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(54) **SYSTEM AND METHOD FOR  
AUTOMATICALLY PROVIDING VEHICLE  
NAVIGATION INFORMATION**

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(58) **Field of Classification Search** ..... 701/200,  
701/201, 202, 209; 340/995.19  
See application file for complete search history.

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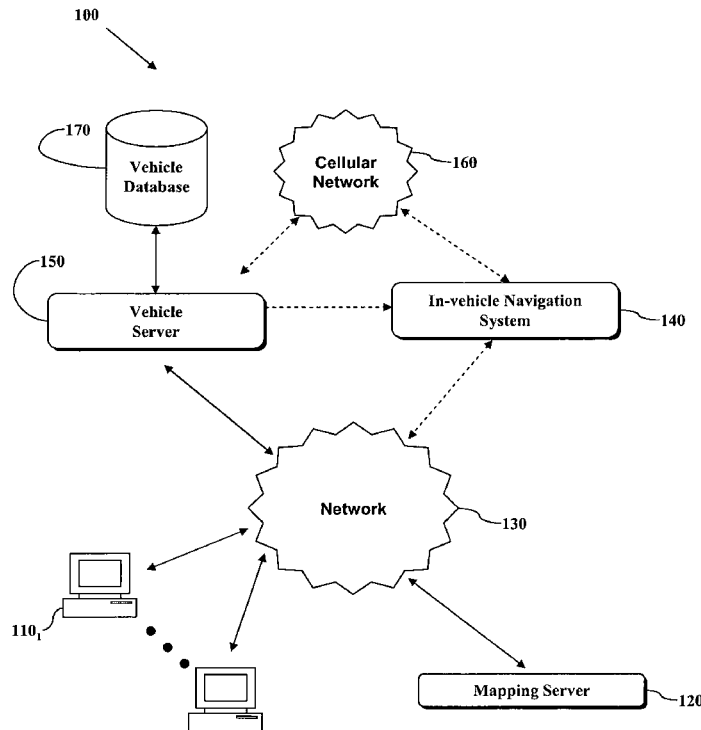
*Primary Examiner*—Mark Hellner

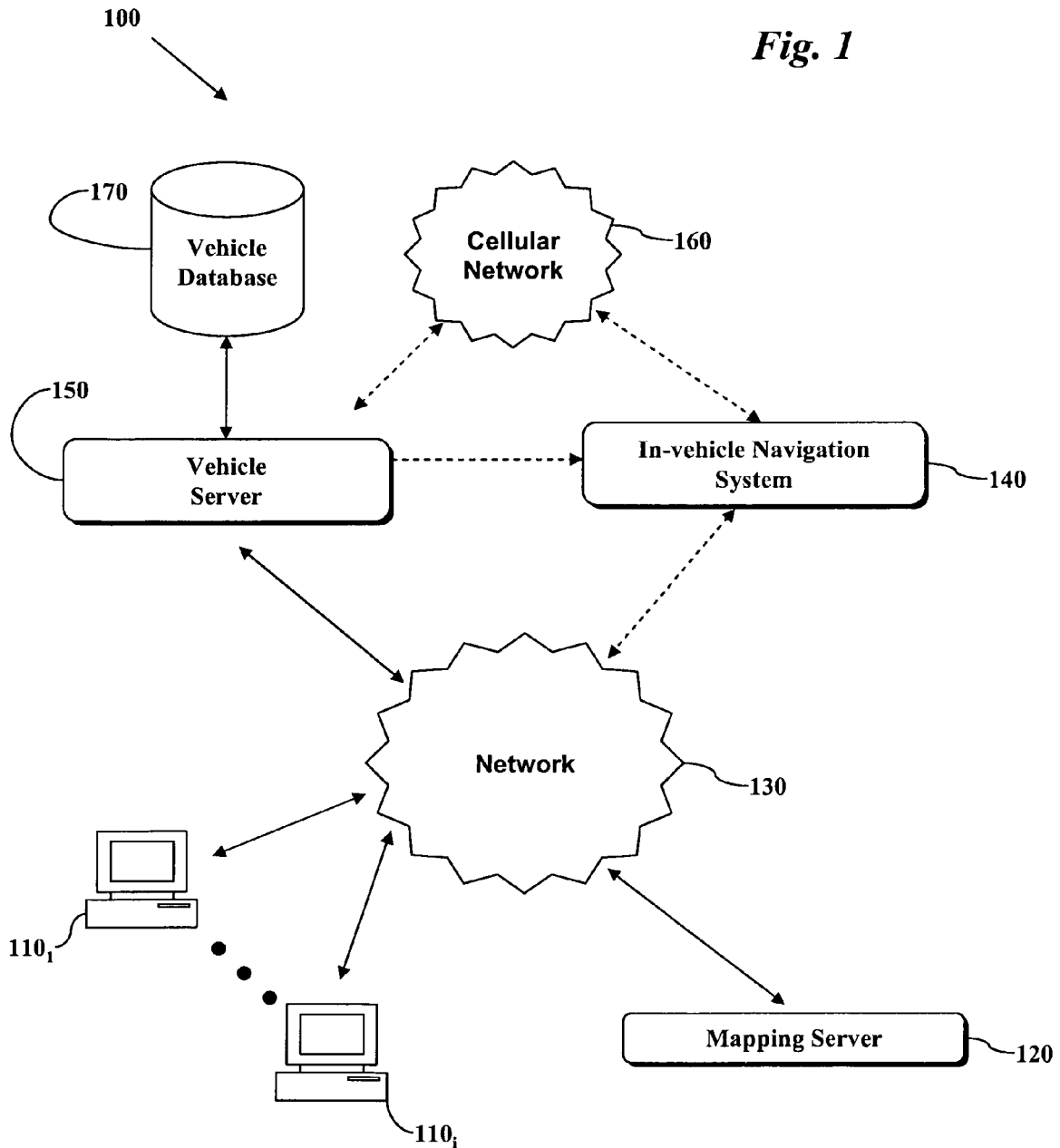
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(57) **ABSTRACT**

Users are provided with the option of having destination information, such as a street address and/or destination phone number, obtained from online mapping services, transmitted to their vehicle's navigation system. In certain embodiments, the user may logon to an online vehicle server to provide information necessary to identify their respective vehicle. Once the target vehicle is identified, the destination information may be transmitted to this vehicle by the vehicle server, after which the vehicle's navigation and communication system may be automatically populated with the received destination information.

**21 Claims, 3 Drawing Sheets**





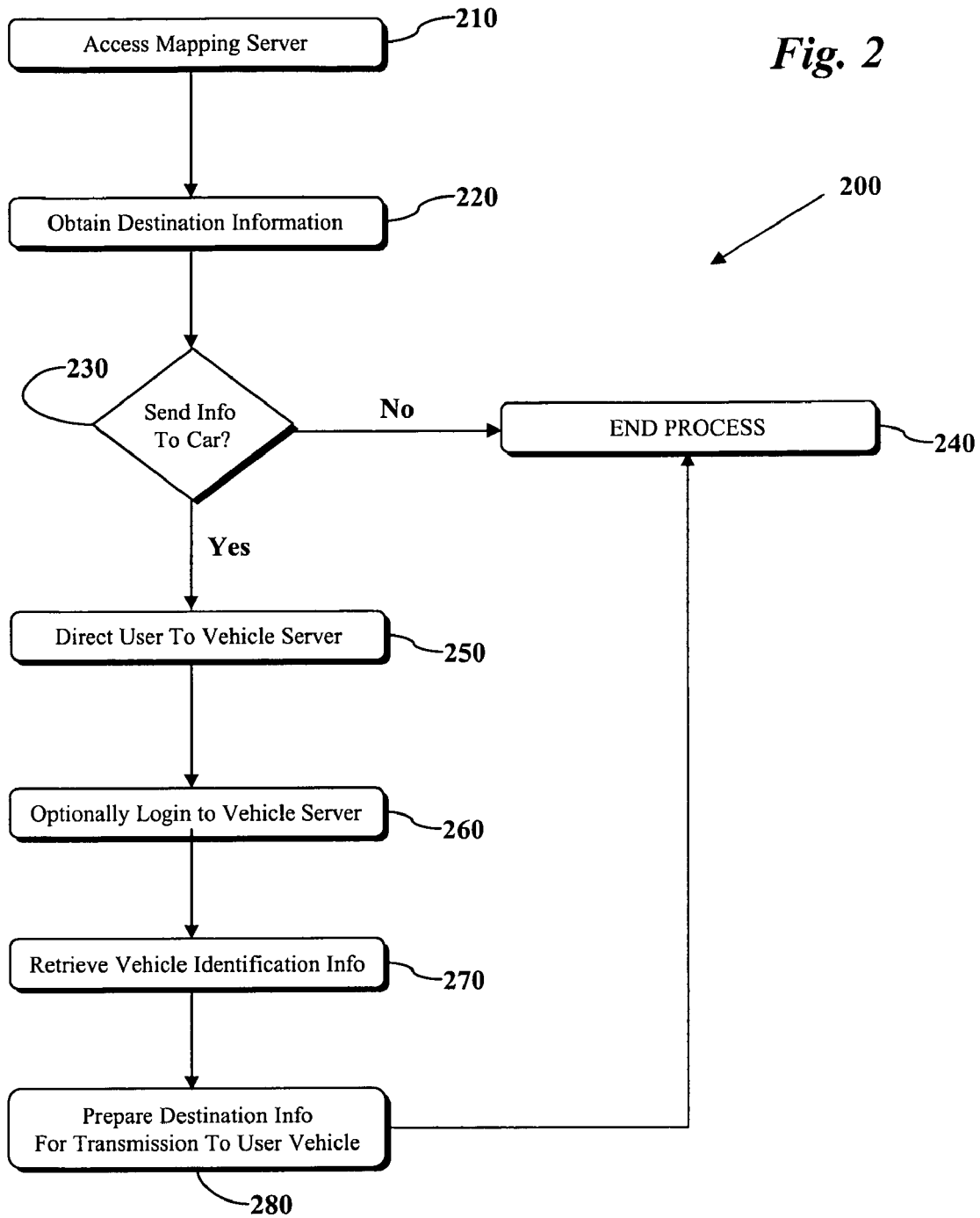
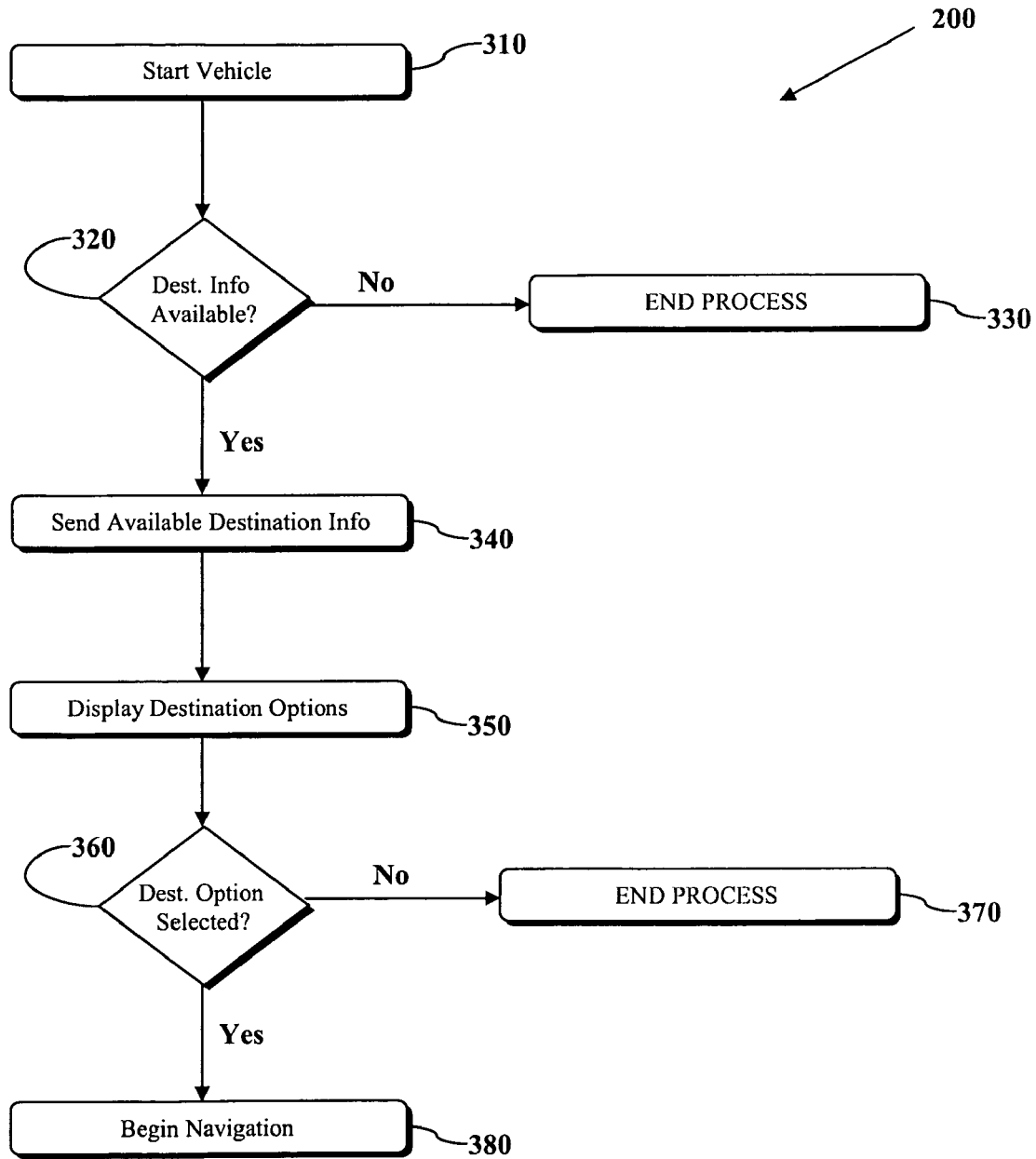


Fig. 2

Fig. 3



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## SYSTEM AND METHOD FOR AUTOMATICALLY PROVIDING VEHICLE NAVIGATION INFORMATION

### FIELD OF THE INVENTION

The present invention relates, in general, to vehicle navigation systems and, more particularly, to automatically providing navigational information to vehicles.

### BACKGROUND OF THE INVENTION

In-vehicle navigation systems have become nearly ubiquitous in luxury vehicles and are beginning to find their way into the mid-priced vehicle market as well. Such systems incorporate a receiver for a Global Positioning System (GPS), which is a worldwide radio-navigation system formed of 24 orbiting satellites and their corresponding ground stations. Launched and maintained by the U.S. Department of Defense, these satellites send a stream of signals to the earth's surface enabling a GPS receiver to calculate accurate positions within about 10 feet. The vehicle's GPS receiver works in conjunction with mapping data, which is generally stored locally on a CD-ROM, to provide position-specific information to the vehicle operator. Other components of the in-vehicle navigation system include an on-board computer system which can process both speed and direction information received from the vehicle's odometer and on-board compass.

Although position-specific information can be very useful, in-vehicle navigation systems are most widely used for obtaining directions to particular destinations. In short, in-vehicle navigation systems have the ability to provide turn-by-turn directions the vehicle operator when the address of the desired destination is provided to the system. However, one significant drawback is that entering the desired destination information tends to be a tedious and cumbersome process. For example, the human-machine interfaces (HMIs) for many in-vehicle navigation systems involves a turn-knob or touch-screen input device by which address information may be inputted.

Regardless of the HMI design, all in-vehicle navigation systems require the operator to actually know the address of the desired destination. This information is typically found using one of the many online mapping services. While obtaining direction information using online mapping service is typically an easy process, users are still required to either memorize the address to later input it into the in-vehicle navigation system, or to manually print out the driving directions and/or address. In either case, there is currently no convenience approach to first obtaining and then providing destination information to an in-vehicle navigation system from a device other than the vehicle navigation system itself. Accordingly, there is a need in the art for automatically providing navigational information to vehicles.

### BRIEF SUMMARY OF THE INVENTION

Systems and methods for automatically providing navigational information to vehicle are disclosed and claimed herein. In one embodiment, a method includes receiving destination information over a network from an online source in response to a user request to automatically send the destination information to a vehicle, and receiving user

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identification information, and sending the destination information to an in-vehicle navigation system of the vehicle.

Other aspects, features, and techniques of the invention will be apparent to one skilled in the relevant art in view of the following detailed description of the invention.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 depicts one embodiment of a simplified system diagram showing the network connectivity between various elements of the invention;

FIG. 2 depicts one embodiment of a process for carrying out one or more aspects of the invention; and

FIG. 3 depicts another embodiment of a process for carrying out one or more aspects of the invention.

### DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

As will be described in more detail below, one aspect of the invention is to provide users with the option of having destination information, obtained from an online mapping service, automatically transmitted to their vehicle's navigation system. In certain embodiments, this enables the user to receive navigation guidance from their vehicle's navigation system without undergoing the cumbersome process of having to program the vehicle's navigation system.

When implemented in software, the elements of the invention are essentially the code segments to perform the necessary tasks. The program or code segments can be stored in a processor readable medium or transmitted by a computer data signal embodied in a carrier wave over a transmission medium or communication link. As discussed herein, a "computer" or "computer system" is a product including circuitry capable of processing data. The computer system may include, but is not limited to, general purpose computer systems (e.g., server, laptop, desktop, palmtop, personal electronic devices, etc.), personal computers (PCs), hard copy equipment (e.g., printer, plotter, fax machine, etc.), banking equipment (e.g., an automated teller machine), and the like. In addition, a "communication link" refers to the medium or channel of communication. The communication link may include, but is not limited to, a telephone line, a modem connection, an Internet connection, a digital subscriber line (DSL), an Integrated Services Digital Network ("ISDN") connection, an Asynchronous Transfer Mode (ATM) connection, a frame relay connection, an Ethernet connection, a coaxial connection, a fiber optic connection, satellite connections (e.g. Digital Satellite Services, etc.), wireless connections, radio frequency (RF) links, electromagnetic links, two way paging connections, etc., and combinations thereof.

Referring now to the figures, FIG. 1 depicts an exemplary embodiment of a system **100** for carrying out the invention. In this embodiment, a plurality of user computers **110**<sub>1</sub>-**110**<sub>n</sub> ("**110**") are coupled via a communication link with network **130**. While network **130** may include any variety of computer network, in a preferred embodiment network **130** is the Internet. As will be described in more detail below with reference to FIG. 2 below, user computers **110** coupled to the network **130** may be used to access a mapping server **120** to obtain a desired street address or directions to a desired destination. Based on a user selection, this destination information may then be passed to a vehicle server **150** via network **130**. After the user provides the secure server **150**

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