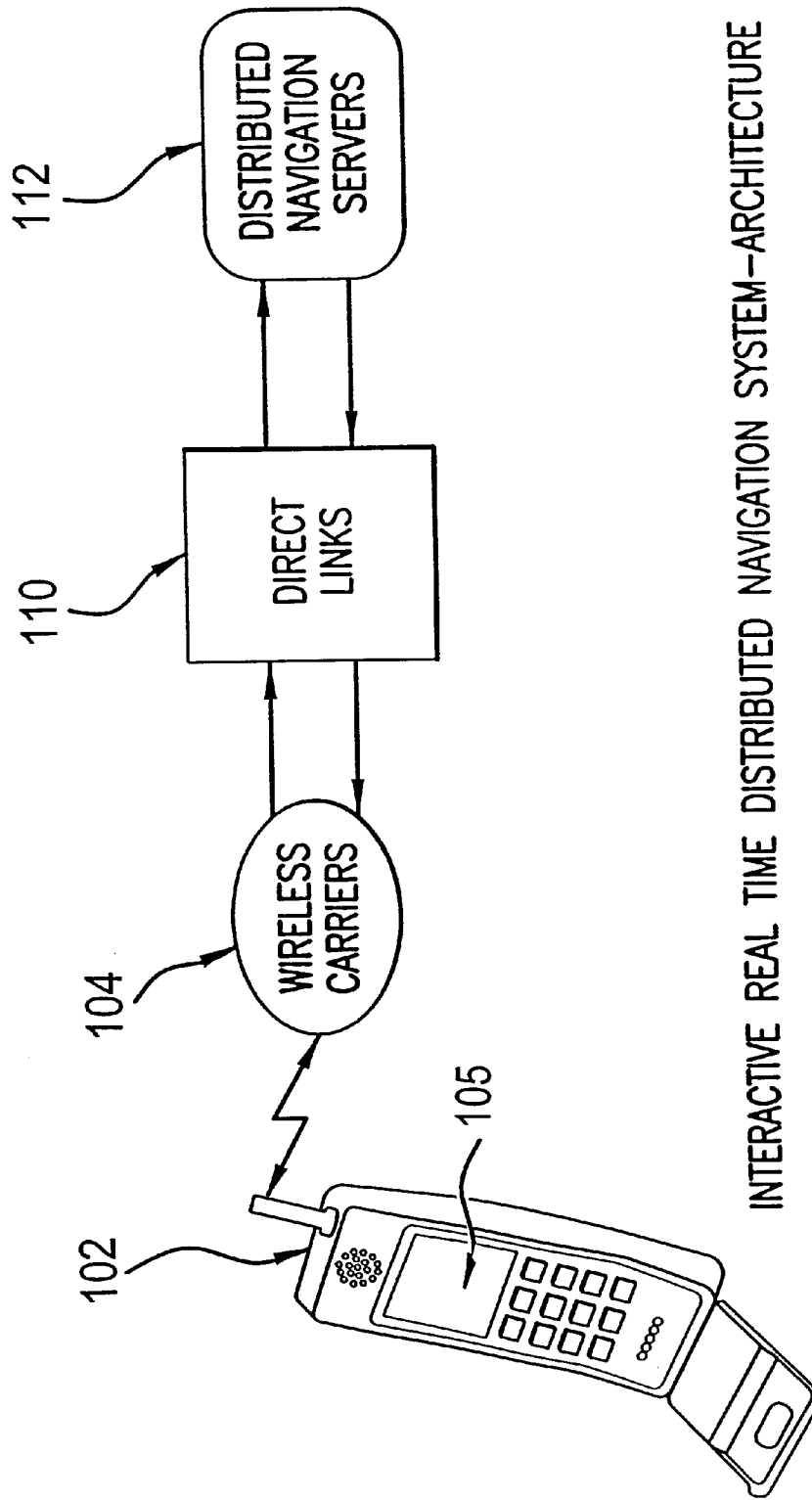


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INTERACTIVE REAL TIME DISTRIBUTED NAVIGATION SYSTEM—ARCHITECTURE B

• WIRELESS PHONES OR PDAS WITH POSITION CAPABILITY

FIG.2

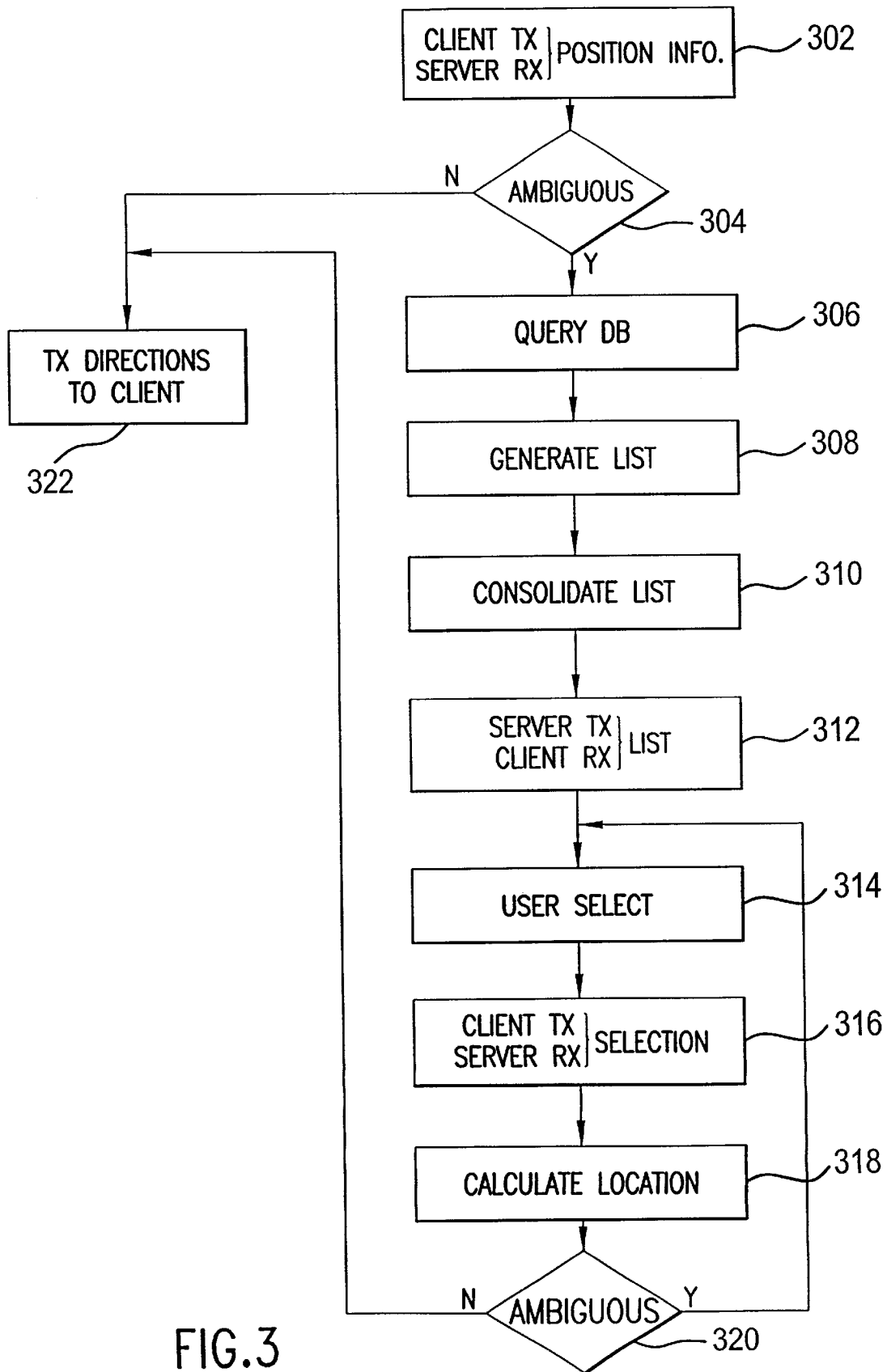


FIG. 3

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