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Myr

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(54) **REAL TIME VEHICLE GUIDANCE AND FORECASTING SYSTEM UNDER TRAFFIC JAM CONDITIONS**

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H04Q 7/00

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340/990

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701/119, 213, 200, 201, 210, 211, 209,
207, 208; 340/995, 905, 989, 990, 991,
993, 994; 455/507, 509, 457

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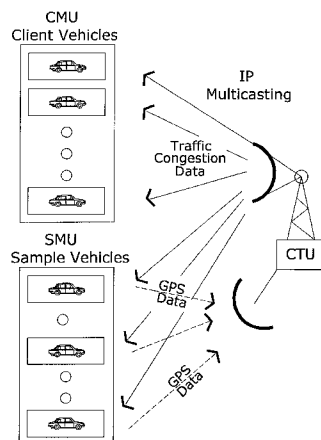
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(57) **ABSTRACT**

A system and method for real time vehicle guidance by Central Traffic Unit are presented. The proposed vehicle Guidance System includes a plurality of vehicles equipped with Individual Mobile Units including GPS units (position determining systems adapted to determine their present position) and communicatively linked to the Central Traffic Unit computer server. The Central Traffic Unit broadcasts the updated traffic patterns in real time thereby enabling the Individual Mobile Units to dynamically calculate the desired optimal travel paths. In response to a request from a driver for a route update from his present position to a desired destination, the Individual Mobile Unit searches for an optimal (usually fastest) route and shows it to the driver. In route searching by the minimal time criterion, the Individual Mobile Unit relies on estimated travel times stored in its database, and may also use current real time information on bottleneck situations received from Central Traffic Unit. The forecasting system allows the driver to enter alternative time schedules for the same destination and receive alternative travel time estimates for the same destination depending on the estimated traffic volumes on the roads at that particular time. The backbone of the system is a group of Sample Mobile Units equipped with RF transmitters that communicate their present position to the Central Traffic Unit at predetermined time intervals. The Central Traffic Unit uses those sample vehicles as antennas by tracking their positions for creating and maintaining a network of real time traffic load disposition in various geographical areas. To be able to detect a bottleneck situation when it arises and to estimate a current travel time for a corresponding section of road, the Central Traffic Unit maintains a list of sample vehicles that recently exited that section. If the times those vehicles have spent on the section differ considerably from a regular time stored in the database, Central Traffic Unit uses statistical tools for forecasting the future travel time along this section. Simultaneously, the Central Traffic Unit broadcasts updated travel times and any new information on current traffic jams and slow-down bottleneck situations in a given geographical location.

23 Claims, 29 Drawing Sheets



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Fig. 1

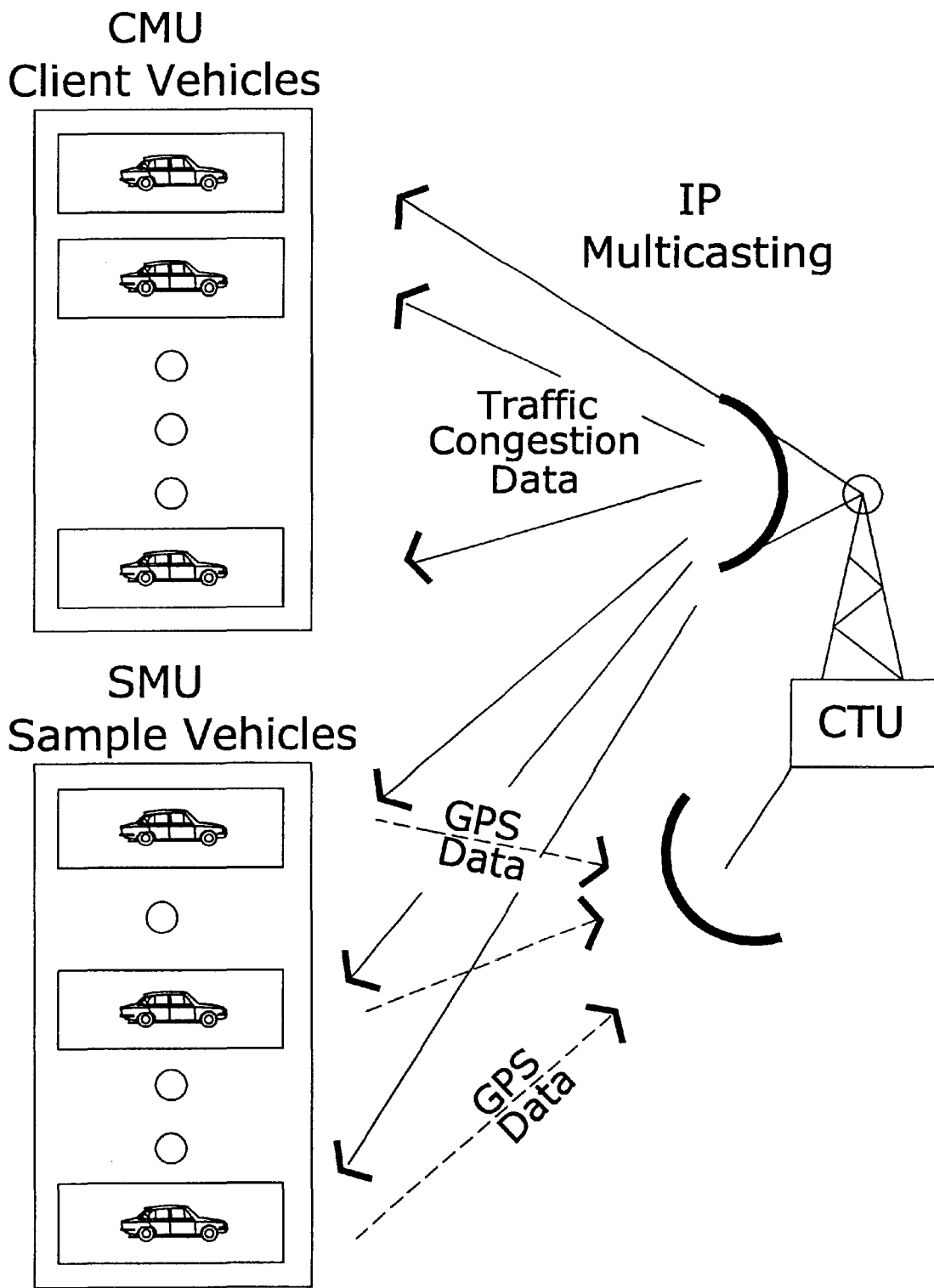


Fig. 2

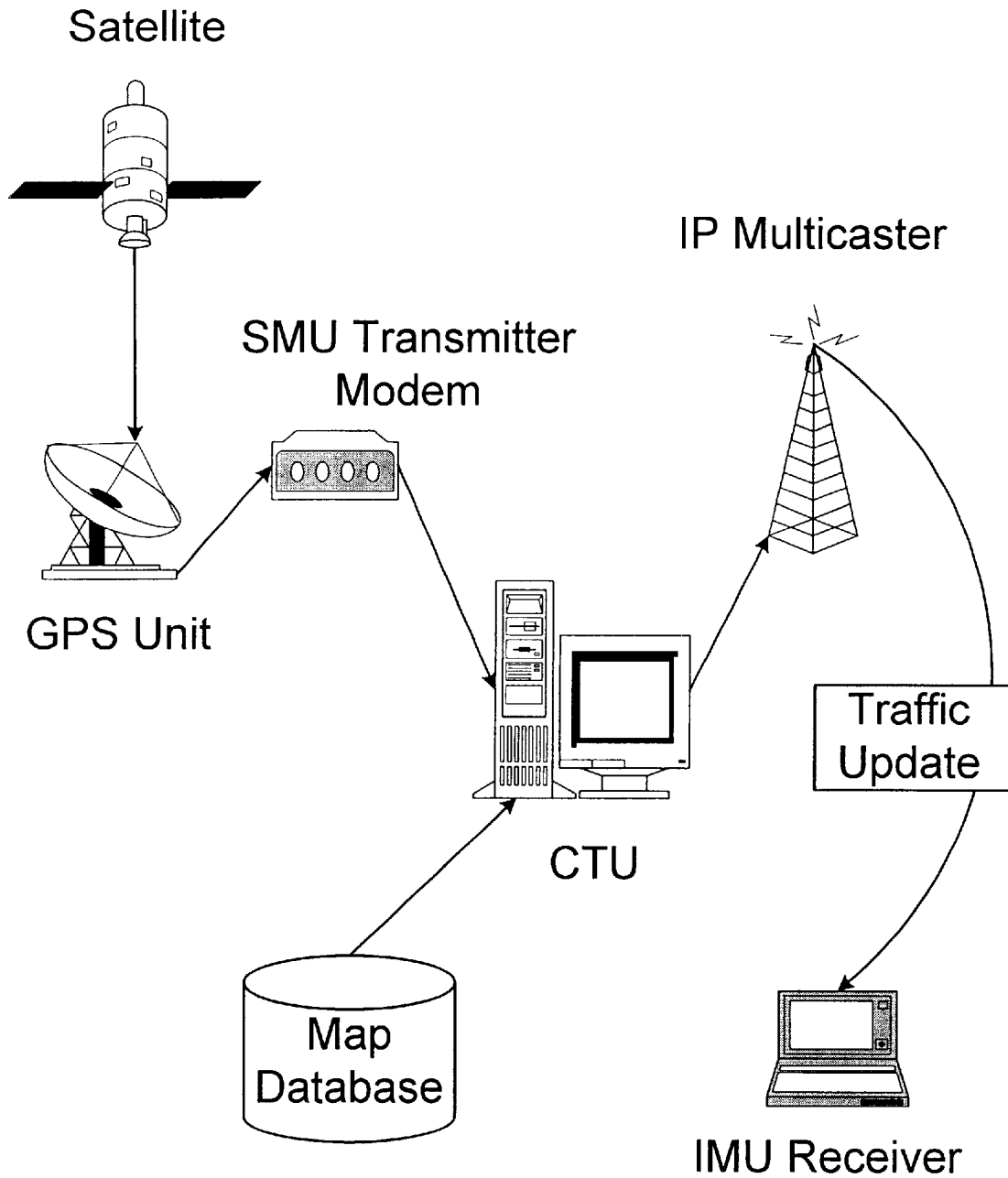
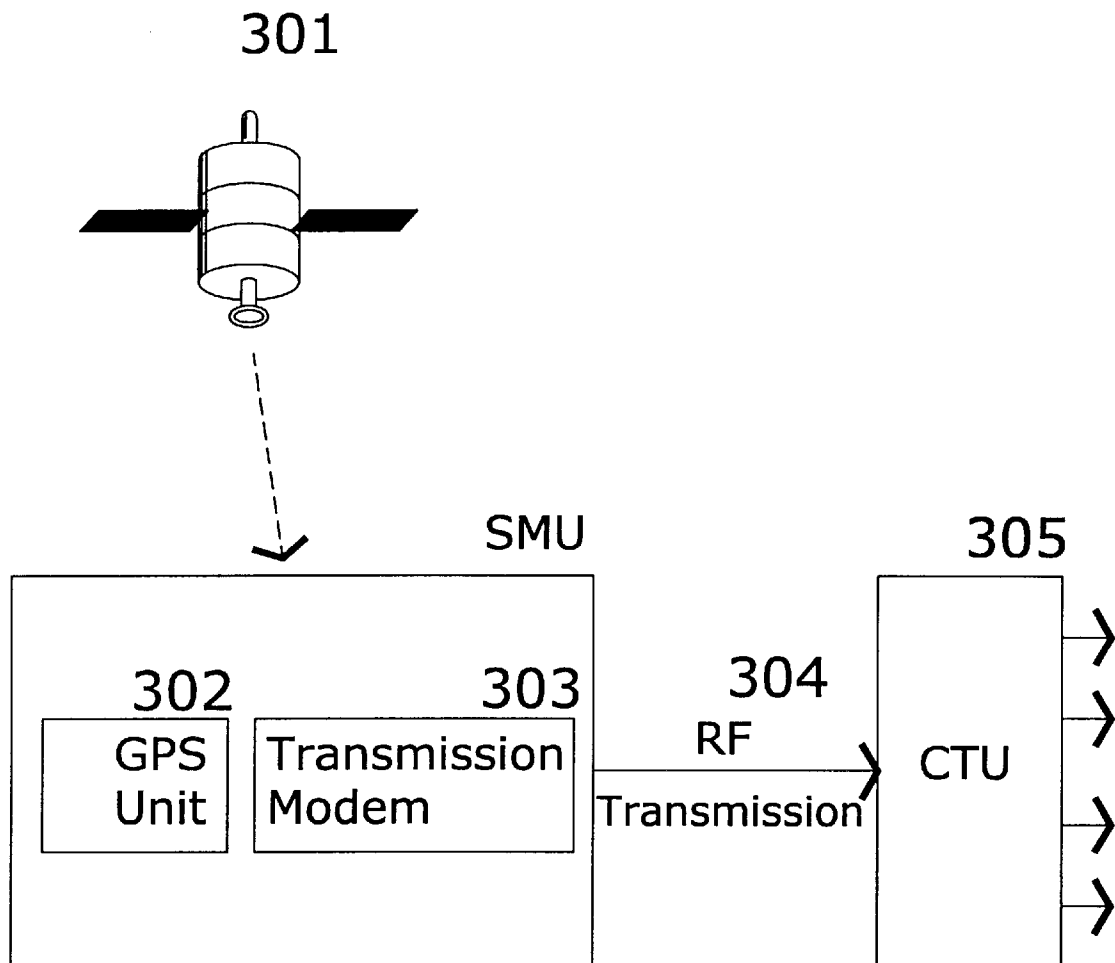


Fig. 3



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