

(12) United States Patent
Myr

(10) Patent No.: US 6,480,783 B1
(45) Date of Patent: Nov. 12, 2002

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

(75) Inventor: **David Myr, Jerusalem (IL)**

(73) Assignee: **Makor Issues and Rights Ltd., Jerusalem (IL)**

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

(21) Appl. No.: **09/528,134**

(22) Filed: **Mar. 17, 2000**

(51) **Int. Cl.**⁷ **G06F 165/00**; G08G 1/09; H04Q 7/00

(52) **U.S. Cl.** **701/117**; 701/118; 340/995; 340/990

(58) **Field of Search** 701/117, 118, 701/119, 213, 200, 201, 210, 211, 209, 207, 208; 340/995, 905, 989, 990, 991, 993, 994; 455/507, 509, 457

(56) References Cited

U.S. PATENT DOCUMENTS

4,954,958 A 9/1990 Savage et al. 364/444
5,058,201 A * 10/1991 Ishii et al. 455/33

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

DE	195 47 574 A1	10/1996
EP	0 903 916 A2	3/1999
FR	2 762 906	11/1998
WO	WO 95/21435	8/1995
WO	WO 98/27525	6/1998

Primary Examiner—Tan Nguyen

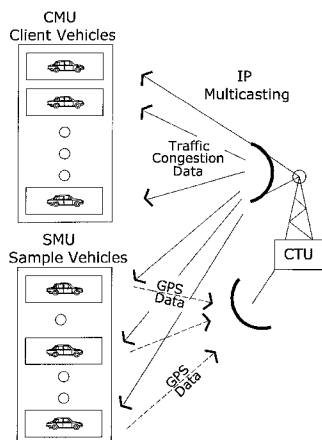
Assistant Examiner—Dalena Tran

(74) *Attorney, Agent, or Firm*—Stanley N. Protigal; Elman & Associates

(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



U.S. PATENT DOCUMENTS

5,187,810 A *	2/1993	Yoneyama et al.	455/34.1	5,797,330 A *	8/1998	Li	104/28
5,420,794 A *	5/1995	James	364/436	5,822,712 A *	10/1998	Olsson	701/117
5,539,645 A *	7/1996	Mandhyan et al.	364/438	5,911,773 A *	6/1999	Mutsuga et al.	701/200
5,543,789 A *	8/1996	Behr et al.	340/995	5,919,246 A *	7/1999	Waizmann et al.	701/209
5,610,821 A *	3/1997	Gazis et al.	364/444.2	5,928,294 A *	7/1999	Zelinkovsky	701/204
5,699,056 A *	12/1997	Yoshida	340/905	6,150,961 A *	11/2000	Alewine et al.	340/995
				6,163,751 A *	12/2000	Van Roekel	701/210
				6,216,088 B1 *	4/2001	Schulz et al.	701/209

Fig. 1

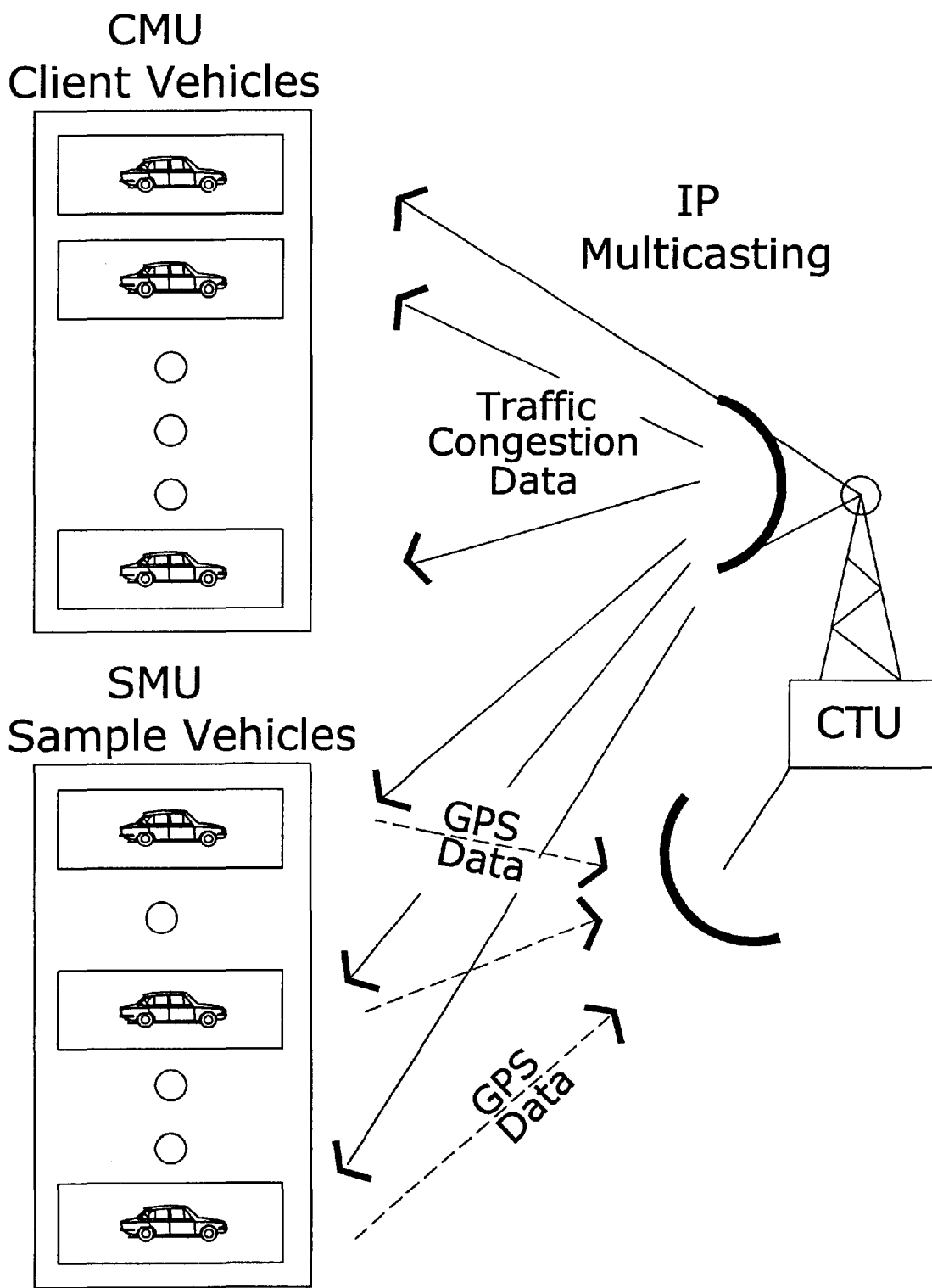


Fig. 2

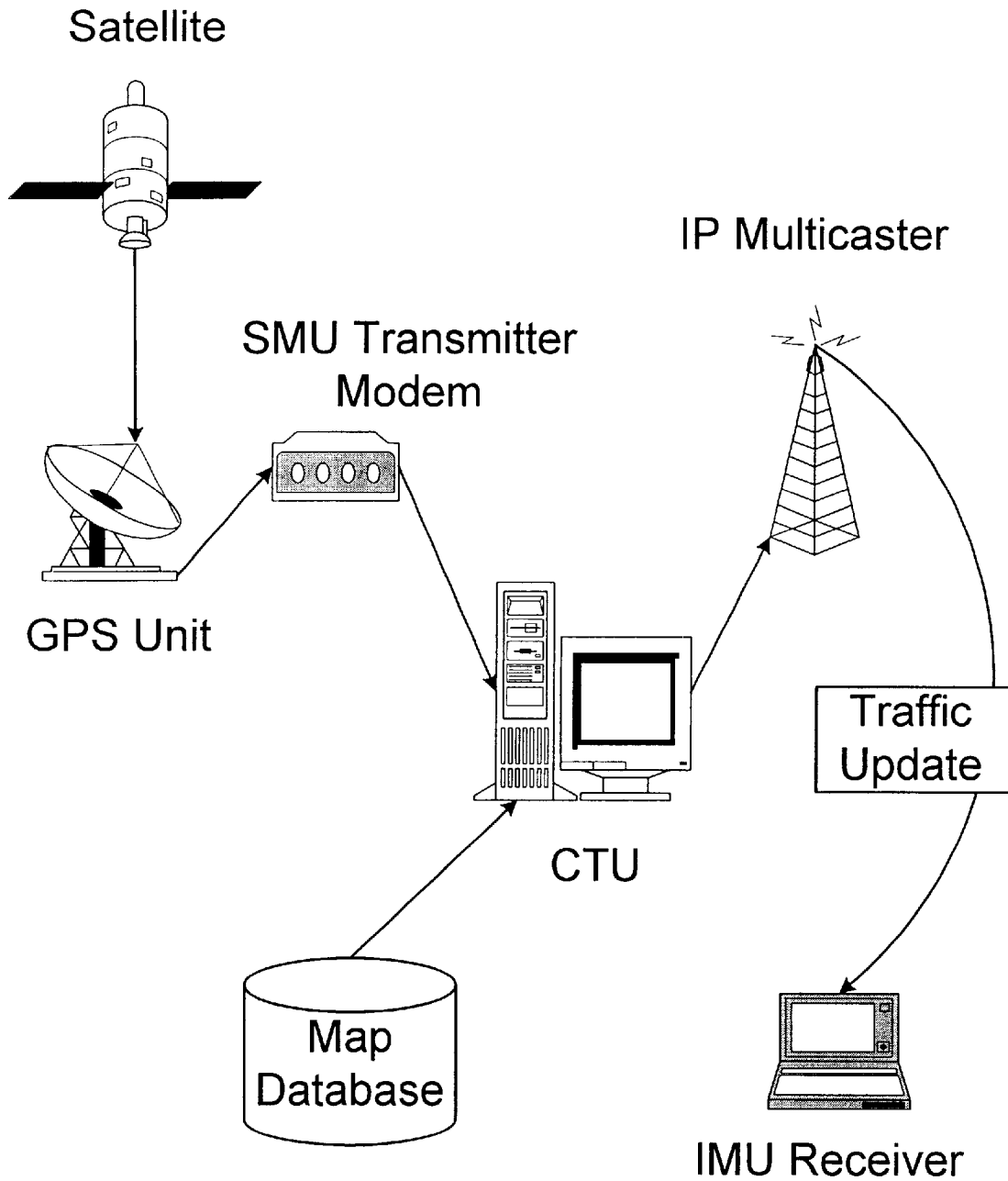
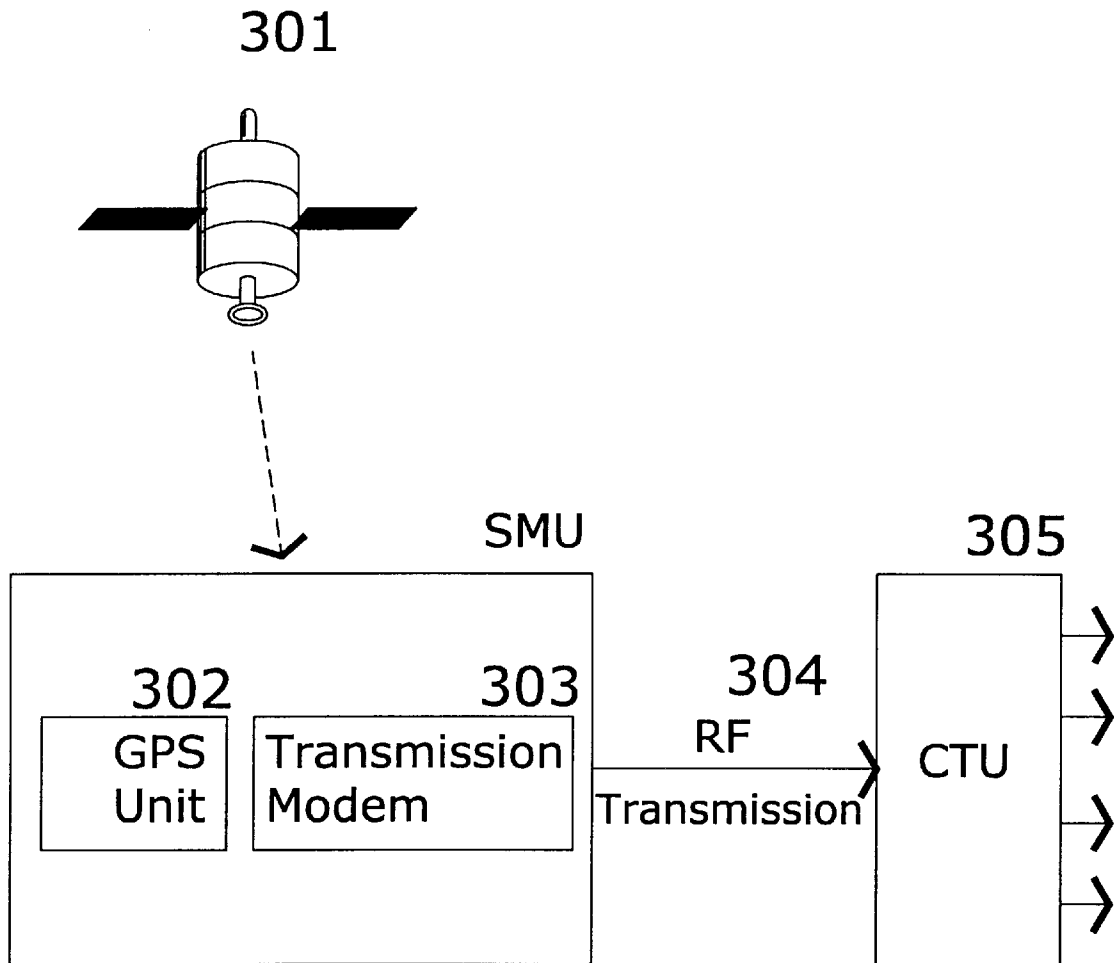


Fig. 3



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.