



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

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(54) **METHOD AND SYSTEM FOR ROUTE CALCULATION IN A NAVIGATION APPLICATION**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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(65) **Prior Publication Data**

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**Related U.S. Application Data**

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(51) **Int. Cl.**  
**G01C 21/36** (2006.01)

(52) **U.S. Cl.** ..... **701/209**

(58) **Field of Classification Search** ..... 701/200-201, 701/208-209, 207; 342/357.01, 357.13, 454-457; 340/988, 990

See application file for complete search history.

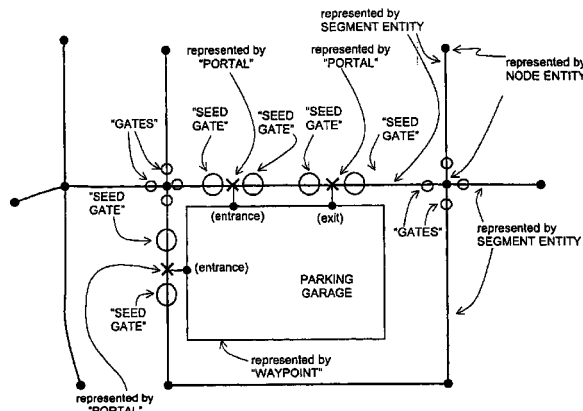
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(57) **ABSTRACT**

A method for route calculation using real time traffic conditions is disclosed. A transmission that includes weightings indicative of traffic conditions on roads is received. Then, a solution route is calculated by forming a list of road segments. The list is formed by expanding a search tree comprised of gates. Each gate represents a physical location on a road segment and an accessible direction relative thereto. Each gate to which a weighting applies is incremented by an amount indicated in the transmission. The solution route is determined by expanding the search tree, which includes determining and evaluating successor gates.

**10 Claims, 13 Drawing Sheets**

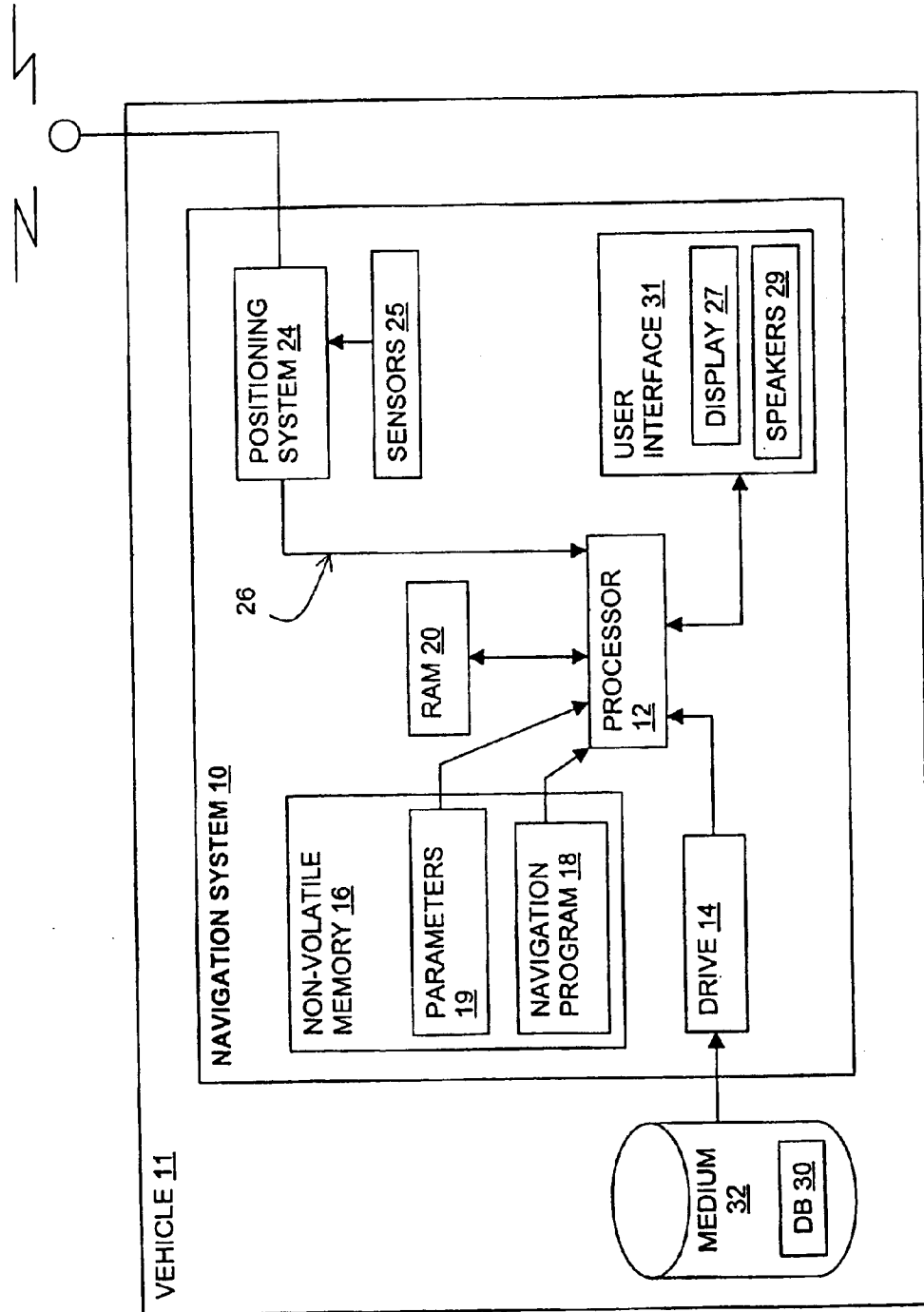


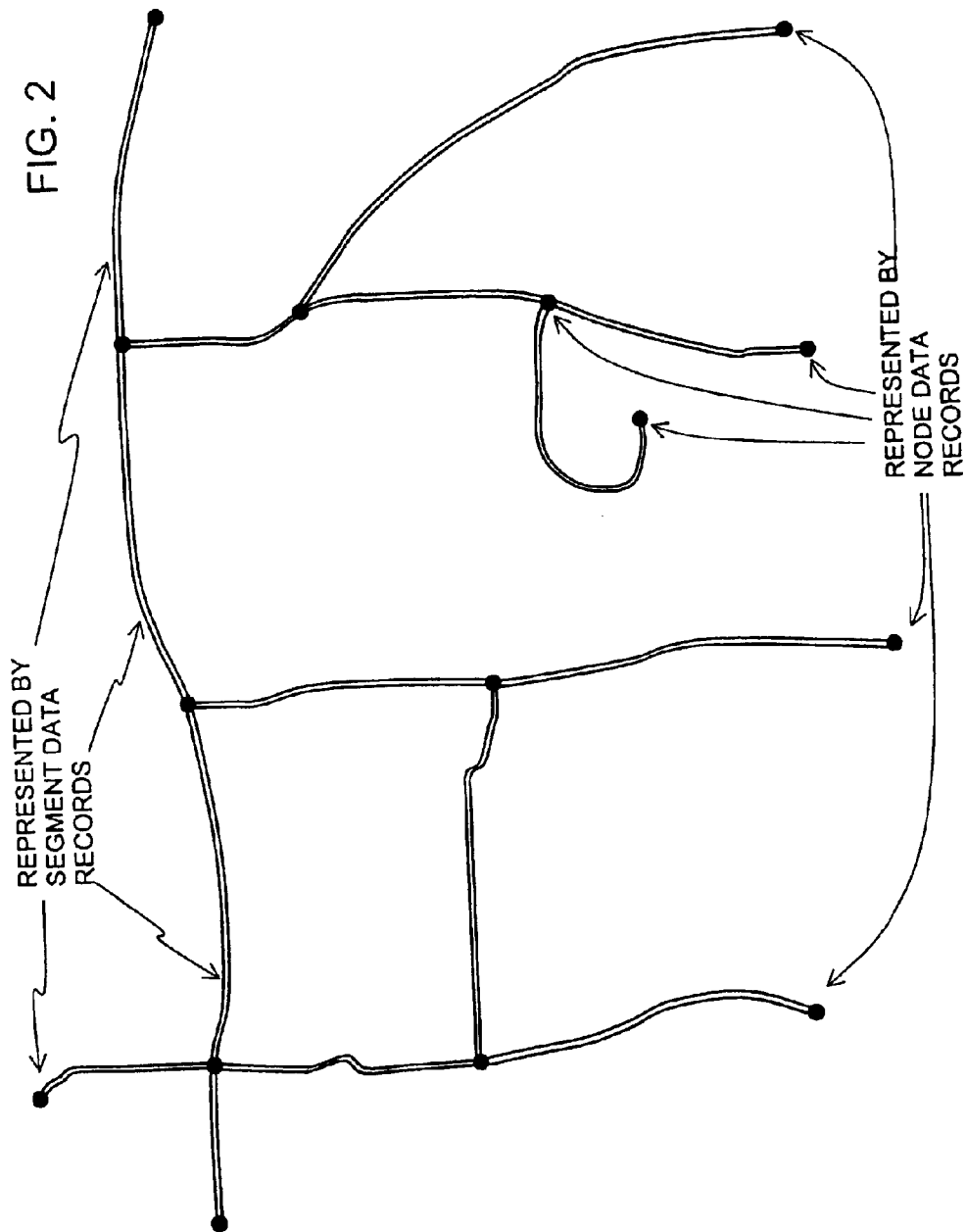
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FIG. 1





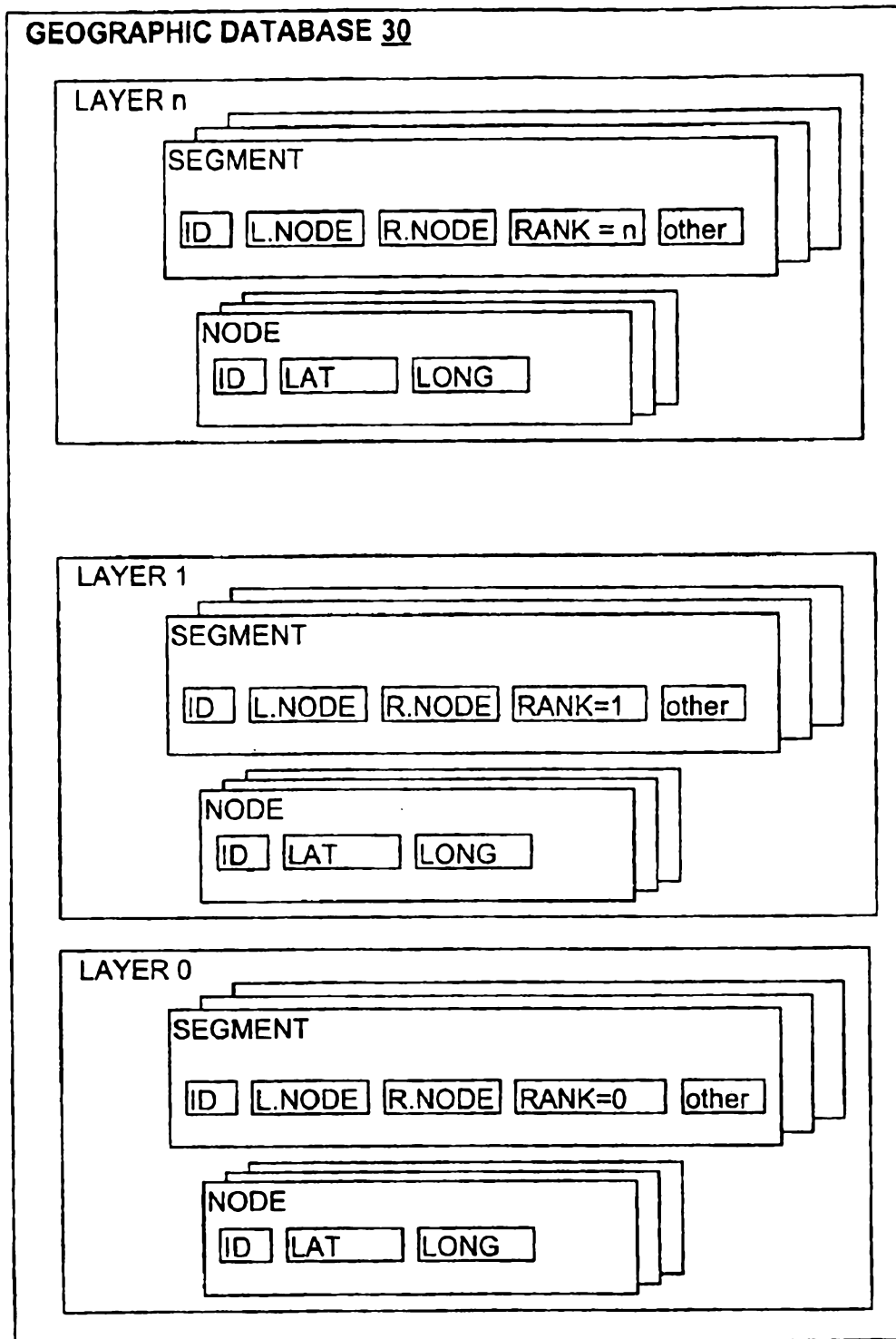


FIG. 3

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