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(54) **NAVIGATION DEVICE, SERVER, AND METHOD FOR COMMUNICATING THEREBETWEEN**

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(57) **ABSTRACT**

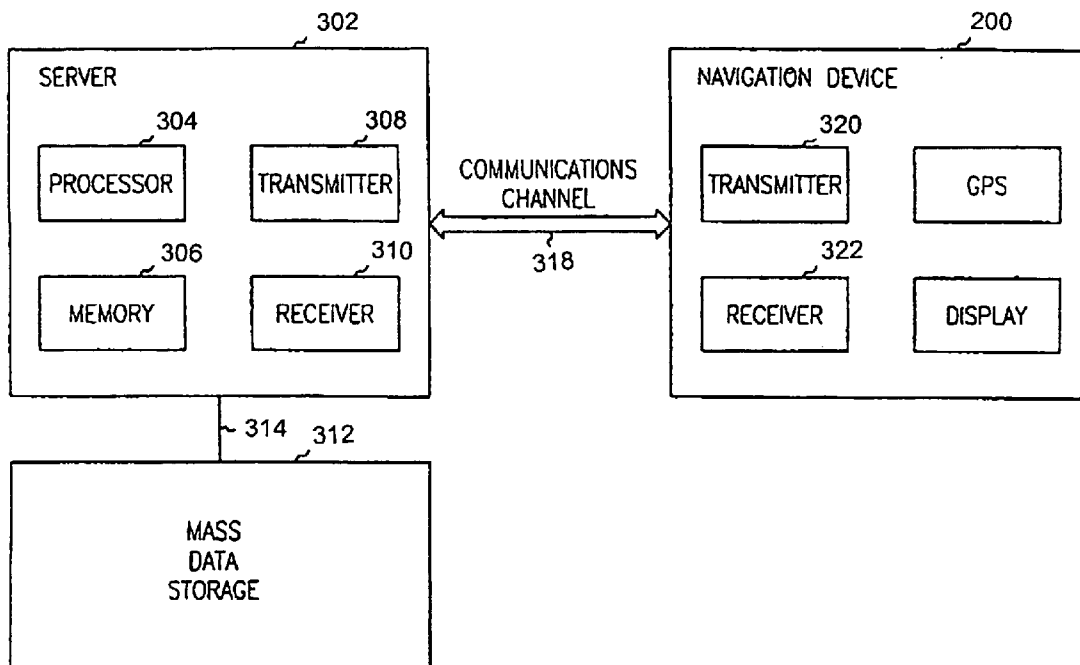
Methods, servers, and navigation devices are disclosed. An embodiment of a method includes receiving information from a navigation device at a server, the navigation device being connected to the server via a network connection established at least one of through a mobile device and via mobile phone technology within the navigation device; and pushing information relating to the received information, via at least one push channel over a network connection, from the server to a plurality of navigation devices connected to the server. An embodiment of a method includes receiving, at a server, an indication of a network connection between a navigation device and the server; checking status of information stored on the navigation device upon receipt of the indication of the network connection; and at least one of providing status information regarding a current status of information stored on the navigation device and providing recommendations for at least one of updating, installing, and removing information relating to the stored information.

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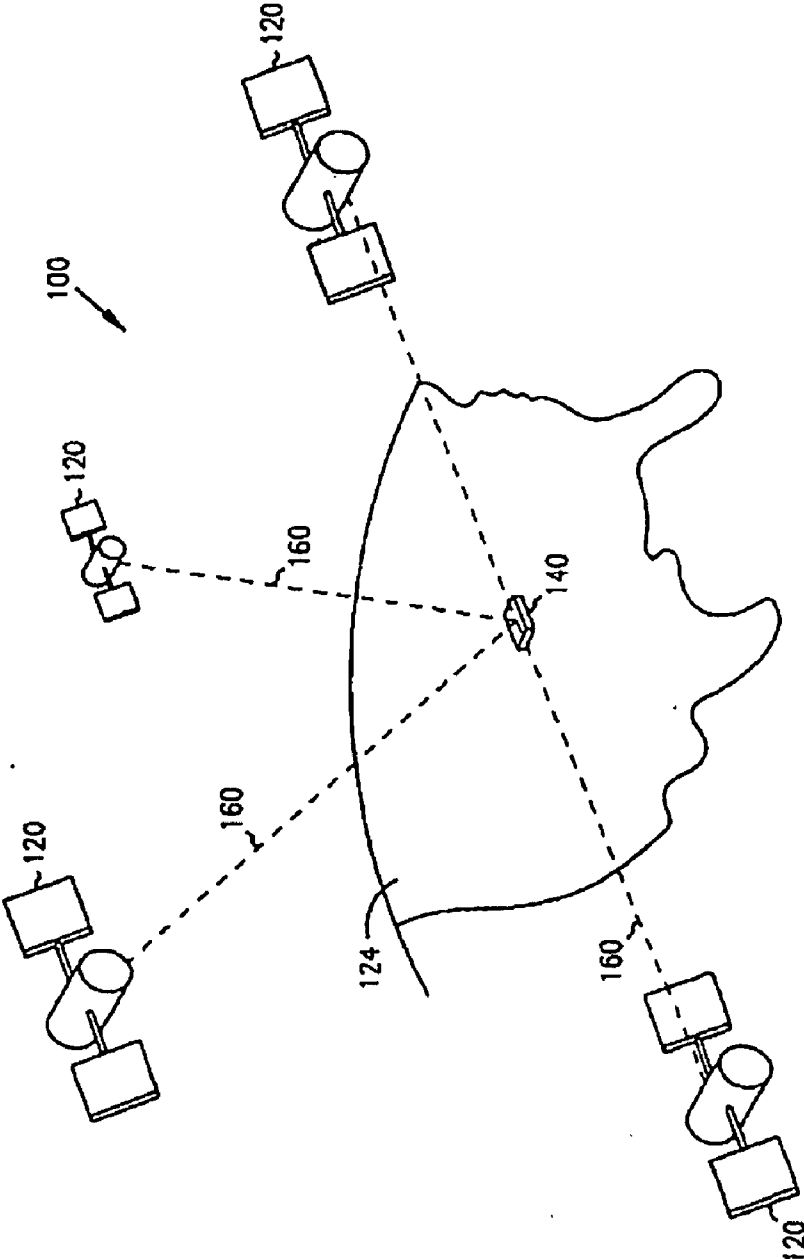


FIG. 1

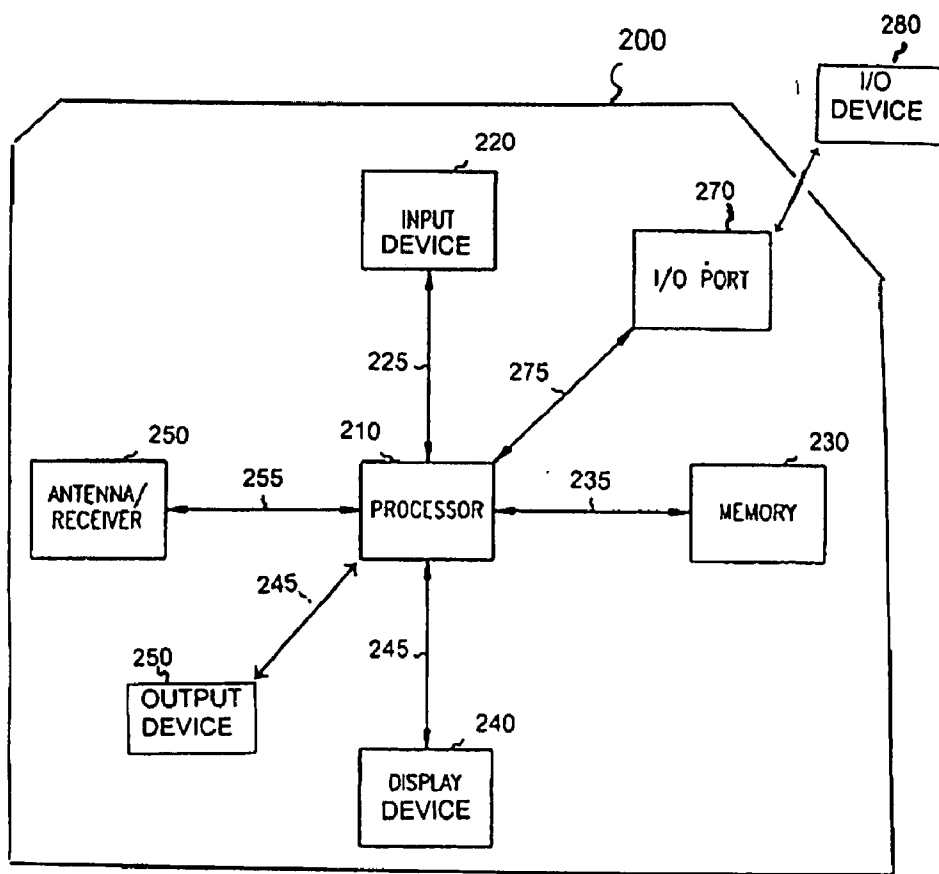


Fig. 2

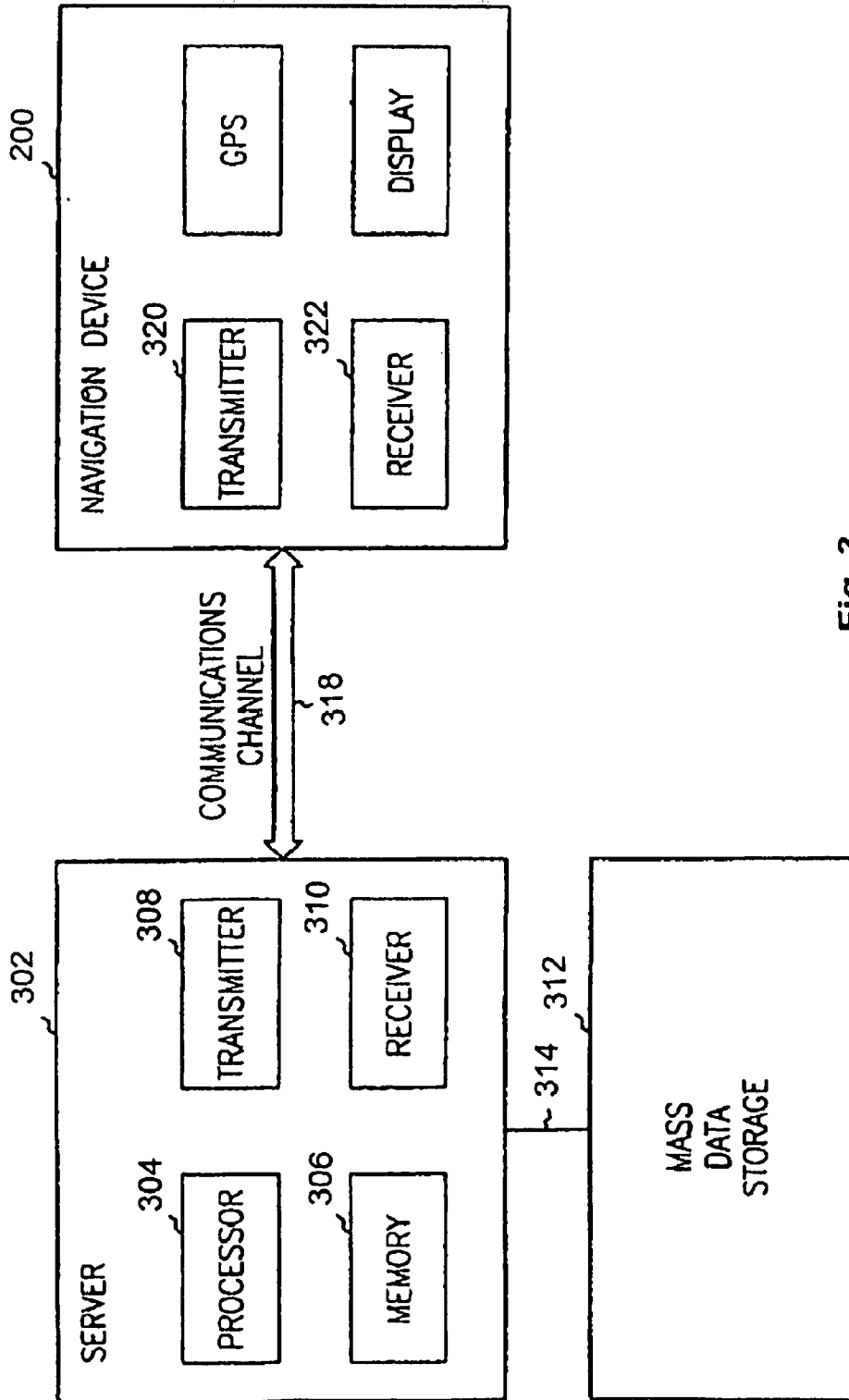


Fig. 3

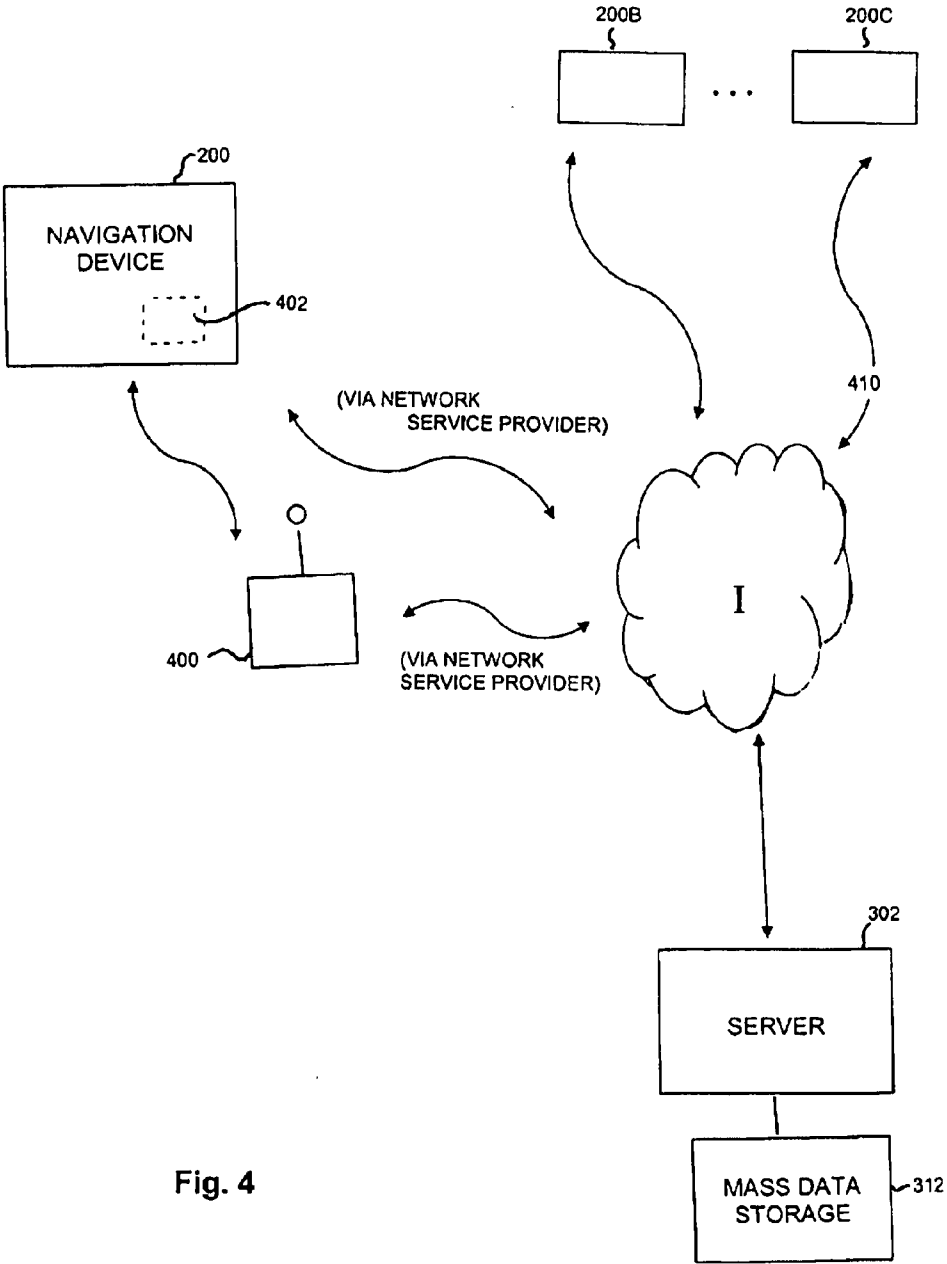


Fig. 4

Fig. 5

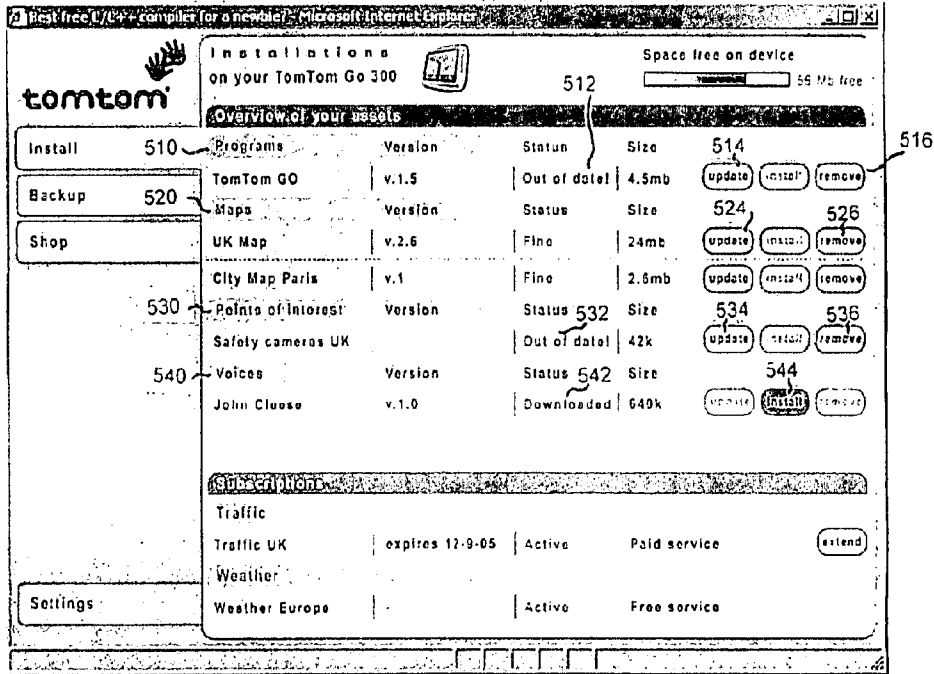


Fig. 6

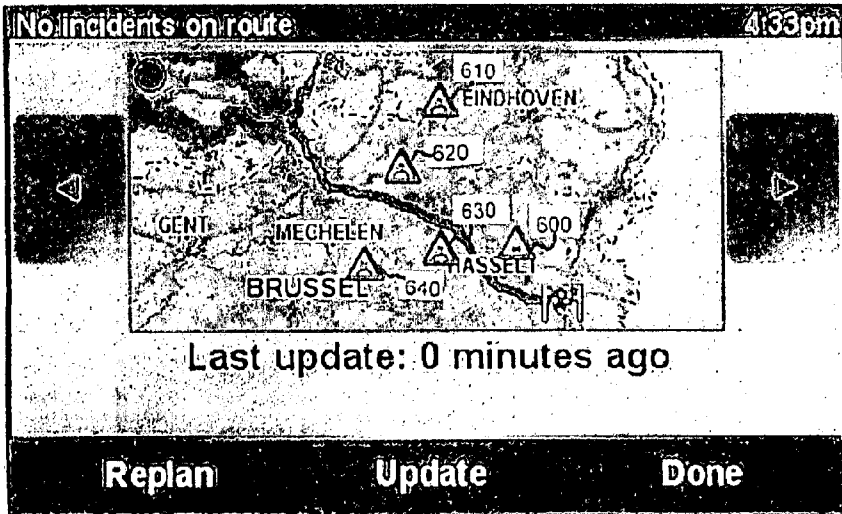
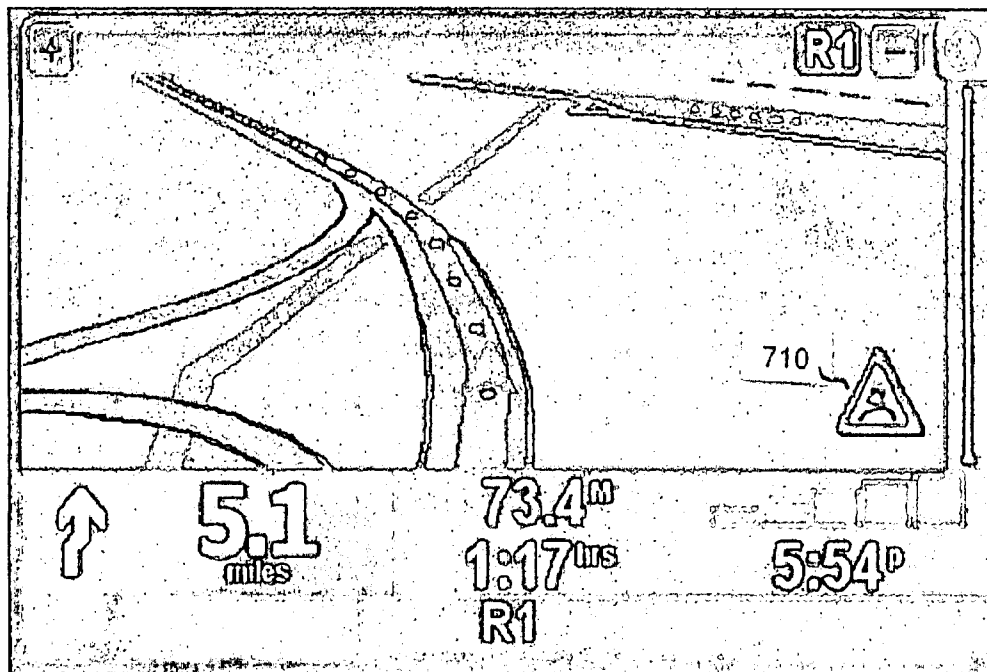


Fig. 7



NAVIGATION DEVICE, SERVER, AND METHOD FOR COMMUNICATING THEREBETWEEN

CO-PENDING APPLICATIONS

[0001] The following applications are being filed concurrently with the present applications. The entire contents of each of the following applications is hereby incorporated herein by reference: A NAVIGATION DEVICE AND METHOD FOR STORING AND UTILIZING A LAST DOCKED LOCATION (Attorney docket number 06P057US16) filed on even date herewith; A METHOD AND DEVICE FOR UTILIZING A SELECTABLE LOCATION MARKER FOR RELATIONAL DISPLAY OF POINT OF INTEREST ENTRIES (Attorney docket number 06P057US15) filed on even date herewith; A METHOD AND DEVICE FOR MAP SWITCHING (Attorney docket number 06P057US14) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR CONVEYING INFORMATION RELATIONSHIPS (Attorney docket number 06P057US20) filed on even date herewith; A NAVIGATION DEVICE AND METHOD OF UPDATING INFORMATION ON A NAVIGATION DEVICE (Attorney docket number 06P057US18) filed on even date herewith; A METHOD AND DEVICE FOR PROVIDING PREFERENCES DURING ROUTE TRAVEL CALCULATION ON A NAVIGATION DEVICE (Attorney docket number 06P057US13) filed on even date herewith; A NAVIGATION DEVICE AND METHOD OF ACTIVATING INFORMATION ON A NAVIGATION DEVICE (Attorney docket number 06P057US12) filed on even date herewith; AUTOMATIC DISCOVERY OF WIRELESS COMMUNICATION SETTINGS (Attorney docket number 06P057US04) filed on even date herewith; A NAVIGATION DEVICE AND METHOD OF IMPLEMENTING AUDIO FEATURES IN A NAVIGATION DEVICE (Attorney docket number 06P057US21) filed on even date herewith; METHODS OF CUSTOMIZING NAVIGATION SYSTEMS (Attorney docket number 06P057US03) filed on even date herewith; and A NAVIGATION DEVICE AND METHOD FOR SEQUENTIAL MAP DISPLAY (Attorney docket number 06P057US22) filed on even date herewith.

PRIORITY STATEMENT

[0002] The present application hereby claims priority under 35 U.S.C. §119 on each of Great Britain Patent Application numbers 0604709.6 filed Mar. 8, 2006; 0604708.8 filed Mar. 8, 2006; 0604710.4 filed Mar. 8, 2006; 0604704.7 filed Mar. 8, 2006; and 0604706.2 filed Mar. 8, 2006, the entire contents of each of which is hereby incorporated herein by reference.

FIELD

[0003] The present application generally relates to navigation methods and devices.

BACKGROUND

[0004] Current navigation systems are used to determine travel routes based upon input travel destinations and a current location of the navigation device, the current location being obtained through GPS triangulation for example. While the travel route can easily be obtained in a known manner based upon map information stored in the memory of the navigation device, updating this map information can

be tedious and is often done in a non-timely manner. Thus, the information stored in the memory of the navigation device, which is used in determining a travel route, is not always the most current or up to date information. In known systems, a user typically has to order updated map information and then install updated map information on his navigation device, via a new CD containing the map information for example.

SUMMARY

[0005] In at least one embodiment, a method is disclosed. The method includes receiving information from a navigation device at a server, the navigation device being connected to the server via a network connection established at least one of through a mobile device and via mobile phone technology within the navigation device; and pushing information relating to the received information, via at least one push channel over a network connection, from the server to a plurality of navigation devices connected to the server.

[0006] In at least one other embodiment, a method includes receiving, at a server, an indication of a network connection between a navigation device and the server; checking status of information stored on the navigation device upon receipt of the indication of the network connection; and at least one of providing status information regarding a current status of information stored on the navigation device and providing recommendations for at least one of updating, installing, and removing information relating to the stored information.

[0007] In at least one other embodiment, a method is disclosed for opening a push channel. The method includes recognizing promotional service availability for a navigation device upon establishment of a network connection between the navigation device and the server, the network connection being established at least one of through a mobile device and via mobile phone technology within the navigation device; and opening a push channel between the server and the navigation device upon the promotional service being made available and upon a trigger being activated at the navigation device.

[0008] In at least one further embodiment, a server is disclosed. The server includes means for receiving information from a navigation device, the navigation device being connected to the server via a network connection established at least one of through a mobile device and via mobile phone technology within the navigation device; and means for pushing information relating to the received information, via at least one push channel over a network connection, to a plurality of navigation devices connected to the server.

[0009] In at least one further embodiment, a server is disclosed. The server includes means for receiving an indication of a network connection between a navigation device and the remote server; means for checking status of information stored on the navigation device upon receipt of the indication of the network connection; and means for providing at least one of status information regarding a current status of information stored on the navigation device and recommendations for at least one of updating, installing, and removing information relating to the stored information.

[0010] In at least one further embodiment, a device is disclosed for opening a push channel. The device includes

means for recognizing promotional service availability for a navigation device upon establishment of a network connection between the navigation device and the server, the network connection being established at least one of through a mobile device and via mobile phone technology within the navigation device; and means for opening a push channel between the server and the navigation device upon the promotional service being made available and upon a trigger being activated at the navigation device.

[0011] In at least one even further embodiment, a method is disclosed. The method includes sending information from a navigation device to a server, the navigation device being connected to the server via a network connection established at least one of through a mobile device and via mobile phone technology within the navigation device, wherein information relating to the received information is pushed, via at least one push channel over a network connection, from the server to a plurality of navigation devices connected to the network.

[0012] In at least one even further embodiment, a method includes establishing a network connection between a navigation device and a server, wherein information stored on the navigation device is automatically checked by the server subsequent to establishing the network connection; and prompting at least one of updating, installing, and removing the stored information.

[0013] In at least one still further embodiment, a navigation device is disclosed. The navigation device includes an integrated input and display device to send information from a navigation device to a server, the navigation device being connected to the server via a network connection established at least one of through a mobile device and via mobile phone technology within the navigation device, wherein information relating to the received information is pushed, via at least one push channel over a network connection, from the server to a plurality of navigation devices connected to the server.

[0014] In at least one still further embodiment, a navigation device includes a memory to store information; a device to establish a network connection between a navigation device and a server, the stored information being automatically checked by the server subsequent to establishing the network connection; and an integrated input and display device to prompt at least one of updating, installing, and removing the stored information.

[0015] In at least one still further embodiment, a navigation device includes an integrated input and display device to receive a request for a promotional service and to activate a trigger for receipt of the promotional service; and a device, upon activation of the trigger and upon a network connection between the navigation device and a server being established at least one of through a mobile device and via mobile phone technology within the navigation device, to open a push-channel to receive information from the server relating to the promotional service.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The present application will be described in more detail below by using example embodiments, which will be explained with the aid of the drawings, in which:

[0017] FIG. 1 illustrates an example view of a Global Positioning System (GPS);

[0018] FIG. 2 illustrates an example block diagram of electronic components of a navigation device of an embodiment of the present application;

[0019] FIG. 3 illustrates an example block diagram of a server, navigation device and connection therebetween of an embodiment of the present application;

[0020] FIG. 4 illustrates an example embodiment of navigation devices network connected to a server;

[0021] FIG. 5 illustrates a display screen of an example embodiment of the present application;

[0022] FIG. 6 illustrates a display screen of an example embodiment of the present application;

[0023] FIG. 7 illustrates a display screen of an example embodiment of the present application from a first person perspective;

DETAILED DESCRIPTION OF THE EXAMPLE EMBODIMENTS

[0024] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the present invention. As used herein, the singular forms “a”, “an”, and “the” are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms “includes” and/or “including”, when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

[0025] In describing example embodiments illustrated in the drawings, specific terminology is employed for the sake of clarity. However, the disclosure of this patent specification is not intended to be limited to the specific terminology so selected and it is to be understood that each specific element includes all technical equivalents that operate in a similar manner.

[0026] Referencing the drawings, wherein like reference numerals designate identical or corresponding parts throughout the several views, example embodiments of the present patent application are hereafter described. Like numbers refer to like elements throughout. As used herein, the term “and/or” includes any and all combinations of one or more of the associated listed items.

[0027] FIG. 1 illustrates an example view of Global Positioning System (GPS), usable by navigation devices, including the navigation device of embodiments of the present application. Such systems are known and are used for a variety of purposes. In general, GPS is a satellite-radio based navigation system capable of determining continuous position, velocity, time, and in some instances direction information for an unlimited number of users.

[0028] Formerly known as NAVSTAR, the GPS incorporates a plurality of satellites which work with the earth in extremely precise orbits. Based on these precise orbits, GPS satellites can relay their location to any number of receiving units.

[0029] The GPS system is implemented when a device, specially equipped to receive GPS data, begins scanning

radio frequencies for GPS satellite signals. Upon receiving a radio signal from a GPS satellite, the device determines the precise location of that satellite via one of a plurality of different conventional methods. The device will continue scanning, in most instances, for signals until it has acquired at least three different satellite signals (noting that position is not normally, but can be determined, with only two signals using other triangulation techniques). Implementing geometric triangulation, the receiver utilizes the three known positions to determine its own two-dimensional position relative to the satellites. This can be done in a known manner. Additionally, acquiring a fourth satellite signal will allow the receiving device to calculate its three dimensional position by the same geometrical calculation in a known manner. The position and velocity data can be updated in real time on a continuous basis by an unlimited number of users.

[0030] As shown in FIG. 1, the GPS system is denoted generally by reference numeral 100. A plurality of satellites 120 are in orbit about the earth 124. The orbit of each satellite 120 is not necessarily synchronous with the orbits of other satellites 120 and, in fact, is likely asynchronous. A GPS receiver 140, usable in embodiments of navigation devices of the present application, is shown receiving spread spectrum GPS satellite signals 160 from the various satellites 120.

[0031] The spread spectrum signals 160, continuously transmitted from each satellite 120, utilize a highly accurate frequency standard accomplished with an extremely accurate atomic clock. Each satellite 120, as part of its data signal transmission 160, transmits a data stream indicative of that particular satellite 120. It is appreciated by those skilled in the relevant art that the GPS receiver device 140 generally acquires spread spectrum GPS satellite signals 160 from at least three satellites 120 for the GPS receiver device 140 to calculate its two-dimensional position by triangulation. Acquisition of an additional signal, resulting in signals 160 from a total of four satellites 120, permits the GPS receiver device 140 to calculate its three-dimensional position in a known manner.

[0032] FIG. 2 illustrates an example block diagram of electronic components of a navigation device 200 of an embodiment of the present application, in block component format. It should be noted that the block diagram of the navigation device 200 is not inclusive of all components of the navigation device, but is only representative of many example components.

[0033] The navigation device 200 is located within a housing (not shown). The housing includes a processor 210 connected to an input device 220 and a display screen 240. The input device 220 can include a keyboard device, voice input device, and/or any other known input device utilized to input information; and the display screen 240 can include any type of display screen such as an LCD display, for example. In at least one embodiment of the present application, the input device 220 and display screen 240 are integrated into an integrated input and display device, including a touchpad or touchscreen input wherein a user need only touch a portion of the display screen 240 to select one of a plurality of display choices or to activate one of a plurality of virtual buttons.

[0034] In addition, other types of output devices 250 can also include, including but not limited to, an audible output

device. As output device 250 can produce audible information to a user of the navigation device 200, it is equally understood that input device 240 can also include a microphone and software for receiving input voice commands as well.

[0035] In the navigation device 200, processor 210 is operatively connected to and set to receive input information from input device 240 via a connection 225, and operatively connected to at least one of display screen 240 and output device 250, via output connections 245, to output information thereto. Further, the processor 210 is operatively connected to memory 230 via connection 235 and is further adapted to receive/send information from/to input/output (I/O) ports 270 via connection 275, wherein the I/O port 270 is connectible to an I/O device 280 external to the navigation device 200. The external I/O device 270 may include, but is not limited to an external listening device such as an earpiece for example. The connection to I/O device 280 can further be a wired or wireless connection to any other external device such as a car stereo unit for hands-free operation and/or for voice activated operation for example, for connection to an ear piece or head phones, and/or for connection to a mobile phone for example, wherein the mobile phone connection may be used to establish a TCP/IP connection between the navigation device 200 and the internet or any other network for example, and/or to establish a connection to a server via the internet or some other network for example.

[0036] FIG. 2 further illustrates an operative connection between the processor 210 and an antenna/receiver 250 via connection 255, wherein the antenna/receiver 250 can be a GPS antenna/receiver for example. It will be understood that the antenna and receiver designated by reference numeral 250 are combined schematically for illustration, but that the antenna and receiver may be separately located components, and that the antenna may be a GPS patch antenna or helical antenna for example.

[0037] Further, it will be understood by one of ordinary skill in the art that the electronic components shown in FIG. 2 are powered by power sources (not shown) in a conventional manner. As will be understood by one of ordinary skill in the art, different configurations of the components shown in FIG. 2 are considered within the scope of the present application. For example, in one embodiment, the components shown in FIG. 2 may be in communication with one another via wired and/or wireless connections and the like. Thus, the scope of the navigation device 200 of the present application includes a portable or handheld navigation device 200.

[0038] In addition, the portable or handheld navigation device 200 of FIG. 2 can be connected or "docked" in a known manner to a motorized vehicle such as a car or boat for example. Such a navigation device 200 is then removable from the docked location for portable or handheld navigation use.

[0039] FIG. 3 illustrates an example block diagram of a server 302 and a navigation device 200 of the present application, via a generic communications channel 318, of an embodiment of the present application. The server 302 and a navigation device 200 of the present application can communicate when a connection via communications channel 318 is established between the server 302 and the

navigation device **200** (noting that such a connection can be a data connection via mobile device, a direct connection via personal computer via the internet, etc.).

[0040] The server **302** includes, in addition to other components which may not be illustrated, a processor **304** operatively connected to a memory **306** and further operatively connected, via a wired or wireless connection **314**, to a mass data storage device **312**. The processor **304** is further operatively connected to transmitter **308** and receiver **310**, to transmit and send information to and from navigation device **200** via communications channel **318**. The signals sent and received may include data, communication, and/or other propagated signals. The transmitter **308** and receiver **310** may be selected or designed according to the communications requirement and communication technology used in the communication design for the navigation system **200**. Further, it should be noted that the functions of transmitter **308** and receiver **310** may be combined into a signal transceiver.

[0041] Server **302** is further connected to (or includes) a mass storage device **312**, noting that the mass storage device **312** may be coupled to the server **302** via communication link **314**. The mass storage device **312** contains a store of navigation data and map information, and can again be a separate device from the server **302** or can be incorporated into the server **302**.

[0042] The navigation device **200** is adapted to communicate with the server **302** through communications channel **318**, and includes processor, memory, etc. as previously described with regard to FIG. 2, as well as transmitter **320** and receiver **322** to send and receive signals and/or data through the communications channel **318**, noting that these devices can further be used to communicate with devices other than server **302**. Further, the transmitter **320** and receiver **322** are selected or designed according to communication requirements and communication technology used in the communication design for the navigation device **200** and the functions of the transmitter **320** and receiver **322** may be combined into a single transceiver.

[0043] Software stored in server memory **306** provides instructions for the processor **304** and allows the server **302** to provide services to the navigation device **200**. One service provided by the server **302** involves processing requests from the navigation device **200** and transmitting navigation data from the mass data storage **312** to the navigation device **200**. According to at least one embodiment of the present application, another service provided by the server **302** includes processing the navigation data using various algorithms for a desired application and sending the results of these calculations to the navigation device **200**.

[0044] The communication channel **318** generically represents the propagating medium or path that connects the navigation device **200** and the server **302**. According to at least one embodiment of the present application, both the server **302** and navigation device **200** include a transmitter for transmitting data through the communication channel and a receiver for receiving data that has been transmitted through the communication channel.

[0045] The communication channel **318** is not limited to a particular communication technology. Additionally, the communication channel **318** is not limited to a single

communication technology; that is, the channel **318** may include several communication links that use a variety of technology. For example, according to at least one embodiment, the communication channel **318** can be adapted to provide a path for electrical, optical, and/or electromagnetic communications, etc. As such, the communication channel **318** includes, but is not limited to, one or a combination of the following: electric circuits, electrical conductors such as wires and coaxial cables, fiber optic cables, converters, radio-frequency (rf) waves, the atmosphere, empty space, etc. Furthermore, according to at least one various embodiment, the communication channel **318** can include intermediate devices such as routers, repeaters, buffers, transmitters, and receivers, for example.

[0046] In at least one embodiment of the present application, for example, the communication channel **318** includes telephone and computer networks. Furthermore, in at least one embodiment, the communication channel **318** may be capable of accommodating wireless communication such as radio frequency, microwave frequency, infrared communication, etc. Additionally, according to at least one embodiment, the communication channel **318** can accommodate satellite communication.

[0047] The communication signals transmitted through the communication channel **318** include, but are not limited to, signals as may be required or desired for given communication technology. For example, the signals may be adapted to be used in cellular communication technology such as Time Division Multiple Access (TDMA), Frequency Division Multiple Access (FDMA), Code Division Multiple Access (CDMA), Global System for Mobile Communications (GSM), etc. Both digital and analogue signals can be transmitted through the communication channel **318**. According to at least one embodiment, these signals may be modulated, encrypted and/or compressed signals as may be desirable for the communication technology.

[0048] The mass data storage **312** includes sufficient memory for the desired navigation applications. Examples of the mass data storage **312** may include magnetic data storage media such as hard drives for example, optical storage media such as CD-Roms for example, charged data storage media such as flash memory for example, molecular memory, etc.

[0049] According to at least one embodiment of the present application, the server **302** includes a remote server accessible by the navigation device **200** via a wireless channel. According to at least one other embodiment of the application, the server **302** may include a network server located on a local area network (LAN), wide area network (WAN), virtual private network (VPN), etc.

[0050] According to at least one embodiment of the present application, the server **302** may include a personal computer such as a desktop or laptop computer, and the communication channel **318** may be a cable connected between the personal computer and the navigation device **200**. Alternatively, a personal computer may be connected between the navigation device **200** and the server **302** to establish an internet connection between the server **302** and the navigation device **200**. Alternatively, a mobile telephone or other handheld device may establish a wireless connection to the internet, for connecting the navigation device **200** to the server **302** via the internet.

[0051] The navigation device 200 may be provided with information from the server 302 via information downloads which may be periodically updated upon a user connecting navigation device 200 to the server 302 and/or may be more dynamic upon a more constant or frequent connection being made between the server 302 and navigation device 200 via a wireless mobile connection device and data connection for example. For many dynamic calculations, the processor 304 in the server 302 may be used to handle the bulk of the processing needs, however, processor 210 of navigation device 200 can also handle much processing and calculation, oftentimes independent of a connection to a server 302.

[0052] The mass storage device 312 connected to the server 302 can include volumes more cartographic and route data than that which is able to be maintained on the navigation device 200 itself, including maps, etc. The server 302 may process, for example, the majority of the devices of a navigation device 200 which travel along the route using a set of processing algorithms. Further, the cartographic and route data stored in memory 312 can operate on signals (e.g. GPS signals), originally received by the navigation device 200.

[0053] In at least one embodiment, a method is disclosed for pushing information, to a plurality of navigation devices, relating to received information. In at least one embodiment, the method includes receiving information from a navigation device 200 at a server 302, the navigation device 200 being connected to the server 302 via a network connection 318 established at least one of through a mobile device and via mobile phone technology within the navigation device 200; and pushing information relating to the received information, via at least one push channel over a network connection 318, from the server 302 to a plurality of navigation devices connected to the network.

[0054] FIG. 4 illustrates an example embodiment of network connected navigation devices 200, 200B, 200C, etc. and a server 302, connected via network connections such as the internet 410, for example. For example, the navigation device 200 may establish a connection (such as a digital connection via known Bluetooth technology for example) with a mobile device 400 (such as a mobile phone, PDA, and/or any device with mobile phone technology). Thereafter, through its network service provider, the mobile device 400 can establish a network connection (through the internet for example) with a server 302. As such, a "mobile" network connection is established between the navigation device 200 (which can be, and often times is mobile as it travels alone and/or in a vehicle) and the server 302 to provide a "real-time" or at least very "up to date" gateway for information.

[0055] The establishing of the network connection between the mobile device 400 (via a service provider) and another device such as the server 302, using the internet 410 for example, can be done in a known manner. This can include use of TCP/IP layered protocol for example. The mobile device 400 can utilize any number of communication standards such as CDMA, GSM, WAN, etc.

[0056] The navigation device 200 can further complete a data connection with the mobile device 400, and eventually with the internet 410 and server 302, via existing Bluetooth technology for example, in a known manner, wherein the data protocol can utilize any number of standards, such as

the General Packet Radio Service GPRS, the data protocol standard for the GSM standard, for example.

[0057] As further shown in FIG. 4, the navigation device 200 may include its own mobile phone technology 402 within the navigation device 200 itself (including an antenna for example, wherein the internal antenna of the navigation device 200 can further alternatively be used). The mobile phone technology 402 within the navigation device 200 can include internal components as specified above, and/or can include an insertable card, complete with necessary mobile phone technology and/or an antenna for example. As such, mobile phone technology 402 within the navigation device 200 can similarly establish a network connection between the navigation device 200 and the server 302, via the internet 410 for example, in a manner similar to that of any mobile device 400.

[0058] For GPRS phone settings, the Bluetooth enabled device may be used to correctly work with the ever changing spectrum of mobile phone models, manufacturers, etc., model/manufacture specific settings may be stored on the navigation device 200 for example. The data stored for this information can be updated in a manner discussed in any of the embodiments, previous and subsequent.

[0059] In a method of an embodiment of the present application, the establishment of this network connection via at least one of a mobile device and mobile phone technology, between a server 302 and the navigation device 200, can be used to input information into the navigation device 200 and send it for receipt to the server 302. This received information can be used by the server 302 and information relating thereto, can then be pushed to a plurality of navigation devices 200B, 200C, etc.

[0060] For example, as a user of the navigation device 200 is traveling down the road, information can be input and sent from a navigation device 200 and received at a server 302 via the "mobile" network connection, wherein such information received can include road camera location information input into the navigation device 200, information relating to weather information input into the navigation device 200, etc. Such input information can be received from the navigation device 200 at a server 302 via the network connection established at least one of through a mobile device 400 and mobile phone technology 402 within the navigation device 200 for example, and then such information can be used by the server 302 to push other information relating to the received information, via at least one push channel over a network connection, from the server 302 to a plurality of navigation devices 200B, 200C, etc. connected to the server 302 (via any type of network connection including a direct network connection, a connection established at least one of through a mobile device and via mobile phone technology within the navigation device 200, etc.).

[0061] Such additional navigation devices represented by 200B, 200C, etc. in FIG. 4 can include navigation devices which subscribe to a service with the server 302, for example. Of course, although FIG. 4 illustrates only two navigation devices 200B and 200C, these are only representative for illustration and the embodiments of the present application are not limited as such.

[0062] Thus, upon the received information from navigation device 200 including road camera location information

for example, (such as at least one of speed and safety road camera location for example) the server 302 can, at a later time or even after only a short processing time, push information relating to this road camera location to other navigation devices 200B, 200C, etc. to thereby provide an active and robust way of updating navigation devices 200B, 200C, etc. in a very up to date and current manner. Further, information obtained by users of one navigation device 200 can be provided in a very efficient and useful manner to other navigation devices 200B, 200C, etc.

[0063] It should be noted that the information input into the navigation device 200 is not limited to road camera location information, and can further include other types of information such as, for example, information relating to weather information. In response to receipt of any such information, the server 302 can, via processor 304, can process the received information in a manner similar to that of processing any new information, using stored algorithms and stored map information and data stored in memory 306 and/or mass data storage 312. As such, since information is received in a robust and near real-time manner, information relating to the received information, such as road camera location information up receipt of such, weather warnings relating to weather conditions and/or road conditions upon receipt of weather information, etc., can be pushed to other navigation devices 200B, 200C in a very robust and timely manner.

[0064] For example, the server 302 can process the received information via processor 304 for example, to update map information stored in memory 306 or mass data storage 312 for example, and can further locate other navigation devices 200B, 200C, etc., such as those with a subscription service with the server 302 for example. Thus, in events of bad weather, the server 302 can process the received information using the known GPS location of the navigation device 200 sending the information, and can then can push information including weather warning, road conditions which have changed, etc. to navigation devices 200B, 200C, etc. in locations proximate to a GPS location of the navigation device sending the information in a near real-time or at least robust manner.

[0065] This can similarly be applied to other information, wherein road camera location information for example, (such as at least one of safety and speed camera location information for example) can be used to push information relating to the road camera location information to other navigation device. Thus, a near real time system can be established for pushing information to a plurality of navigation devices 200B, 200C, etc. based upon information input via navigation device 200. Further, the information can be input and eventually received from the navigation device 200 at server 302 in a more real-time manner by utilizing a network connection established through at least one of a mobile device 400 and mobile phone technology 402 within the navigation device 200, to provide an even more robust and active system.

[0066] The aforementioned embodiment of FIG. 4 of the present application has been discussed from mainly the perspective of the server 302. However, it should be noted that from the perspective of the navigation device 200 itself, the navigation device 200 can include a display 240 and input device 220, which may be integrated into an integrated

input and display device (not shown). The integrated input and display device can be used to send information from the navigation device 200 to a server 302, with the navigation device 200 being connected to the server 302 via a network connection 318 established at least one of through a mobile device 400 and via mobile phone technology 402 within the navigation device 200. Information relating to the received information can then be pushed via at least one push channel over a network connection, from the server 302 to a plurality of navigation devices 200B, 200C, etc. connected to the server. Again, the network connection may be an internet connection, and the navigation device 200 may be connected to the server 302 via a TCP/IP connection, etc. Further, the information that can be sent can include road camera location information such as speed and/or safety road camera location information, and/or can include information relating to weather information, etc. Further, the pushed information may relate to road camera location information, weather warnings related to weather conditions proximate to GPS location of the navigation device 200, and/or road condition warnings relating to road conditions proximate to a GPS location of the navigation device 200.

[0067] The above also applies to a method of an embodiment of the present application. The method includes sending information from a navigation device 200 to a server 302, the navigation device 200 being connected to the server 302 via a network connection established at least one of through a mobile device 400 and via mobile phone technology 402 within the navigation device 200, wherein information relating to the received information is pushed, via at least one push channel over a network connection, from the server 302 to a plurality of navigation devices connected to the server 302.

[0068] In another embodiment of the present application, a method includes receiving, at a server 302, an indication of a network connection between a navigation device 200 and the server 302. The method includes checking status information stored on the navigation device 200 upon receipt of the indication of the network connection, and at least one of providing status information to the navigation device 200 regarding a current status of information stored on the navigation device 200 and providing recommendations to the navigation device 200 for at least one of updating, installing, and removing information relating to the stored information. In at least one embodiment of the present application, the providing of status information can include instructing display of the status information at the navigation device 200, and the providing recommendations can include instructing the prompting of selection, at the navigation device 200, of at least one of updating, installing, and removing information relating to the stored information. Thus, upon receiving an indication of a network connection between the server 302 and the navigation device 200, status of information stored on the navigation device can be checked and recommendations can be provided to the navigation device 200 for at least one of updating, installing, and removing information relating to the stored information.

[0069] FIG. 5 of the present application shows an example embodiment of a display screen, which can be a display screen of a computer connected to the navigation device 200 and/or integrated into the navigation device 200 for example, the computer being usable to establish an internet connection between the navigation device 200 and the server

302. It should be noted that an internet connection need not be made through a computer, but could also be made through a mobile device **400**, via mobile phone technology **402** within the navigation device **200**, through a direct connection to the internet between the navigation device **200** and the server **302**, etc. Thus, FIG. **5** can be an embodiment of the display of the navigation device **200** itself, upon the navigation device **200** connecting to the server **302** via its own network connection, including via a mobile phone **400** or mobile phone technology **402**. Accordingly, the embodiment of the present application of FIG. **5** will be described hereafter using a display of a computer connecting the navigation device **200** to the server **302** via an internet connection, but should not be limited as such.

[**0070**] In at least one embodiment, upon connecting the navigation device **200** to the computer in a known manner (via a USB port connection for example), and upon connecting the computer to the internet, a network connection can be established between the navigation device **200** and the server **302**. Upon receiving, at the server **302**, an indication of a network connection between the navigation device **200** and the server **302**, the status of information stored on the navigation device **200** can then be checked in a fairly automatic manner, and recommendations can be provided to the navigation device **200** for at least one of updating, installing, and removing information relating to the stored information. Further, status information may be provided, including instructing display of the status information to a user of the navigation device **200**, along with the providing of the recommendations, including instructing a prompting of selection, to a user of the navigation device **200**, of at least one of updating, installing, and removing information relating to the stored information. Again, such a display and/or providing a recommendation and prompting selection of updating, installing, or removing information, can be done on the computer connected between the navigation device **200** and the server **302** and/or on the navigation device **200** itself, assuming a network connection is established between the navigation device **200** and server **302**.

[**0071**] As shown in the example embodiment of FIG. **5**, the display displays both status information and prompts for selection of at least one of updating, installing, and removing information as will be explained as follows. It should be noted that either one or both of these categories of information may be displayed. With regard to "Programs" **510** of FIG. **5**, a particular example program TomTom Go is listed. A "status" of the program is displayed as "out of date" by element **512** of FIG. **5**. Further, relating to the same program, "recommendations", in the form of prompts for selection for example, are shown for either updating the program **514** or removing the program **516** as shown in FIG. **5**.

[**0072**] Similarly, under "maps" **520** as shown in FIG. **5**, the status is displayed as being "fine" **520**, and the recommendations are shown in the form of prompts **524** and **526**, to either update or remove the map. Under the category "Points of interest" **530**, "safety cameras UK" are displayed, with the status **532** indicating that they are out of date, and with prompts for either updating **534** or removing **536** the stored information. Finally, under voice **540**, the voice of John Cleese is displayed, wherein the status indicates that the voice has been Downloaded **542**, and wherein the prompt **544** of installing the voice is highlighted.

[**0073**] It should be noted that as shown in FIG. **5**, inapplicable aspects of updating, installing, and removing information relating to information stored on the navigation device **200** are differentiated from applicable aspects of updating, installing, and removing information, wherein the differentiation can include highlighting only applicable selectable aspects of updating, installing, and removing information; relatively highlighting these applicable virtual buttons as opposed to inapplicable virtual buttons (highlighting one and/or darkening the other); relatively bolding applicable buttons; differentiating the applicable buttons from the inapplicable buttons in terms of color, etc.

[**0074**] Upon selecting one of an updating, removing, or installing button, the server **302** can perform at least one of updating, installing, and removing information relating to the stored information upon receiving a corresponding selection of a corresponding one of updating, installing, and removing information relating to the stored information. As shown in the various examples of FIG. **5**, the information stored on the navigation device **200**, which can be updated, installed, removed, etc. may include at least one of map information, point of interest information, voice information, subscription information, etc.

[**0075**] Thus, assuming a navigation device **200** is directly connected to the server **302** via a mobile phone type connection as shown in FIG. **4** for example, or via direct connection to the internet, a display screen such as that shown in FIG. **5** can be directly displayed on the navigation device **200** itself. Thus, the navigation device **200** can include a memory **230** to store information, a device to establish a network connection between the navigation device **200** and the server **302**, with the stored information being automatically checked by the server **302** subsequent to establishing a network connection. Finally, an integrated input and display device (integrating input device **220** and display device **240** of FIG. **2** for example) can be used to prompt at least one of updating, installing, and removing the stored information, via the display screen of FIG. **5** for example. The integrated input and display device may further be used to prompt (via display of at least one prompt for example) selection of at least one of updating, installing, and removing at least one of map information, point of interest information, voice information, and subscription information. Further, the memory **230** may be used to at least one of update stored information, store new information, and remove stored information in response to selection of the corresponding one of updating, installing, and removing information being made. The information stored in the memory **230** can include at least one of map information, points of interest information, voice information, and subscription information.

[**0076**] It should be noted that the methodology of establishing a network connection between navigation device **200** and the server **302**, wherein information stored on the navigation device **200** is automatically checked by the server **302** subsequent to establishing a network connection, and prompting at least one of updating, installing, and removing the stored information can be done via software application which can be stored on a computer connecting the navigation device **200** and server **302** and/or on the navigation device **200** itself. The program application can be embedded browser component for example. Through the browser com-

ponent, information stored on the navigation device 200 can be updated, installed, and removed as shown in FIG. 5 for example.

[0077] In another embodiment of the present application, a method is disclosed for opening a push channel. By opening such a push channel, information can be pushed to a navigation device 200 by the server 302.

[0078] In at least one embodiment of the method, promotional services are made available to a navigation device 200 upon establishment of a network connection between the navigation device 200 and the server 302, wherein the network connection is established through at least one of through a mobile device and via mobile phone technology within the navigation device 200, in a manner previously described with regard to FIG. 4 for example. Thereafter, a push channel may be opened between the server 302 and the navigation device 200 upon the promotional service being made available and upon a trigger being activated at the navigation device 200.

[0079] A trigger can include, but is not limited to, at least one preference, wherein the push channel is only opened upon at least one preference being activated in the navigation device 200. For example, a user may preset a trigger on his navigation device 200 for auto-updating of traffic triggers, weather triggers, speed camera triggers, etc. Thus, upon a trigger indicating a preference by the user to receive at least one of road camera information, position information, and traffic information on the navigation device 200 upon the push channel being opened, a user of the navigation device 200 can automatically receive information via an open push channel. As such, information regarding road cameras for example, can be automatically pushed to a user upon a network connection between the navigation device 200 and the server 302 being established at least one of through a mobile device and via mobile phone technology within the navigation device 200.

[0080] Accordingly, while the user is using his navigation device 200 in the car for example, assuming that a trigger requesting updated road camera information for example is previously established, a push channel can be opened and an update for the road camera information, for example, can be achieved on the navigation device 200. Thus, information can be pushed to a navigation device 200 in a virtually real-time manner upon being updated in a virtually real-time manner in the example previously discussed with regard to FIG. 4 for example.

[0081] The initiative to open a push channel is normally done by the navigation device 200. The server 302 does not usually open a connection or push channel to the navigation device 200. However, the server 302 may open a connection from the server 302, in a situation where the navigation device 200 has a unique IP address, for example. This is only one non-limiting example, however, and the embodiments of the application should not be limited as such.

[0082] Assuming that the trigger may include a preference for traffic information, for example, traffic information may be updated on the navigation device 200 upon the push channel being opened. The traffic information may include updating hazardous road conditions, etc. Assuming that the road camera preference is triggered, road camera information can be updated on the navigation device 200 upon the

push channel being opened, the road camera information including at least one of safety and speed road camera location information for example. Thus, information can be provided in a virtually real-time manner from the server 302 to navigation devices 200 which desire this virtually real-time update, for example.

[0083] Accordingly, in at least one embodiment of the present application, a push channel is initially closed. Thereafter, a promotional service may be made available by the server 302, for example when the server receives new information regarding traffic conditions, speed or safety, etc.

[0084] For example, a push channel may be initially deactivated. Promotional services can be done based upon a trigger, which may include a preference such as traffic for example; to convince the user of the navigation device 200 to use that preference. Thus, in at least one embodiment, the navigation device 200 may receive a request for a promotional service and can then activate the trigger for receipt of the promotional service (via the integrated input and display device, for example). The user of the navigation device 200 may get a promotional service for one month usage for free, for example. If user of the navigation device 200 activates a trigger, the navigation device 200 can later, upon a network connection between the navigation device 200 and a server 302 being established at least one of through a mobile device and via mobile phone technology within the navigation device 200, also then open a push-channel to have real-time information (information relating to the promotional service) supplied by the server 302 for that preference. As soon as the push-channel is opened in this manner, the server 302 is able to push other information to the navigation device 200 device.

[0085] For example, upon a network connection between a navigation device 200 and a server 302 being established via Bluetooth and mobile phone technology connection for example, preferences can be checked by the server 302 for a particular navigation device 200. If the "camera" preference is activated, then the push channel can be opened between the server 302 and navigation device 200 and the road camera information on the navigation device 200 can be updated, for example. Similarly, if the "traffic" preference is activated, a push channel may be opened and traffic information may be updated on the navigation device 200.

[0086] For at least one of the embodiments of the present application discussed above, relating to updating information relating to weather information, and/or for pushing information relating to weather information such as weather warnings, road condition warnings, etc. the following may apply. The purpose is to inform the user about potentially hazardous conditions along a route that the user is traveling. The idea is to be able to display something relating to weather warnings or road condition to a user of a navigation device 200, wherein such information may be proximate to a GPS location of the navigation device 200, for example.

[0087] In at least one embodiment of the present application, the user of the navigation device 200 may be sent, in bitmap form for example (to reduce the amount of data for example, as sending in bitmap form is an efficient way to send map data to the navigation device 200), "points" and/or "colors" corresponding to an area on a map, wherein the points and colors may relate to hazardous road conditions and/or weather warning in an area proximate to a GPS

location of the navigation device **200**. For hazardous road conditions, symbols may be provided for display around a route of travel of the navigation device **200**, such as the icons shown in FIG. 6 of the present application for example. Once weather information is received and it is determined that the hazardous conditions may occur, these areas in which hazardous conditions may occur can be displayed via icons **600**, **610**, **620**, **630**, and **640** of FIG. 6 for example.

[0088] In addition, or alternatively, as shown in FIG. 7, depending on the perspective of the display (wherein FIG. 7 shows a first person perspective for example), such an icon may be displayed in a location on the display screen of the navigation device **200**, such as in the bottom right hand corner of the display screen as shown by icon **710** for example. It should be noted that such display locations may vary; and that icons can be varied, depending on weather conditions, wherein separate icons can be utilized to illustrate a slippery road, heavy snow, strong wind, heavy rain, mist/fog, etc.

[0089] With regard to the aforementioned embodiments of the present application relating to speed and safety cameras, the following additional information may further apply. One idea is to provide a user of the navigation device to have access to locations of fixed and mobile safety cameras and or speed cameras. In addition, based upon a GPS location of the navigation device **200**, warning messages may be conveyed to a user when the navigation device **200** is accessing an area where a safety and/or speed camera is located. Further, in at least one embodiment of the present application previously stated above, users can also report new cameras recently discovered and/or cameras which have been removed. This can be done via Bluetooth connection and mobile phone technology as discussed previously with regard to FIG. 4 of the present application, wherein such information regarding the adding or removal of safety and/or speed cameras can be reported quickly to the server **302** and further can be conveyed to other navigation devices **200b**, **200c**, etc. in a quick and efficient manner.

[0090] Regarding the reporting of a particular camera, the camera can be reported as facing a particular direction, being a new camera, being a camera which has been removed, etc. Regarding the information conveyed to a user of a navigation device **200B**, **200C**, etc., the location of the cameras may be displayed in a manner similar to road condition icons of FIGS. 6 and/or 7. During a route of travel, a user of a navigation device may be warned when approaching a safety and/or speed camera facing his direction, a user can request an immediate update for camera locations, etc. Each of these aspects are included within the embodiments of the present application.

[0091] The methods of the embodiment expressed above may be implemented in the form of a device, such as a server and/or a navigation device for example. Thus, such aspects are encompassed within at least one embodiment of the present application.

[0092] Further, at least one of the methods of at least one embodiment may be implemented as a computer data signal embodied in the carrier wave or propagated signal that represents a sequence of instructions which, when executed by a processor (such as processor **304** of server **302**, and/or processor **210** of navigation device **200** for example) causes the processor to perform a respective method. In at least one

other embodiment, at least one method provided above may be implemented above as a set of instructions contained on a computer readable or computer accessible medium, such as one of the memory devices previously described, for example, to perform the respective method when executed by a processor or other computer device. In varying embodiments, the medium may be a magnetic medium, electronic medium, optical medium, etc.

[0093] Even further, any of the aforementioned methods may be embodied in the form of a program. The program may be stored on a computer readable media and is adapted to perform any one of the aforementioned methods when run on a computer device (a device including a processor). Thus, the storage medium or computer readable medium, is adapted to store information and is adapted to interact with a data processing facility or computer device to perform the method of any of the above mentioned embodiments.

[0094] The storage medium may be a built-in medium installed inside a computer device main body or a removable medium arranged so that it can be separated from the computer device main body. Examples of the built-in medium include, but are not limited to, rewriteable non-volatile memories, such as ROMs and flash memories, and hard disks. Examples of the removable medium include, but are not limited to, optical storage media such as CD-ROMs and DVDs; magneto-optical storage media, such as MOs; magnetism storage media, including but not limited to floppy disks (trademark), cassette tapes, and removable hard disks; media with a built-in rewriteable non-volatile memory, including but not limited to memory cards; and media with a built-in ROM, including but not limited to ROM cassettes; etc. Furthermore, various information regarding stored images, for example, property information, may be stored in any other form, or it may be provided in other ways.

[0095] As one of ordinary skill in the art will understand upon reading the disclosure, the electronic components of the navigation device **200** and/or the components of the server **302** can be embodied as computer hardware circuitry or as a computer readable program, or as a combination of both.

[0096] The system and method of embodiments of the present application include software operative on the processor to perform at least one of the methods according to the teachings of the present application. One of ordinary skill in the art will understand, upon reading and comprehending this disclosure, the manner in which a software program can be launched from a computer readable medium in a computer based system to execute the functions found in the software program. One of ordinary skill in the art will further understand the various programming languages which may be employed to create a software program designed to implement and perform at least one of the methods of the present application.

[0097] The programs can be structured in an object-orientation using an object-oriented language including but not limited to JAVA, Smalltalk, C++, etc., and the programs can be structured in a procedural-orientation using a procedural language including but not limited to COBAL, C, etc. The software components can communicate in any number of ways that are well known to those of ordinary skill in the art, including but not limited to by application of program

interfaces (API), interprocess communication techniques, including but not limited to report procedure call (RPC), common object request broker architecture (CORBA), Component Object Model (COM), Distributed Component Object Model (DCOM), Distributed System Object Model (DSOM), and Remote Method Invocation (RMI). However, as will be appreciated by one of ordinary skill in the art upon reading the present application disclosure, the teachings of the present application are not limited to a particular programming language or environment.

[0098] The above systems, devices, and methods have been described by way of example and not by way of limitation with respect to improving accuracy, processor speed, and ease of user interaction, etc. with a navigation device 200.

[0099] Further, elements and/or features of different example embodiments may be combined with each other and/or substituted for each other within the scope of this disclosure and appended claims.

[0100] Still further, any one of the above-described and other example features of the present invention may be embodied in the form of an apparatus, method, system, computer program and computer program product. For example, of the aforementioned methods may be embodied in the form of a system or device, including, but not limited to, any of the structure for performing the methodology illustrated in the drawings.

[0101] Example embodiments being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the present invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.

What is claimed is:

1. A method, comprising:
 - receiving information from a navigation device at a server, the navigation device being connected to the server via a network connection established at least one of through a mobile device and via mobile phone technology within the navigation device; and
 - pushing information relating to the received information, via at least one push channel over a network connection, from the server to a plurality of navigation devices connected to the server.
2. The method of claim 1, wherein the network connection is an internet connection.
3. The method of claim 2, wherein the navigation device is connected to the server via a TCP/IP connection.
4. The method of claim 1, wherein the received information includes road camera location information input into the navigation device.
5. The method of claim 4, wherein the road camera location information includes at least one of safety and speed road camera location information.
6. The method of claim 4, wherein the pushed information relates to road camera location information.
7. The method of claim 6, wherein the road camera location information includes at least one of safety and speed road camera location information.

8. The method of claim 1, wherein the received information includes information relating to weather information, input into the navigation device.

9. The method of claim 1, wherein the pushed information includes weather warnings relating to weather conditions proximate to a GPS location of the navigation device.

10. The method of claim 8, wherein the pushed information includes weather warnings relating to weather conditions proximate to a GPS location of the navigation device.

11. The method of claim 8, wherein the pushed information includes road condition warnings relating to road conditions proximate to a GPS location of the navigation device.

12. A method, comprising:

- receiving, at a server, an indication of a network connection between a navigation device and the server;

- checking status of information stored on the navigation device upon receipt of the indication of the network connection; and

- at least one of providing status information regarding a current status of information stored on the navigation device and providing recommendations for at least one of updating, installing, and removing information relating to the stored information.

13. The method of claim 12, wherein the providing of status information includes instructing display of the status information, and wherein the providing of recommendations includes instructing a prompting of selection of at least one of updating, installing, and removing information relating to the stored information.

14. The method of claim 13, further comprising at least one of updating, installing, and removing information relating to the stored information, upon receiving a selection of a corresponding one of updating, installing, and removing information relating to the stored information.

15. The method of claim 12, wherein the information stored on the navigation device includes at least one of map information, point of interest information, voice information and subscription information.

16. A method for opening a push channel, comprising:

- recognizing promotional service availability for a navigation device upon establishment of a network connection between the navigation device and the server, the network connection being established at least one of through a mobile device and via mobile phone technology within the navigation device; and

- opening a push channel between the server and the navigation device upon the promotional service being made available and upon a trigger being activated at the navigation device.

17. The method of claim 16, further comprising updating at least one of road camera information, position information and traffic information on the navigation device upon the push channel being opened.

18. The method of claim 16, wherein the trigger includes at least one preference, and wherein the push channel is only opened upon the at least one preference being activated in the navigation device.

19. The method of claim 18, further comprising updating at least one of road camera information and traffic information in the navigation device upon the push channel being opened and upon a corresponding preference being activated.

20. The method of claim 17, wherein the traffic information includes updating hazardous road conditions.

21. The method of claim 17, wherein the road camera information includes at least one of safety and speed road camera location information.

22. The method of claim 16, wherein the push channel is opened by the navigation device.

23. The method of claim 16, wherein the push channel is opened by the server.

24. A server, comprising:

means for receiving information from a navigation device, the navigation device being connected to the server via a network connection established at least one of through a mobile device and via mobile phone technology within the navigation device; and

means for pushing information relating to the received information, via at least one push channel over a network connection, to a plurality of navigation devices connected to the server.

25. The server of claim 24, wherein the network connection is an internet connection.

26. The server of claim 25, wherein the navigation device is connected to the server via a TCP/IP connection.

27. The server of claim 24, wherein the received information includes road camera location information input into the navigation device.

28. The server of claim 27, wherein the road camera location information includes at least one of safety and speed road camera location information.

29. The server of claim 27, wherein the pushed information relates to road camera location information.

30. The server of claim 29, wherein the road camera location information includes at least one of safety and speed road camera location information.

31. The server of claim 24, wherein the received information includes information relating to weather information, input into the navigation device.

32. The server of claim 24, wherein the pushed information includes weather warnings relating to weather conditions proximate to a GPS location of the navigation device.

33. The server of claim 31, wherein the pushed information includes weather warnings relating to weather conditions proximate to a GPS location of the navigation device.

34. The method of claim 31, wherein the pushed information includes road condition warnings relating to road conditions proximate to a GPS location of the navigation device.

35. A server, comprising:

means for receiving an indication of a network connection between a navigation device and the remote server;

means for checking status of information stored on the navigation device upon receipt of the indication of the network connection; and

means for providing at least one of status information regarding a current status of information stored on the navigation device and recommendations for at least one of updating, installing, and removing information relating to the stored information.

36. The method of claim 35, wherein the providing of status information includes instructing display of the status information, and wherein the providing of recommendations

includes instructing a prompting of selection of at least one of updating, installing, and removing information relating to the stored information.

37. The method of claim 36, further comprising means for at least one of updating, installing, and removing information relating to the stored information, upon receiving a selection of a corresponding one of updating, installing, and removing information relating to the stored information.

38. The method of claim 35, wherein the information stored on the navigation device includes at least one of map information, point of interest information, voice information and subscription information.

39. A device for opening a push channel, comprising:

means for recognizing promotional service availability for a navigation device upon establishment of a network connection between the navigation device and a server, the network connection being established at least one of through a mobile device and via mobile phone technology within the navigation device; and

means for opening a push channel between the server and the navigation device upon the promotional service being made available and upon a trigger being activated at the navigation device.

40. The device of claim 39, further comprising means for updating at least one of road camera information, position information and traffic information on the navigation device upon the push channel being opened.

41. The device of claim 39, wherein the trigger includes at least one preference, and wherein the push channel is only opened upon the at least one preference being activated in the navigation device.

42. The device of claim 41, further comprising means for updating at least one of road camera information and traffic information in the navigation device upon the push channel being opened and upon a corresponding preference being activated.

43. The device of claim 40, wherein the traffic information includes updating hazardous road conditions.

44. The device of claim 40, wherein the road camera information includes at least one of safety and speed road camera location information.

45. A server, including the device of claim 39.

46. A navigation device, including the device of claim 39.

47. A method, comprising:

sending information from a navigation device to a server, the navigation device being connected to the server via a network connection established at least one of through a mobile device and via mobile phone technology within the navigation device, wherein information relating to the received information is pushed, via at least one push channel over a network connection, from the server to a plurality of navigation devices connected to the network.

48. The method of claim 47, wherein the network connection is an internet connection.

49. The method of claim 48, wherein the navigation device is connected to the server via a TCP/IP connection.

50. The method of claim 47, wherein the sent information includes road camera location information input into the navigation device.

51. The method of claim 50, wherein the road camera location information includes at least one of safety and speed road camera location information.

52. The method of claim 50, wherein the pushed information relates to road camera location information.

53. The method of claim 52, wherein the road camera location information includes at least one of safety and speed road camera location information.

54. The method of claim 47, wherein the sent information includes information relating to weather information, input into the navigation device.

55. The method of claim 47, wherein the pushed information includes weather warnings relating to weather conditions proximate to a GPS location of the navigation device.

56. The method of claim 54, wherein the pushed information includes weather warnings relating to weather conditions proximate to a GPS location of the navigation device.

57. The method of claim 54, wherein the pushed information includes road condition warnings relating to road conditions proximate to a GPS location of the navigation device.

58. A method, comprising:

establishing a network connection between a navigation device and a server, wherein information stored on the navigation device is automatically checked by the server subsequent to establishing the network connection; and

prompting at least one of updating, installing, and removing the stored information.

59. The method of claim 58, wherein the prompting includes displaying selection of at least one of updating, installing and removing at least one of map information, point of interest information, voice information and subscription information.

60. The method of claim 58, wherein the prompting includes prompting selection of at least one of updating, installing, and removing information relating to the stored information.

61. The method of claim 60, further comprising of at least one receiving updated information, installing new information, and removing stored information, upon indicating a selection of a corresponding one of updating, installing, and removing information relating to the stored information.

62. The method of claim 58, wherein the information stored on the navigation device includes at least one of map information, point of interest information, voice information and subscription information.

63. The method of claim 60, wherein the prompting includes prompting selection of at least one of map information, point of interest information, voice information and subscription information.

64. A navigation device, comprising:

an integrated input and display device to send information from a navigation device to a server, the navigation device being connected to the server via a network connection established at least one of through a mobile device and via mobile phone technology within the navigation device, wherein information relating to the received information is pushed, via at least one push channel over a network connection, from the server to a plurality of navigation devices connected to the server.

65. The navigation device of claim 64, wherein the network connection is an internet connection.

66. The navigation device of claim 65, wherein the navigation device is connected to the server via a TCP/IP connection.

67. The navigation device of claim 64, wherein the information to be sent includes road camera location information input into the navigation device.

68. The navigation device of claim 67, wherein the road camera location information includes at least one of safety and speed road camera location information.

69. The navigation device of claim 67, wherein the pushed information relates to road camera location information.

70. The navigation device of claim 69, wherein the road camera location information includes at least one of safety and speed road camera location information.

71. The navigation device of claim 64, wherein the information to be sent includes information relating to weather information, input into the navigation device.

72. The navigation device of claim 64, wherein the pushed information includes weather warnings relating to weather conditions proximate to a GPS location of the navigation device.

73. The navigation device of claim 71, wherein the pushed information includes weather warnings relating to weather conditions proximate to a GPS location of the navigation device.

74. The navigation device of claim 71, wherein the pushed information includes road condition warnings relating to road conditions proximate to a GPS location of the navigation device.

75. A navigation device, comprising:

a memory to store information;

a device to establish a network connection between a navigation device and a server, the stored information being automatically checked by the server subsequent to establishing the network connection; and

an integrated input and display device to prompt at least one of updating, installing, and removing the stored information.

76. The navigation device of claim 75, wherein the integrated input and display device is further used to display at least one prompt for selection of at least one of updating, installing and removing at least one of map information, point of interest information, voice information and subscription information.

77. The navigation device of claim 75, wherein the integrated input and display device is further used to prompt selection of at least one of updating, installing, and removing information relating to the stored information.

78. The navigation device of claim 77, wherein the memory is further used to at least one of update stored information, store new information, and removing stored information, in response to a selection of a corresponding one of updating, installing, and removing information being made.

79. The navigation device of claim 75, wherein the information stored in the memory includes at least one of map information, point of interest information, voice information and subscription information.

80. The navigation device of claim 79, wherein the integrated input and display device is further used to prompt selection of at least one of map information, point of interest information, voice information and subscription information.

81. A navigation device, comprising:
an integrated input and display device to receive a request for a promotional service and to activate a trigger for receipt of the promotional service; and
a device, upon activation of the trigger and upon a network connection between the navigation device and a server being established at least one of through a mobile device and via mobile phone technology within the navigation device, to open a push-channel to receive information from the server relating to the promotional service.

82. The navigation device of claim 81, further wherein at least one of road camera information, position information and traffic information is received on the navigation device upon the push channel being opened.

83. The navigation device of claim 81, wherein the trigger includes at least one preference, and wherein the push channel is only opened upon the at least one preference being activated in the navigation device.

84. The navigation device of claim 83, wherein at least one of road camera information and traffic information is updated in the navigation device upon the push channel being opened and upon a corresponding preference being activated.

85. The navigation device of claim 82, wherein the traffic information includes updating hazardous road conditions.

86. The navigation device of claim 82, wherein the road camera information includes at least one of safety and speed road camera location information.

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