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(54) **NAVIGATION DEVICE AND METHOD FOR FUEL PRICING DISPLAY**

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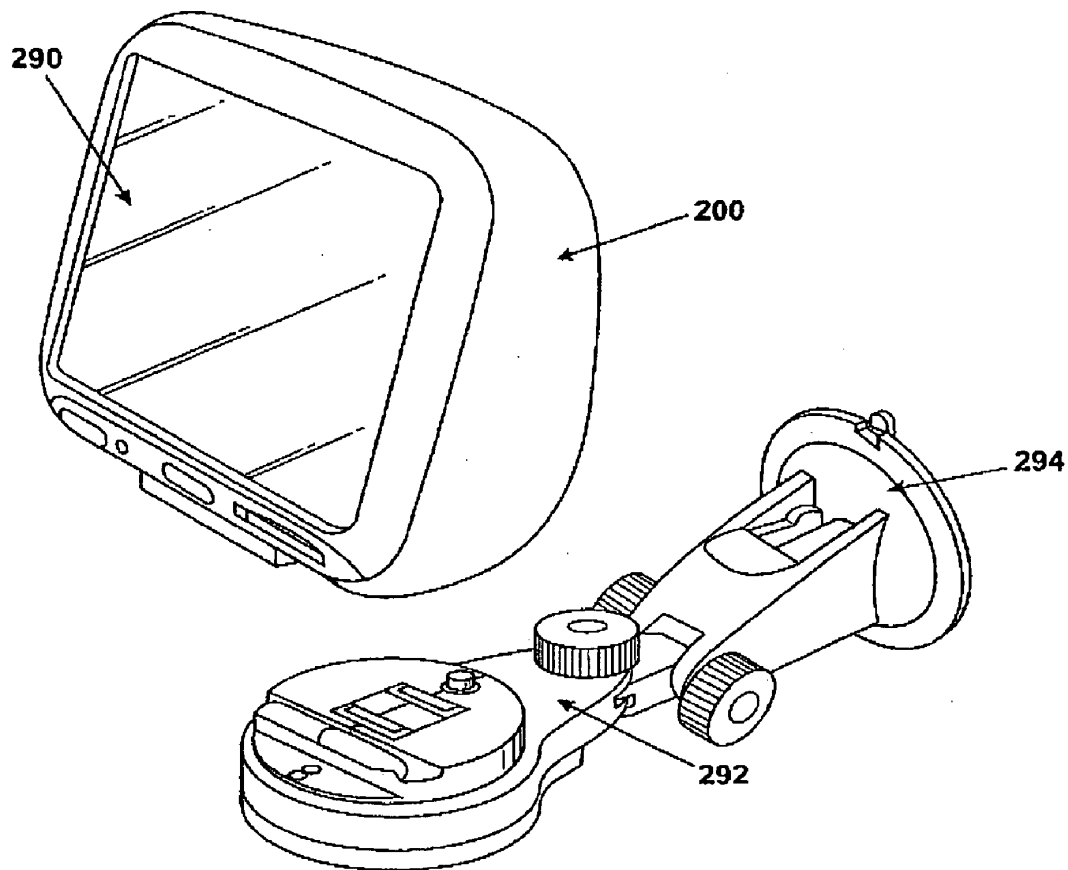
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(57) **ABSTRACT**

A method and device are disclosed for navigation. In at least one embodiment, the method includes determining a designated fuel type; and displaying selectable fuel pricing information on a display of a navigation device, based upon the designated fuel type and in consideration of a location of the navigation device. In at least one embodiment, the navigation device includes a processor to determine a designated fuel type; and an integrated input and display device to display selectable fuel pricing information based upon the designated fuel type and in consideration of a location of the navigation device.



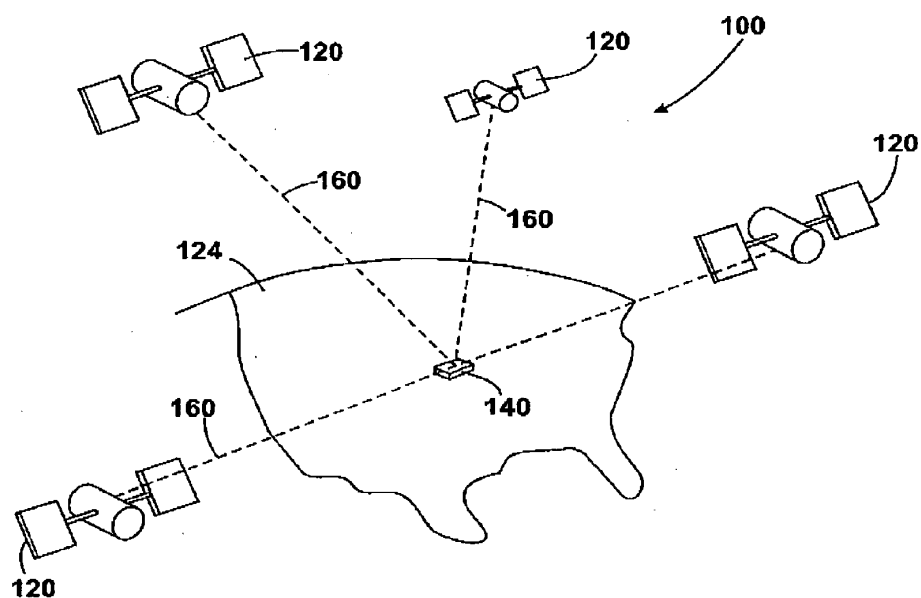


Fig. 1

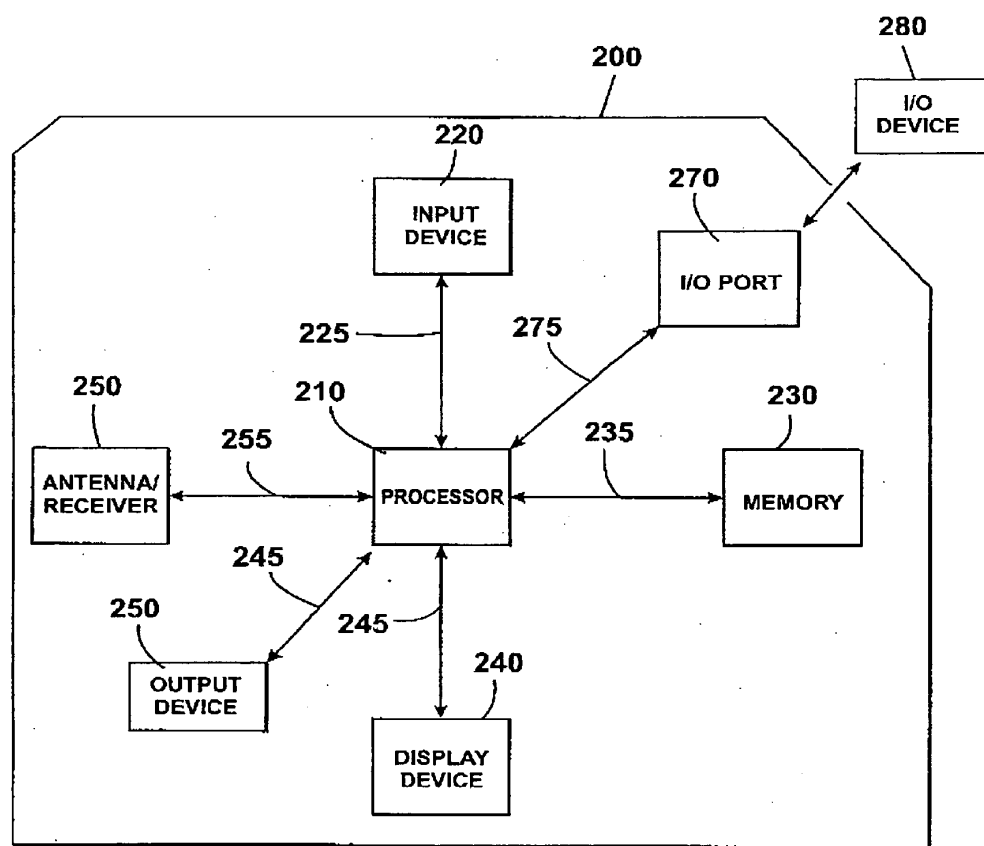


Fig. 2

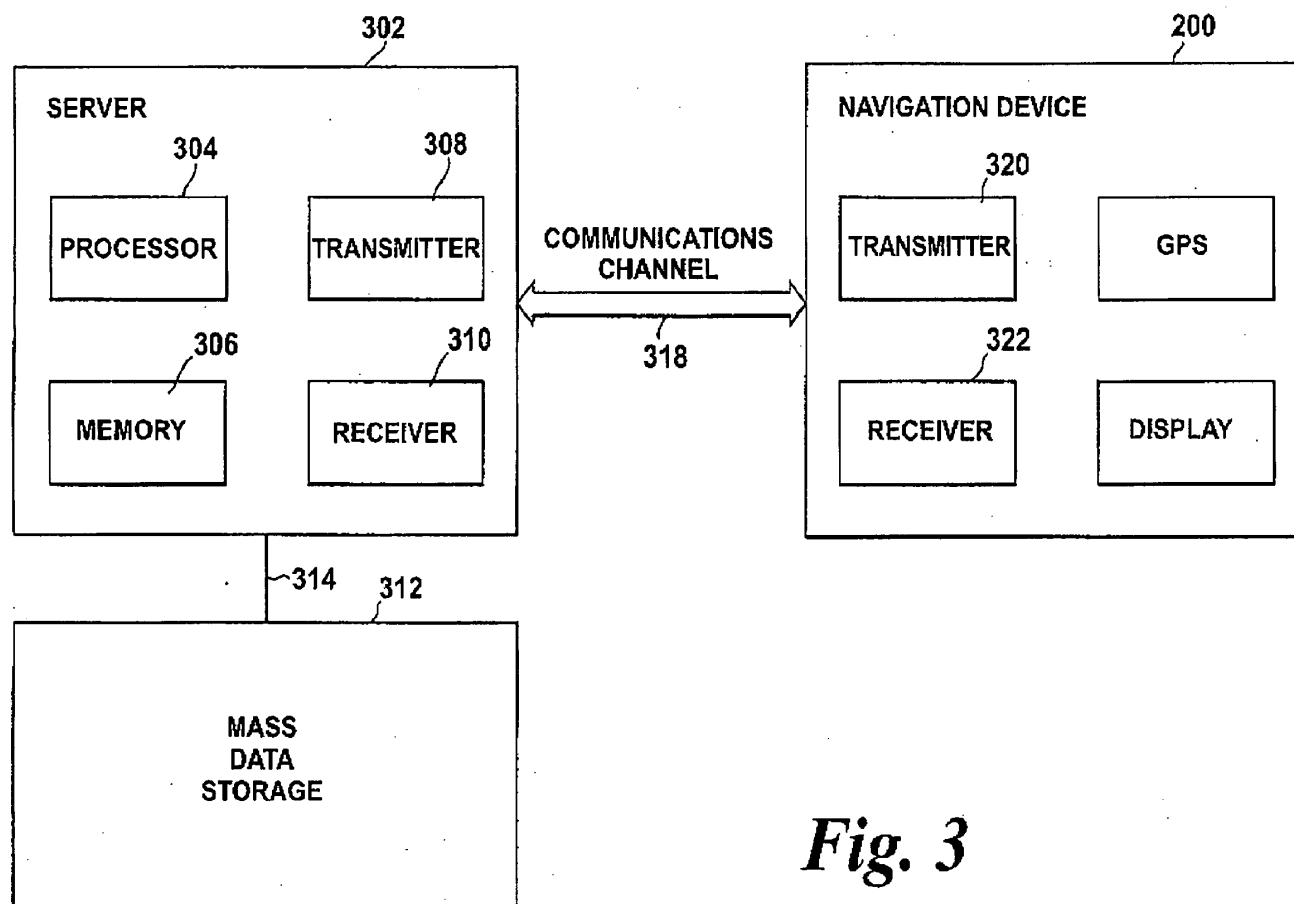


Fig. 3

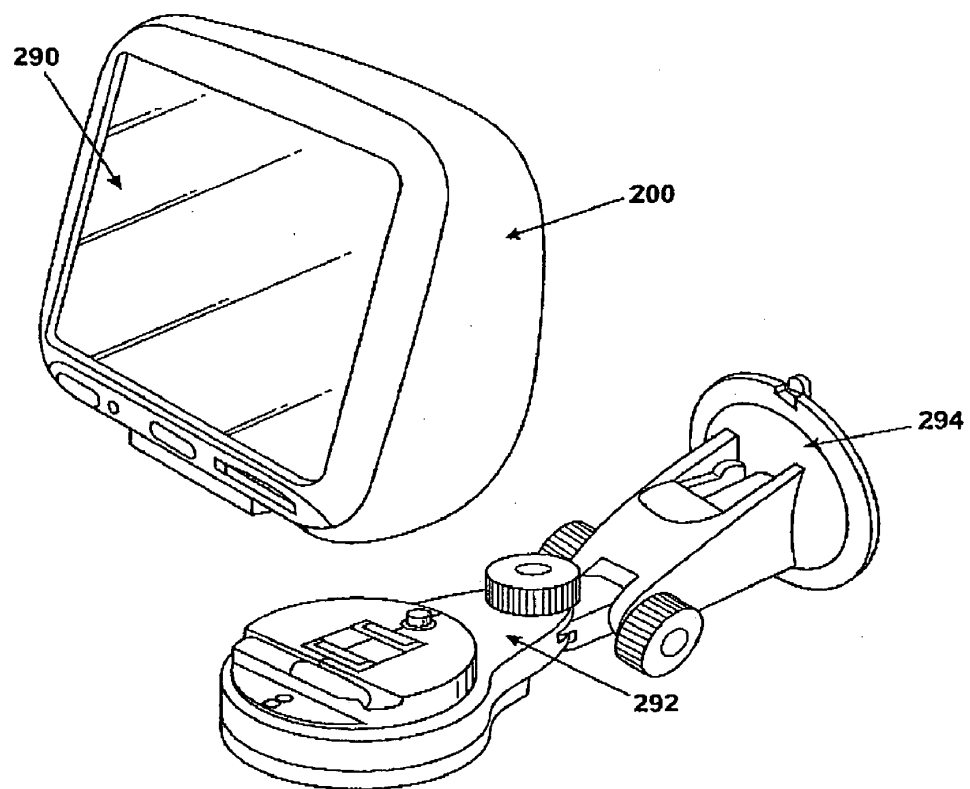


Fig. 4A

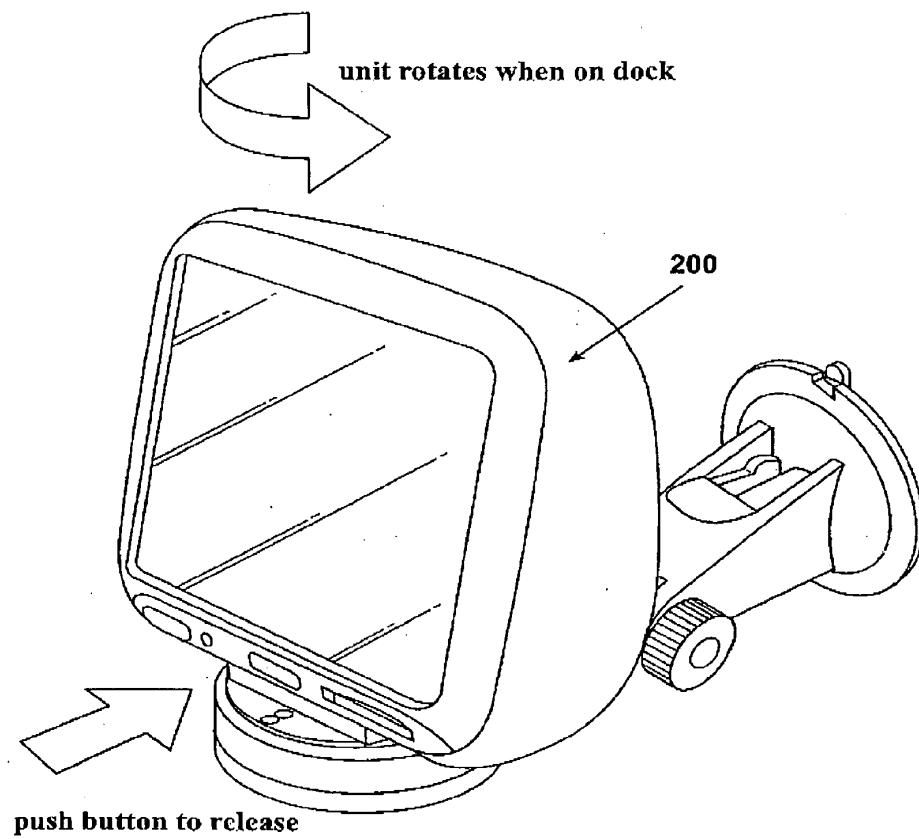


Fig. 4B

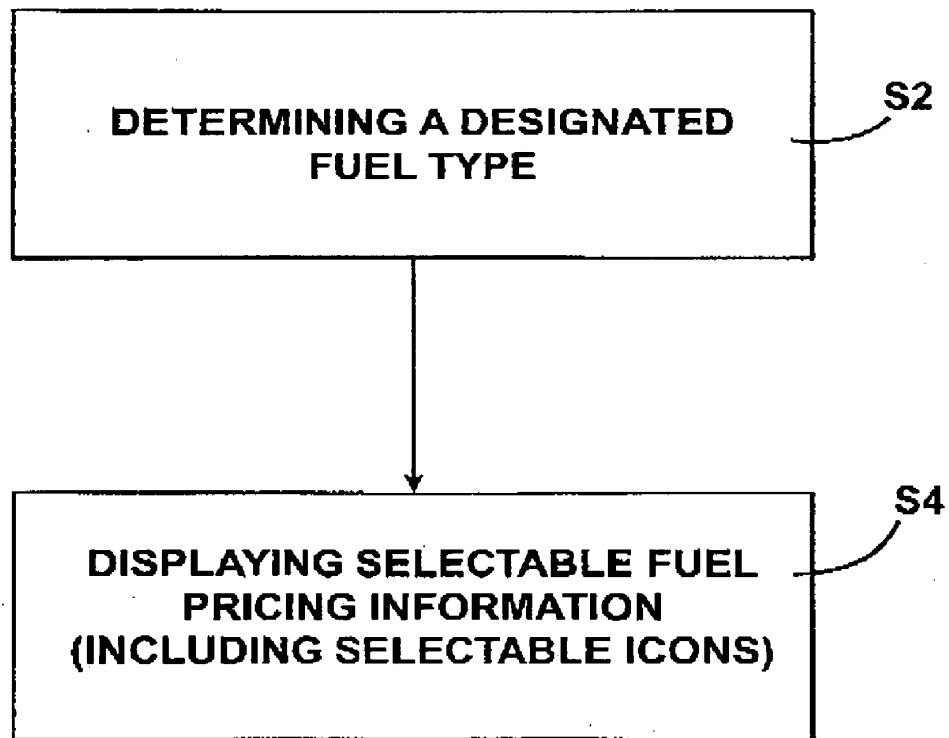


Fig. 5A

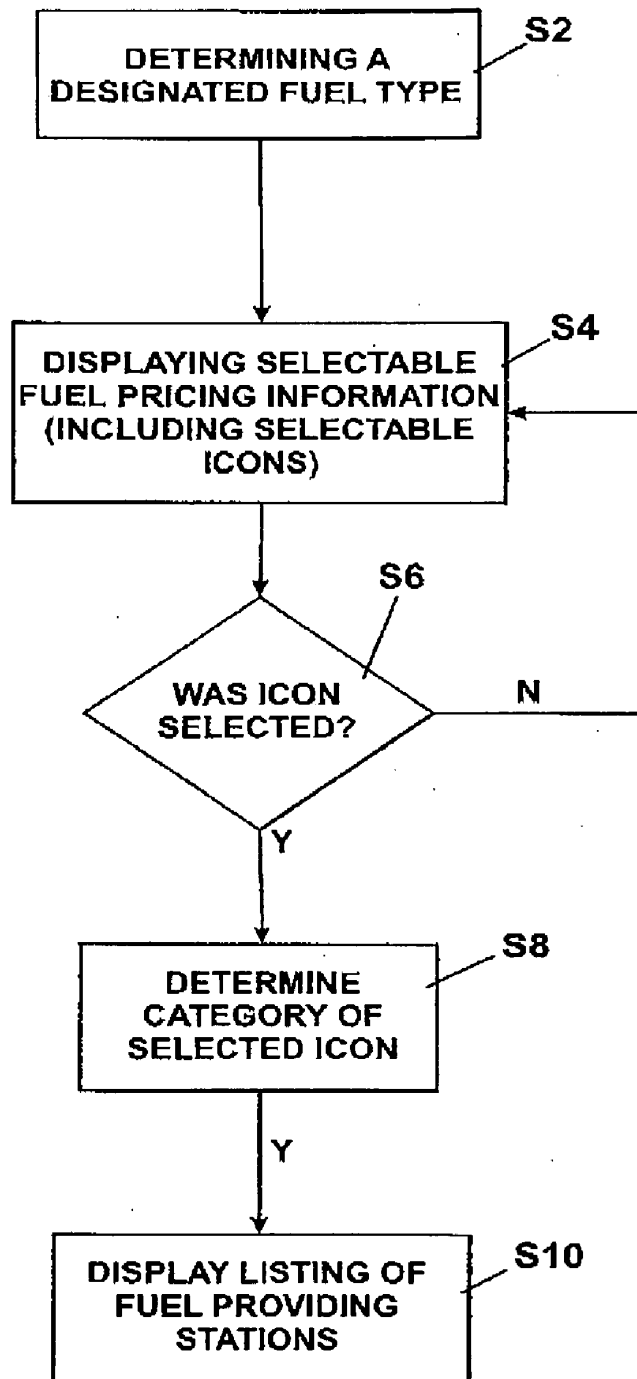


Fig. 5B

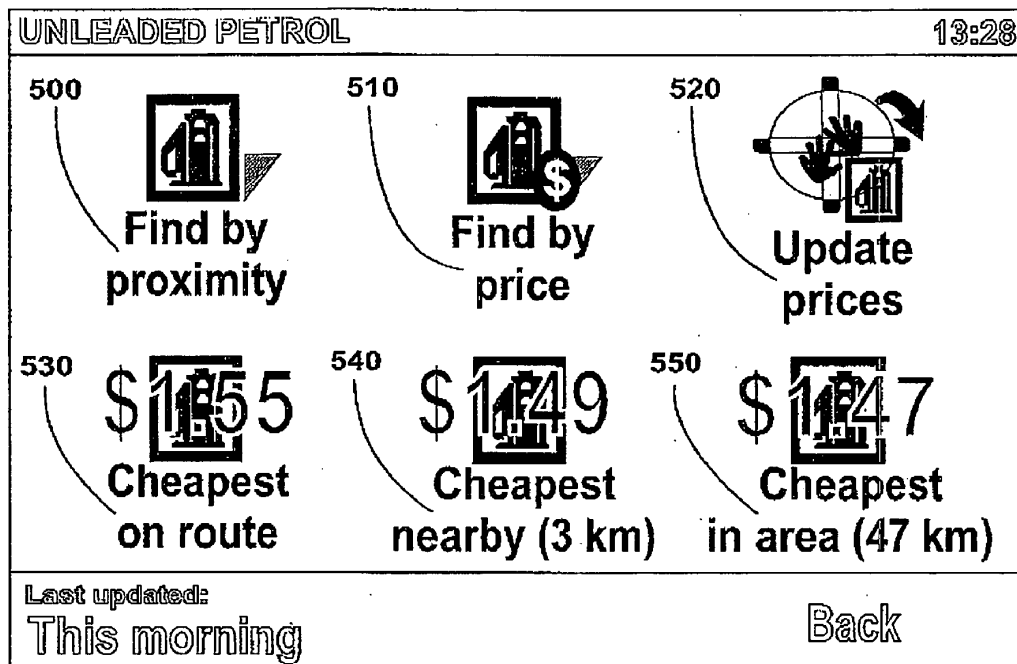
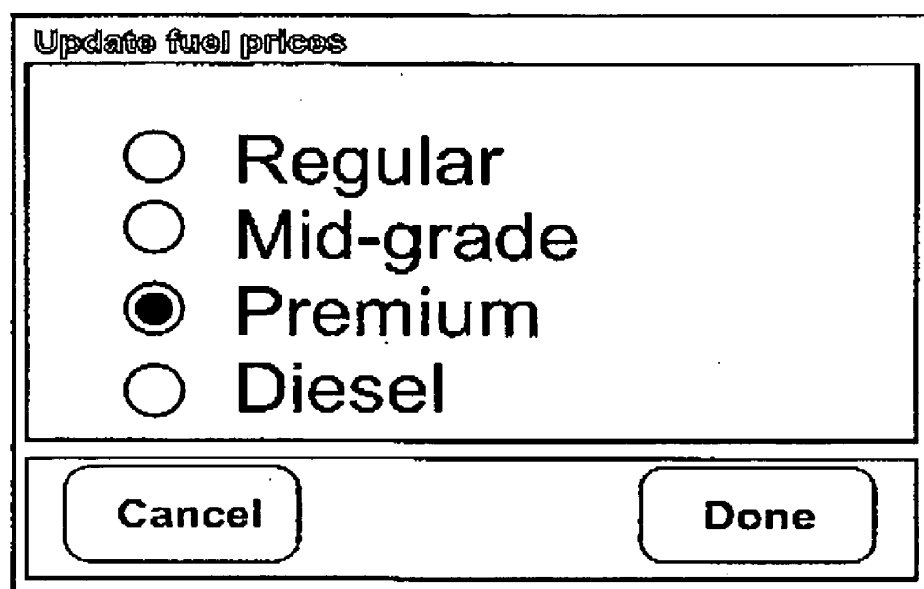


Fig. 6



Update fuel prices

☐ Regular

☐ Mid-grade

☒ Premium

☐ Diesel

Cancel Done

Fig. 7

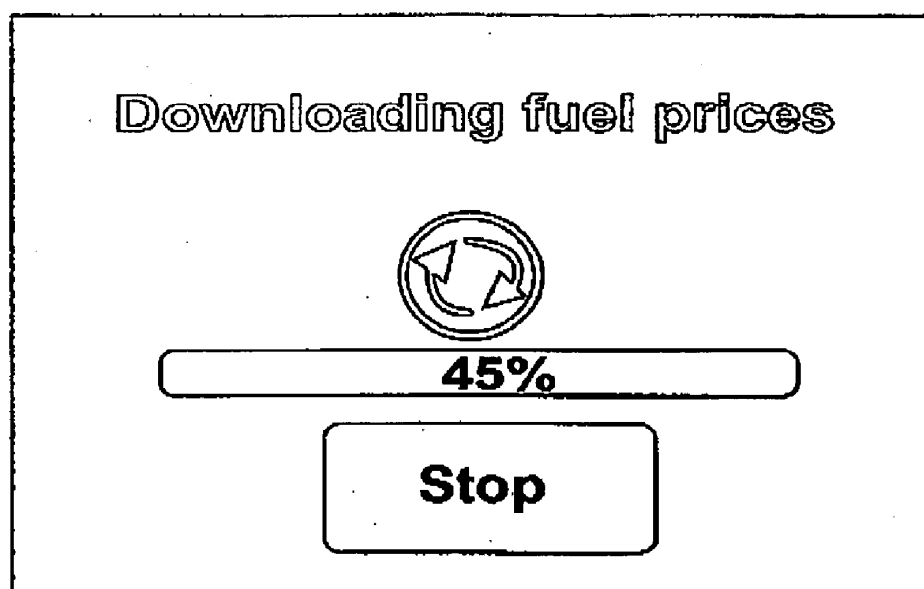


Fig. 8

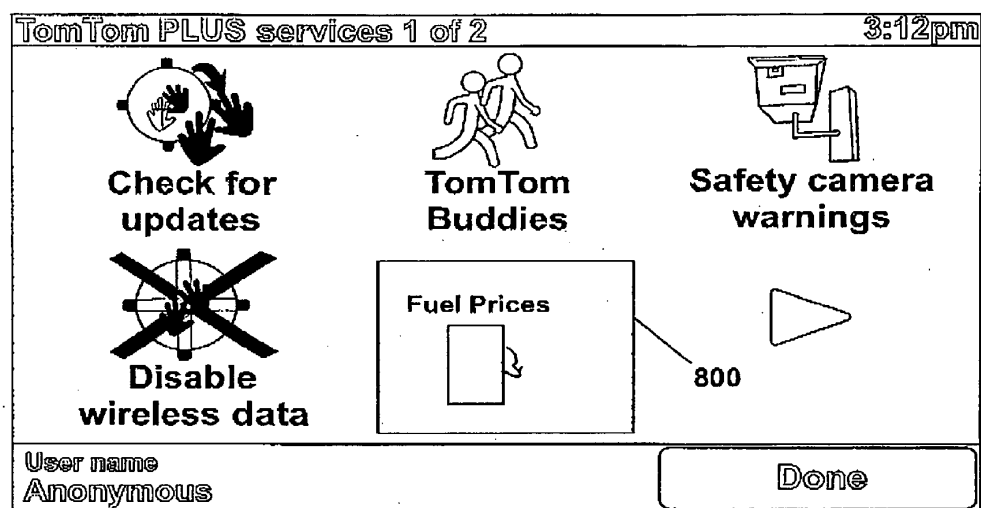


Fig. 9

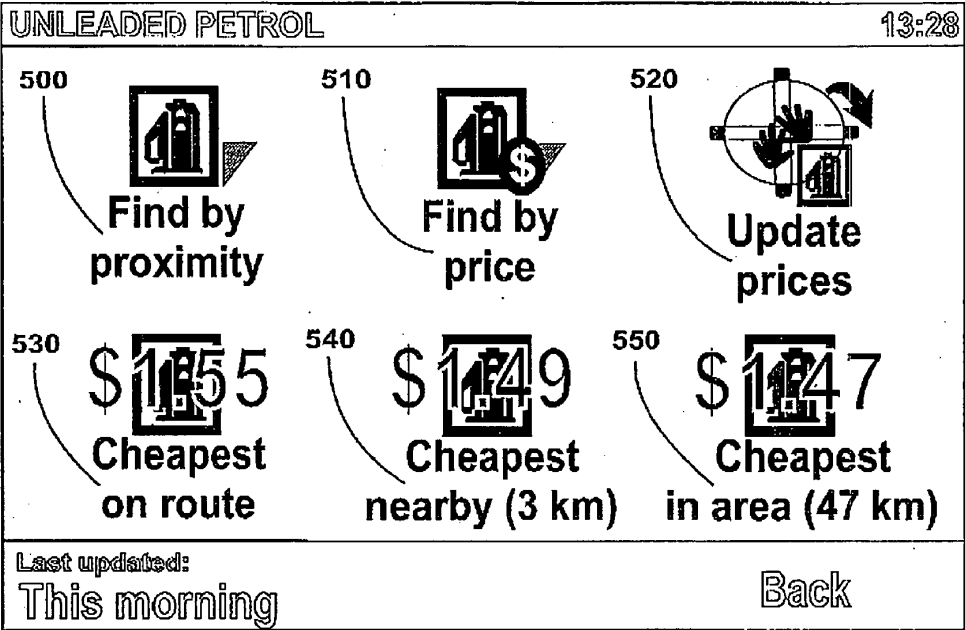


Fig. 10

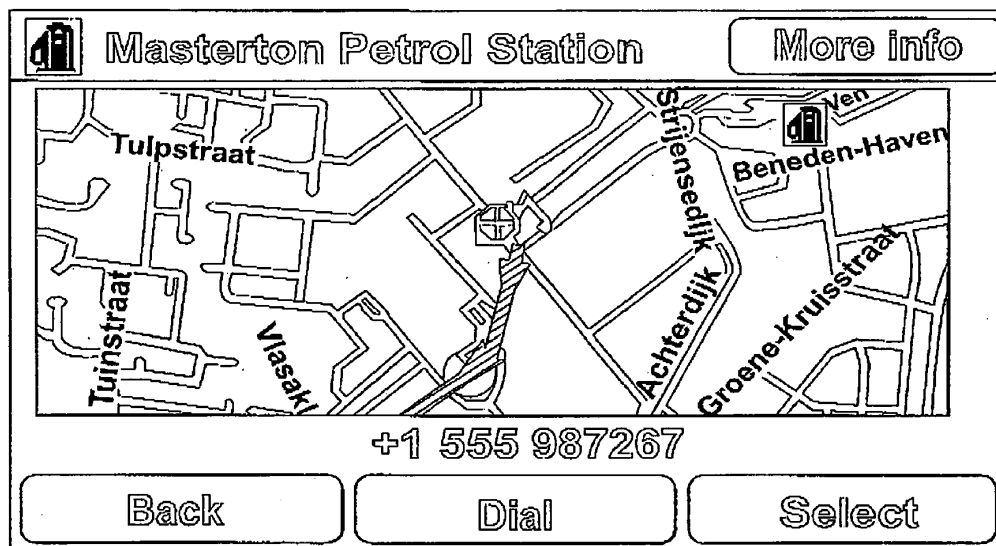


Fig. 11

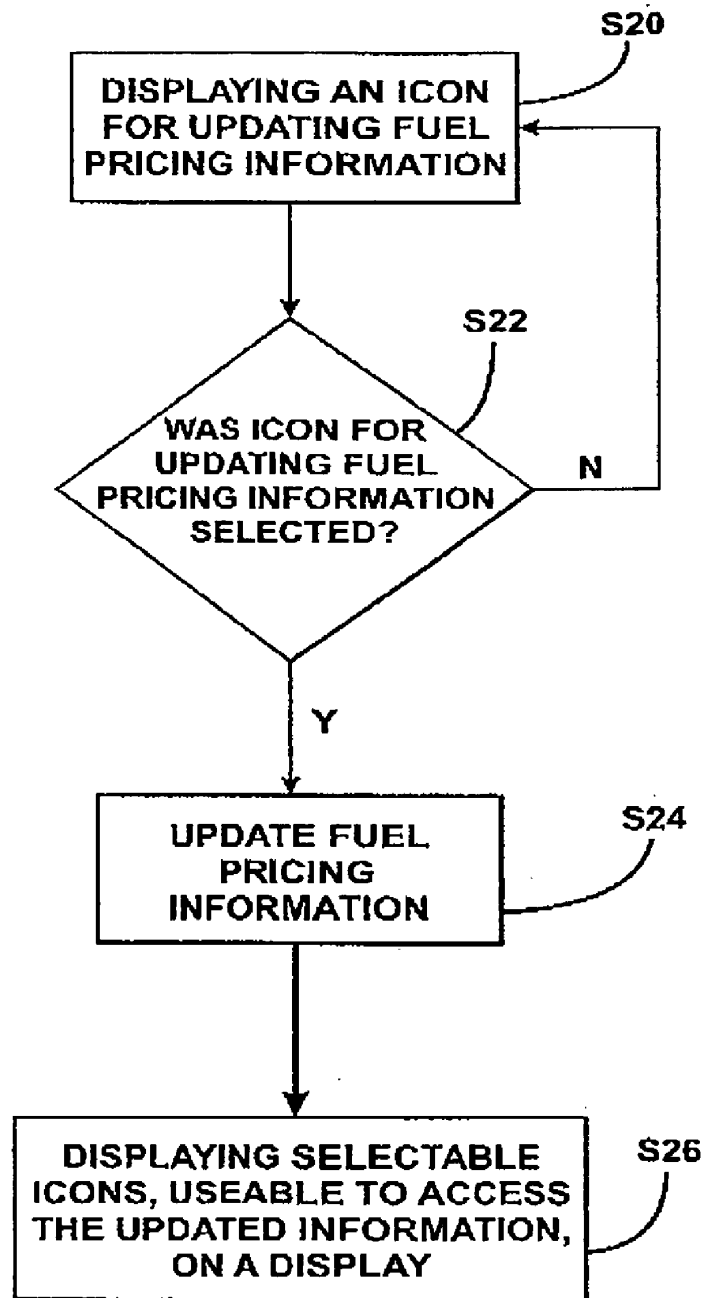


Fig. 12

NAVIGATION DEVICE AND METHOD FOR FUEL PRICING DISPLAY

CO-PENDING APPLICATIONS

[0001] The following applications are being filed concurrently with the present application. The entire contents of each of the following applications is hereby incorporated herein by reference: A. NAVIGATION DEVICE AND METHOD FOR EARLY INSTRUCTION OUTPUT (Attorney docket number 06P207US01) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR ESTABLISHING AND USING PROFILES (Attorney docket number 06P207US02) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR ENHANCED MAP DISPLAY (Attorney docket number 06P207US03) filed on even date herewith; A NAVIGATION DEVICE AND METHOD RELATING TO AN AUDIBLE RECOGNITION MODE (Attorney docket number 06P207US04) filed on even date herewith; NAVIGATION DEVICE AND METHOD FOR PROVIDING POINTS OF INTEREST (Attorney docket number 06P207US05) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR INFORMATIONAL SCREEN DISPLAY (Attorney docket number 06P207US06) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR DEALING WITH LIMITED ACCESS ROADS (Attorney docket number 06P057US07) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR TRAVEL WARNINGS (Attorney docket number 06P057US07) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR DRIVING BREAK WARNING (Attorney docket number 06P057US07) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR ISSUING WARNINGS (Attorney docket number 06P207US07) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR DISPLAY OF POSITION IN TEXT READABLE FORM (Attorney docket number 06P207US08) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR EMERGENCY SERVICE ACCESS (Attorney docket number 06P057US08) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR PROVIDING REGIONAL TRAVEL INFORMATION IN A NAVIGATION DEVICE (Attorney docket number 06P207US09) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR USING SPECIAL CHARACTERS IN A NAVIGATION DEVICE (Attorney docket number 06P207US09) filed on even date herewith; A NAVIGATION DEVICE AND METHOD USING A PERSONAL AREA NETWORK (Attorney docket number 06P207US10) filed on even date herewith; A NAVIGATION DEVICE AND METHOD USING A LOCATION MESSAGE (Attorney docket number 06P207US10) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR CONSERVING POWER (Attorney docket number 06P207US11) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR USING A TRAFFIC MESSAGE CHANNEL (Attorney docket number 06P207US13) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR USING A TRAFFIC MESSAGE CHANNEL RESOURCE (Attorney docket number 06P207US13) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR QUICK OPTION ACCESS (Attorney docket number 06P207US15) filed on even date herewith; A NAVIGATION DEVICE AND METHOD FOR DISPLAY-

ING A RICH CONTENT DOCUMENT (Attorney docket number 06P207US27) filed on even date herewith.

PRIORITY STATEMENT

[0002] The present application hereby claims priority under 35 U.S.C. § 119(e) on each of U.S. Provisional Patent Application Nos. 60/879 523 filed Jan. 10, 2007, 60/879,549 filed Jan. 10, 2007, 60/879,553 filed Jan. 10, 2007, 60/879,577 filed Jan. 10, 2007, 60/879,599 filed Jan. 10, 2007, and 60/879,529 filed Jan. 10, 2007, 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] Navigation devices were traditionally utilized mainly in the areas of vehicle use, such as on cars, motorcycles, trucks, boats, etc. Alternatively, if such navigation devices were portable, they were further transferable between vehicles and/or useable outside the vehicle, for foot travel for example.

[0005] These devices are typically tailored to produce a route of travel based upon an initial position of the navigation device and a selected/input travel destination (end position), noting that the initial position could be entered into the device, but is traditionally calculated via GPS Positioning from a GPS receiver within the navigation device.

[0006] In known navigation systems, menus are used to display various travel destinations, desired locations, and desired points of interest. A user, for example, can select a category of restaurants as a point of interest, and can find a plurality of selections available. The user can then select a particular restaurant and then determine a route to that restaurant using the navigation system.

SUMMARY

[0007] The inventors discovered that although a plurality of selectable points of interest were displayed in known navigation systems, listing a plurality of entries for example in various selectable categories, only limited information was conveyed to the user, especially initially. The inventors developed a system regarding points of interest, and especially fuel stations, to convey information to the user in an efficient manner so that the user can make an informed choice.

[0008] In at least one embodiment of the present application, a method includes determining a designated fuel type; and displaying selectable fuel pricing information on a display of a navigation device, based upon the designated fuel type and in consideration of a location of the navigation device.

[0009] In at least one embodiment of the present application, a navigation device includes a processor to determine a designated fuel type; and an integrated input and display device to display selectable fuel pricing information based upon the designated fuel type and in consideration of a location of the navigation device.

[0010] In at least one embodiment of the present application, a method includes displaying an icon for updating fuel pricing information; updating, upon receipt of an indication of selection of the icon for updating pricing information, fuel pricing information; and displaying a plurality of selectable

icons, useable to access the updated selectable fuel pricing information in consideration of a location of the navigation device, on a display of a navigation device.

[0011] In at least one other embodiment of the present application, a navigation device includes an integrated input and display device to display an icon for updating fuel pricing information; and a processor to update, upon receipt of an indication of selection of the icon for updating pricing information, fuel pricing information, the integrated input and display device being useable to display a plurality of selectable icons, useable to access the updated selectable fuel pricing information in consideration of a location of the navigation device.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] 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:

[0013] FIG. 1 illustrates an example view of a Global Positioning System (GPS);

[0014] FIG. 2 illustrates an example block diagram of electronic components of a navigation device of an embodiment of the present application;

[0015] FIG. 3 illustrates an example block diagram of a server, navigation device and connection therebetween of an embodiment of the present application;

[0016] FIGS. 4A and 4B are perspective views of an implementation of an embodiment of the navigation device 200.

[0017] FIG. 5A illustrates an example of an embodiment of the present application;

[0018] FIG. 5B illustrates an example of a modified embodiment of the present application;

[0019] FIG. 6 illustrates a screen display of selectable icons of an embodiment of the present application;

[0020] FIG. 7 illustrates an example of a display screen for fuel type of an embodiment of the present application;

[0021] FIG. 8 illustrates an example of a display screen for downloading fuel pricing information of an embodiment of the present application;

[0022] FIG. 9 illustrates an example of a display screen for fuel pricing of an embodiment of the present application;

[0023] FIG. 10 illustrates a screen display of selectable icons of an embodiment of the present application;

[0024] FIG. 11 illustrates an example of another embodiment of the present application; and

[0025] FIG. 12 illustrates an example of another embodiment of the present application.

DETAILED DESCRIPTION OF THE EXAMPLE EMBODIMENTS

[0026] 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.

[0027] 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.

[0028] 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.

[0029] 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.

[0030] 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.

[0031] 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.

[0032] 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.

[0033] 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.

[0034] 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.

[0035] 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, touch panel 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.

[0036] 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.

[0037] 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 connectable 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 data 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.

[0038] The navigation device **200**, in at least one embodiment, may establish a "mobile" network connection with the server **302** via a mobile device **400** (such as a mobile phone, PDA, and/or any device with mobile phone technology) establishing a digital connection (such as a digital connection via known Bluetooth technology for example). 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.

[0039] 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.

[0040] As such, an internet connection may be utilized which is achieved via data connection, via a mobile phone or mobile phone technology within the navigation device **200** for example. For this connection, an internet connection between the server **302** and the navigation device **200** is established. This can be done, for example, through a mobile phone or other mobile device and a GPRS (General Packet Radio Service)-connection (GPRS connection is a high-speed data connection for mobile devices provided by telecom operators; GPRS is a method to connect to the internet.

[0041] 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 GSRM, the Data Protocol Standard for the GSM standard, for example.

[0042] The navigation device **200** may include its own mobile phone technology 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 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 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**.

[0043] 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.

[0044] 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.

[0045] 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.

[0046] 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.

[0047] 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.).

[0048] 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.

[0049] 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.

[0050] 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.

[0051] 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.

[0052] 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.

[0053] 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.

[0054] 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.

[0055] 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.

[0056] 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.

[0057] 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.

[0058] 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.

[0059] 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 TCP/IP 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.

[0060] 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.

[0061] As indicated above, a navigation device 200 of an embodiment of the present application includes a processor 210, an input device 220, and a display screen 240. In at least one embodiment, the input device 220 and display screen 240 are integrated into an integrated input and display device to enable both input of information (via direct input, menu selection, etc.) and display of information through a touch panel screen, for example. Such a screen may be a touch input LCD screen, for example, as is well known to those of ordinary skill in the art. Further, the navigation device 200 can also include any additional input device 220 and/or any additional output device 240, such as audio input/output devices for example.

[0062] FIGS. 4A and 4B are perspective views of an actual implementation of an embodiment of the navigation device 200. As shown in FIG. 4A, the navigation device 200 may be a unit that includes an integrated input and display device 290 (a touch panel screen for example) and the other components of FIG. 2 (including but not limited to internal GPS receiver 250, microprocessor 210, a power supply, memory systems 220, etc.).

[0063] The navigation device 200 may sit on an arm 292, which itself may be secured to a vehicle dashboard/window/etc. using a large suction cup 294. This arm 292 is one example of a docking station to which the navigation device 200 can be docked.

[0064] As shown in FIG. 4B, the navigation device 200 can be docked or otherwise connected to an arm 292 of the docking station by snap connecting the navigation device 292 to the arm 292 for example (this is only one example, as other known alternatives for connection to a docking station are within the scope of the present application). The navigation device 200 may then be rotatable on the arm 292, as shown by the arrow of FIG. 4B. To release the connection between the navigation device 200 and the docking station, a button on the

navigation device 200 may be pressed, for example (this is only one example, as other known alternatives for disconnection to a docking station are within the scope of the present application).

[0065] In at least one embodiment of the present application, a method includes determining a designated fuel type; and displaying selectable fuel pricing information on a display 240 of a navigation device 200, based upon the designated fuel type and in consideration of a location of the navigation device 200.

[0066] In at least one embodiment of the present application, a navigation device 200 includes a processor 210 to determine a designated fuel type; and an integrated input and display device 290 to display selectable fuel pricing information based upon the designated fuel type and in consideration of a location of the navigation device 200.

[0067] FIG. 5A illustrates a process flow of an example embodiment of the present application, for displaying selectable fuel pricing information. Initially, in Step S2, a processor 210 of the navigation device 200 determines a designated fuel type, and subsequently in Step S4, selectable fuel pricing information is displayed on the display 240 of the navigation device 200, based upon the designated fuel type and in consideration of a location of the navigation device 200.

[0068] As shown in FIG. 5B, an embodiment of the aforementioned method can include Steps S2 and S4 of FIG. 5A, and can further include additional steps. For example, relating to the selectable icons, it can be determined in Step S6, by the processor 210 for example, whether or not a selectable icon was selected. If not, the icons remain displayed, and if so, the category of a selected icon can be determined, by the processor 210 for example, in Step S8. Thereafter, in Step S10, a listing of fuel providing stations can be displayed on display 240 for example, noting that the display 240 can be part of an integrated input and display device 290.

[0069] FIG. 6 provides an illustration of an example display of a navigation device 200, which can be displayed on an integrated input and display device 290 of the navigation device 200 itself for example. As shown in FIG. 6, selectable fuel pricing information is displayed, wherein the display includes a plurality of selectable icons 500, 510, 520, 530, 540, and 550. The plurality of selectable icons include at least one selectable icon to provide fuel pricing information based upon relative location (the "find by proximity" icon 500 for example), and at least one selectable icon to provide fuel pricing information based upon relative pricing (the "find by price" icon 510 for example).

[0070] Further, FIG. 6 illustrates an example of the plurality of selectable icons further including at least one selectable icon 530 displaying a relatively cheapest fuel price along a travel route; a selectable icon 540 displaying a relatively cheapest fuel price based upon proximity to a current location of the navigation device; and a selectable icon 550 displaying a relatively cheapest fuel price based upon location within a designated threshold distance from a current location of the navigation device 200. As shown with regard to selectable icon 540, the proximity may be that within a certain threshold distance range such as within fifty kilometers for example, noting that this distance is variable and a relatively nearest and cheapest fuel price may be any number of distances, wherein the processor 210 may determine, from fuel pricing information stored in memory 230 for example, a relatively cheapest fuel price within a designated proximity threshold, the designated proximity threshold being variable. The same

applies to the 47 kilometer display of icon **550**, noting that this number may or may not be displayed and the designated distance may be a variable threshold established by the processor **210**, to search for location and fuel pricing information from information stored in the memory **230** of the navigation device **200**.

[0071] When the user desires to include a feature relating to display of fuel pricing information, the user may download a list of fuel points of interest or POIs (fuel or gas stations and their locations), and an associated list of prices. This can be done by connecting the navigation device **200** to a network to download information from a server **302** of FIG. **3** for example, wherein the network connection may be a wireless connection, a mobile wireless connection made through a Bluetooth connection for example in a manner described previously, or a wired connection, through an Internet service provider. Preferably, a user can also designate which type of fuel information they want to download, based upon fuel type for example. The fuel type can be those of regular, mid-grade, premium, or diesel for example. Once a fuel type is designated, the aforementioned fuel pricing information for the selected fuel type can be downloaded.

[0072] FIG. **7** illustrates one example of a fuel type selection screen that can be displayed to a user, on a display **240** or integrated input and display device **290** for example, wherein the user may select a desired fuel type for which pricing information is desired. It should be noted that this selection can be made to receive fuel pricing information via wired or wireless connection and can further be made to access updated fuel pricing information as will be discussed with regard to an additional embodiment of the present application.

[0073] The obtaining of the aforementioned fuel pricing information may be done on a subscription basis, wherein a user can subscribe to receive fuel pricing information from the server **302**, in at least one of a wired or wireless manner, wherein the pricing information can first include initial pricing information and can later include updated pricing information. Once the connection is made, fuel pricing information can be downloaded to the navigation device **200** and a display screen **240** of an integrated input and display device **290** for example, such as that of FIG. **8** can be displayed to the user to indicate that fuel pricing information is being downloaded. Again, this can occur in a wired or wireless manner, can occur for only fuel of a selected type, and/or can occur for receiving initial price information and/or updating information.

[0074] The fuel pricing information can include current prices of various types of gasoline, and/or for a selected type of gasoline, sold at gas stations throughout the country in which the navigation device **200** is being operated. For example, the fuel pricing information can include prices sold at approximately 80,000 gas stations in the United States. Price data may be derived from credit card transactions, direct feeds, and other survey methods for storage at a server **302** and for subsequent downloading to the navigation device **200**. Therefore, the pricing information sent to a user of the navigation device **200** will vary based on traffic flow to particular gas stations and can be out of date (especially in a fluctuating fuel pricing market). Thus, the information is updatable as will be described later with regard to another embodiment of the present application.

[0075] The fuel pricing information may be provided to the server **302** through any number of providers, such as for

example, a provider of petroleum pricing, that receives fuel information through fleet credit card transactions from 75,000 to 80,000 stations in the United States. This information can be integrated in any number of ways, such as for example, a traffic provider who aggregates the information and who can output price file information in XML formatting, including, but not limited to, a unique station ID for each fuel providing or gas station, a product code ID for a fuel type (regular, mid-grade, premium, diesel), a transaction date, and a fuel price. This pricing information can then be stored at the server **302** and downloaded to be stored in memory **230** of each navigation device **200** when requested.

[0076] FIG. **9** provides an example of a display screen **240** on a navigation device **200**, including an icon **800** for accessing fuel pricing information, such as the fuel pricing screen of FIG. **6** or **10** for example. Such a screen can be displayed to a user, for example, as one initial screen for selecting options prior to navigation use of the navigation device **200**. When selected, the icon **800** can then be used to access the screen shown in FIG. **10** of the present application, including a plurality of selectable icons **500**, **510**, **520**, **530**, **540**, and **550** as previously described with regard to FIG. **5** of the present application for example. Further discussion of these selectable icons will now be provided.

[0077] Upon receiving an indication of selection of the "Find by proximity" icon **500**, the processor **210** can search through the memory **230** for fuel pricing information of the locations close in distance to a current location of the navigation device **200**. The current location of the navigation device **200** is typically determined by receipt of a GPS signal for example, wherein the processor **210** can merely compare this received location with locations of various fuel stations stored in memory **203** and located near the navigation device **200**. Thus, in response to receiving an indication of a selection of the "Find by proximity" icon **500** to provide fuel information based upon relative location, the processor **210** can determine and then can instruct integrated input and display device **290** of the navigation device **200** to display a listing of the fuel providing stations in an order determined by relative location to the navigation device (such a display can further include relative distance from the current location as well), calculated by the processor **210** from the current GPS location of the navigation device **200** and the stored locations of the fuel providing stations. Such a display can be in an order of closest to furthest from a current location of the navigation device **200** for example.

[0078] The "Find by price" icon **510** can be selected to provide lists of fuel providing stations ranked by the processor **210** in an order determined by fuel price (preferably within a threshold distance from the current location of the navigation device **200** for example), cheapest to most expensive for example. Thus, upon the processor **210** receiving indication of selection of the "Find by price" icon **510** to provide pricing information based upon relative pricing, the processor **210** can determine and then instruct the integrated input and display device **290** to display a listing of fuel providing stations in an order determined based upon fuel pricing information, such as cheapest to most expensive for example (noting that the order can also be displayed from most expensive to cheapest for example).

[0079] Somewhat similarly, the processor **210** can utilize the stored pricing information, stored in memory **230** for example, in other different ways, depending upon a particular icon of FIG. **10** which is selected. Regarding the "cheapest on

route" icon **530**, when an indication of selection of the icon **530** is received by the processor **210**, the processor **210** can determine and then direct the integrated input and display device **290** to display detailed information regarding at least one fuel station providing the relatively cheapest fuel price along a travel route of the user (again, preferably within a threshold distance from the current location of the navigation device **200** for example). It should be noted that this can include a single gas station which is the relatively cheapest along the route of travel, and/or a selectable list of gas stations found on the users path of travel, ranked in order of cheapness of price information. Further, as shown by element **530** of FIG. **10**, the display can include display of the actual price of the relatively cheapest fuel price along the travel route. Thus, the selectable icon **530** can be reconfigured for display by processor **210** to display an icon displaying both a relatively cheapest price and the phrase "cheapest on route".

[0080] Again, upon the processor **210** receiving an indication of selection of the icon **530**, the display can include a listing of gas stations or a single gas station ranked according to cheapest gas stations along the route of travel, including detailed information of price, distance to gas station, etc., and then subsequent to selection of one of the listed gas stations, detailed information can be accessed by the processor **210** from memory **230** and displayed on the integrated input and display device **290** and thus provided to the user. Alternatively, upon selection of the icon **530**, the processor **210** can access information on the a single relatively cheapest gas station on the route of travel from memory **230** and then the accessed information for the single relatively cheapest gas station on the travel route can be displayed on the integrated input and display device **290**.

[0081] Somewhat similarly, upon the processor **210** receiving an indication of selection of the icon **540** to provide a relatively cheapest fuel price based upon proximity to a current location of the navigation device **200** (cheapest nearby icon **540** for example), the processor **210** can determine, and the integrated input and display device **290** can display detailed information regarding a fuel providing station providing the relatively cheapest fuel price based upon proximity to a current location of the navigation device. Thus, upon receipt of an indication of selection of icon **540** for example, a list of gas stations within a certain distance, such as 5 miles for example, (or just a single station within the proximity range and with the relatively cheapest price) can be displayed (in an order ranked by closeness to the location of the navigation device **200** for example), wherein a price of a relatively cheapest gas station within the proximity range may be displayed with the icon **540**, as shown by the price of \$1.49 for example. Thus, the selectable icon **540** can be reconfigured for display by processor **210** to display an icon displaying both a relatively cheapest price of the closest fuel station (along with the distance to this station, for example) and the phrase "cheapest on nearby".

[0082] Again, upon the processor **210** receiving an indication of selection of the icon **540**, the display can include a listing of gas stations or a single gas station including detailed information of price, distance to station, etc., and then subsequent to selection of one of the listed gas stations, detailed information can be accessed by the processor **210** from memory **230** and displayed on the integrated input and display device **290** and thus provided to the user. Alternatively, upon selection of the icon, the processor **210** can access information on the a single relatively cheapest gas station

from memory **230** and then the accessed information for the single relatively cheapest gas station can be displayed on the integrated input and display device **290**.

[0083] Finally, upon receipt of an indication of selection of an icon **550** to provide relatively cheapest fuel price based upon a location within a designated distance from a current location of the navigation device **200** (icon **550** entitled "cheapest in area"), a list of gas stations within a certain designated distance, such as within 35 miles for example, can be displayed. Upon selection of a gas station from the list, or directly after selecting the "cheapest in area" icon **550**, detailed information can be accessed by the processor **210** from memory **230** and displayed on the integrated input and display device **290** regarding a fuel providing station providing a relatively cheapest fuel price based upon a location within a designated distance from a current location of the navigation device.

[0084] As previously indicated, upon selection of any of the icons **530**, **540**, and **550**, detailed information regarding a relatively cheapest gas station on route, cheapest gas station within a proximity threshold, and/or cheapest gas station within a designated distance from a current location of the navigation device **200** may be displayed. Again, this detailed information can be displayed directly after selection of any of the icons **530**, **540**, **550**, or subsequent to display of a list of gas stations and then selection thereof. In any event, the detailed information can include a display such as that shown in FIG. **11** for example, displaying an informational display screen to the user. The informational display screen can include a display of the gas station location and a display of the route of travel for example, and can include additional information such as map information, a phone number, icons representing whether or not the location is along the route of travel, etc.

[0085] As shown in FIG. **10**, an icon **520** can be displayed for updating pricing information. Accordingly, upon the processor **210** receiving an indication of selection of the icon for updating pricing information, the updated pricing information may be received by the navigation device **200**. As previously indicated, the updated pricing information may be stored in the memory **230** of the navigation device, after it is received in either a wired or wireless manner. The updated pricing information can be received in a wireless manner via at least one of an antenna of the navigation device **200** and a connection via a mobile phone link, such as a Bluetooth link for example. As such, the updated pricing information can also be stored in memory **230** of the navigation device **200**, along with the location of each of the plurality of fuel stations.

[0086] Further, the receipt and gathering of updated pricing information can further be refined. For example, when the processor **210** receives an indication of selection of the updating icon **520**, a user may be prompted (with other additional icons or suggestions, for example) to refine the updating. For example, when the processor **210** receives an indication of selection of the updating icon **520**, a user may be prompted to select an additional icon or statement corresponding to a request to update an area or all data. The area may be limited, for example, to a range extending a defined distance from a home of a user, a current location of a user, etc. This selection for updating only an area or range can further be set by the user of the navigation device **200** as a user preference (for example, before the use of the navigation device in a current navigation mode) or can be selected in response to a display prompt, for example.

[0087] Again, it should be understood that regarding the method of the present application described above, this can be embodied in the form of a navigation device **200**. For example, in at least one embodiment, the navigation device **200** may include a processor **210** to determine a designated fuel type and an integrated input and display device **290** to display selectable fuel pricing information based upon the designated fuel type and in consideration of a location of the navigation device. The navigation device **200** may be portable, and may include at least one of an antenna and a wireless link connection, to connect to a mobile phone via a Bluetooth connection for example. It should be understood that a memory **230** of the navigation device **200** can store the received information and a processor **210** can determine the various information to be displayed.

[0088] In at least one other embodiment of the present application, a method includes displaying an icon for updating fuel pricing information; updating, upon receipt of an indication of selection of the icon for updating pricing information, fuel pricing information; and displaying a plurality of selectable icons, usable to access the updated selectable fuel pricing information in consideration of a location of the navigation device, on a display of the navigation device. In another embodiment, a navigation device **200** includes an integrated input and display device **290** to display an icon for updating fuel pricing information and a processor **210** to update, upon receipt of an indication of selection of the icon for updating pricing information, fuel pricing information, the integrated input and display device **290** being usable to display a plurality of selectable icons, usable to access the updated selectable fuel pricing information in consideration of a location of the navigation device.

[0089] FIG. **11** illustrates an alternative embodiment of a method of the present application. In this embodiment, an icon for updating fuel pricing information is displayed in step **S20**, such as the icon **520** of FIG. **10** for example. Thereafter, the processor **210**, for example, determines in step **S22**, whether or not an icon for updating fuel pricing information was selected. If not, the method returns to step **S20**. If so, the method proceeds to step **S24**.

[0090] In step **S24**, upon receipt of an indication of selection of the icon for updating pricing information, by processor **210** for example, fuel pricing information is updated (in memory **230** of the navigation device **200**, for example). Thus, by merely selecting the icon **520** relating to "update prices," assuming that the navigation device **200** either has an antenna to receive updated pricing information and/or is connected or paired with a mobile telephone to establish a wireless mobile phone link, updated fuel pricing information can be received.

[0091] Thereafter, in step **S26**, the processor **210** can instruct an integrated input and display device **290** of the navigation device **200** to display a plurality of selectable icons, usable to access the updated fuel pricing information in consideration of a location of the navigation device, on a display of the navigation device **200**. For example, upon the pricing information being updated, displays such as that shown in FIG. **10** can be displayed to a user, wherein the icons are usable to access updated fuel pricing information based upon various considerations of a location of the navigation device **200** such as a cheapest gas station along the route of the navigation device **200** (accessible via icon **530**), a cheapest gas station proximate to a location of the navigation device **200** (via selectable icon **540**), and cheapest gas station within

an area range of a location of the navigation device **200** (via selectable icon **550**). With such a method, a user can easily be supplied with the most current updated fuel pricing information and thereafter can make a fuel pricing decision in a number of various ways.

[0092] Again, the updated fuel pricing information may be received in a wireless manner via at least one of an antenna of the navigation device **200** in connection via mobile phone link, and the updated fuel pricing information may be stored in a memory **230** of the navigation device **200** along with updated fuel pricing information and the location for a plurality of fuel providing stations. Somewhat similar to that described with regard to FIG. **7** for example, a designated fuel type may be determined prior to receipt of the updated fuel pricing information, such that the updating will include updated fuel pricing information for the designated fuel type.

[0093] Again, the location of the navigation device **200** may be determined by receipt of a GPS signal for example.

[0094] Again, it should be understood that regarding the method of the present application described above, that this method can be embodied in the form of a navigation device **200**. For example, in at least one embodiment, the navigation device **200** may include an integrated input and display device **290** to display an icon for updating fuel pricing information; and a processor **210** to update, upon receipt of an indication of selection of the icon for updating pricing information, fuel pricing information, the integrated input and display device **290** being useable to display a plurality of selectable icons, useable to access the updated selectable fuel pricing information in consideration of a location of the navigation device **200**. The navigation device **200** may be portable, and may include at least one of an antenna and a wireless link connection, to connect to a mobile phone via a Bluetooth connection for example. It should be understood that a memory **230** of the navigation device **200** can store the received updated fuel pricing information and a processor **210** can determine the various information to be displayed.

[0095] The methods of at least one embodiment expressed above 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.

[0096] 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.

[0097] 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 com-

puter 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.

[0098] 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.

[0099] 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.

[0100] 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.

[0101] 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**.

[0102] 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.

[0103] 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.

[0104] 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:

determining a designated fuel type; and

displaying selectable fuel pricing information on a display of a navigation device, based upon the designated fuel type and in consideration of a location of the navigation device.

2. The method of claim 1, wherein the location is of the navigation device is determined by receipt of a GPS signal.

3. The method of claim 1, wherein the displaying of selectable fuel pricing information includes displaying a plurality of selectable icons.

4. The method of claim 3, wherein the plurality of selectable icons includes at least two icons displayed in connection with a fuel price.

5. The method of claim 3, wherein the plurality of selectable icons includes at least one of a selectable icon to provide fuel pricing information based upon relative location and a selectable icon to provide fuel pricing information based upon relative pricing.

6. The method of claim 4, wherein the plurality of icons includes at least one of a selectable icon to provide fuel pricing information based upon relative location and a selectable icon to provide fuel pricing information based upon relative pricing.

7. The method of claim 3, wherein the plurality of icons includes at least one of a selectable icon displaying a relatively cheapest fuel price along a travel route; a selectable icon displaying a relatively cheapest fuel price based upon proximity to a current location of the navigation device; and a selectable icon displaying a relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device.

8. The method of claim 5, wherein the plurality of icons includes at least one of a selectable icon displaying a relatively cheapest fuel price along a travel route; a selectable icon displaying a relatively cheapest fuel price based upon proximity to a current location of the navigation device; and a selectable icon displaying a relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device.

9. The method of claim 6, wherein the plurality of icons includes at least one of a selectable icon displaying a relatively cheapest fuel price along a travel route; a selectable icon displaying a relatively cheapest fuel price based upon proximity to a current location of the navigation device; and a selectable icon displaying a relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device.

10. The method of claim 5, further comprising:

receiving an indication of a selection of at least one of the selectable icon to provide fuel pricing information based upon relative location and the selectable icon to provide fuel pricing information based upon relative pricing; and

at least one of displaying, upon receiving an indication of the selection of the selectable icon to provide fuel pricing information based upon relative location, a listing of fuel providing stations in an order determined based upon relative location to the navigation device and displaying, upon receipt of an indication of selection of the selectable icon to provide fuel pricing information based upon relative pricing, a listing of fuel providing stations in an order determined based upon fuel pricing information.

11. The method of claim 6, further comprising:

receiving an indication of a selection of at least one of the selectable icon to provide fuel pricing information based upon relative location and the selectable icon to provide fuel pricing information based upon relative pricing; and at least one of displaying, upon receiving an indication of the selection of the selectable icon to provide fuel pricing information based upon relative location, a listing of fuel providing stations in an order determined based upon relative location to the navigation device and displaying, upon receipt of an indication of selection of the selectable icon to provide fuel pricing information based upon relative pricing, a listing of fuel providing stations in an order determined based upon fuel pricing information.

12. The method of claim 7, further comprising:

receiving at least one of

- an indication of selection of the icon to provide relatively cheapest fuel price along a travel route,
- an indication of selection of the icon to provide a relatively cheapest fuel price based upon proximity to a current location of the navigation device, and
- an indication of selection of the icon to provide a relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device; and

displaying at least one of

- detailed information, upon receipt of an indication of selection of the icon to provide a relatively cheapest fuel price along a travel route, regarding a fuel providing station providing the relatively cheapest fuel price along a travel route,
- detailed information, upon receipt of an indication of selection of the icon to provide a relatively cheapest fuel price based upon proximity to a current location of the navigation device, regarding a fuel providing station providing the relatively cheapest fuel price based upon proximity to a current location of the navigation device, and
- detailed information, upon receipt of an indication of selection of the icon to provide a relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device, regarding a fuel providing station providing the relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device.

13. The method of claim 8, further comprising:

receiving at least one of

- an indication of selection of the icon to provide relatively cheapest fuel price along a travel route,
- an indication of selection of the icon to provide a relatively cheapest fuel price based upon proximity to a current location of the navigation device, and

an indication of selection of the icon to provide a relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device; and

displaying at least one of

detailed information, upon receipt of an indication of selection of the icon to provide relatively cheapest fuel price along a travel route, regarding a fuel providing station providing the relatively cheapest fuel price along a travel route,

detailed information, upon receipt of an indication of selection of the icon to provide a relatively cheapest fuel price based upon proximity to a current location of the navigation device, regarding a fuel providing station providing the relatively cheapest fuel price based upon proximity to a current location of the navigation device, and

detailed information, upon receipt of an indication of selection of the icon to provide a relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device, regarding a fuel providing station providing the relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device.

14. The method of claim 9, further comprising:

receiving at least one of

- an indication of selection of the icon to provide relatively cheapest fuel price along a travel route,
- an indication of selection of the icon to provide a relatively cheapest fuel price based upon proximity to a current location of the navigation device, and
- an indication of selection of the icon to provide a relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device; and

displaying at least one of

detailed information, upon receipt of an indication of selection of the icon to provide relatively cheapest fuel price along a travel route, regarding a fuel providing station providing the relatively cheapest fuel price along a travel route,

detailed information, upon receipt of an indication of selection of the icon to provide a relatively cheapest fuel price based upon proximity to a current location of the navigation device, regarding a fuel providing station providing the relatively cheapest fuel price based upon proximity to a current location of the navigation device, and

detailed information, upon receipt of an indication of selection of the icon to provide a relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device, regarding a fuel providing station providing the relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device.

15. The method of claim 1, further comprising:

displaying an icon for updating pricing information; and receiving, upon receipt of an indication of selection of the icon for updating pricing information, updated pricing information.

16. The method of claim 3, further comprising:
displaying an icon for updating pricing information; and
receiving, upon receipt of an indication of selection of the
icon for updating pricing information, updated pricing
information.
17. The method of claim 15, wherein the updated pricing
information is received in a wireless manner via at least one of
an antenna of the navigation device and a connection via a
mobile phone link.
18. The method of claim 16, wherein the updated pricing
information is received in a wireless manner via at least one of
an antenna of the navigation device and a connection via a
mobile phone link.
19. The method of claim 3, further comprising storing
pricing information and a location for a plurality of fuel
providing stations.
20. The method of claim 15, further comprising storing the
updated pricing information and a location for a plurality of
fuel providing stations.
21. The method of claim 16, further comprising storing the
updated pricing information and a location for a plurality of
fuel providing stations.
22. A computer readable medium including program seg-
ments for, when executed on a processor of a navigation
device, causing the navigation device to implement the
method of claim 1.
23. A method, comprising:
displaying an icon for updating fuel pricing information;
updating, upon receipt of an indication of selection of the
icon for updating pricing information, fuel pricing infor-
mation; and
displaying a plurality of selectable icons, useable to access
the updated fuel pricing information in consideration of
a location of the navigation device, on a display of the
navigation device.
24. The method of claim 23, wherein the updated fuel
pricing information is received in a wireless manner via at
least one of an antenna of the navigation device and a con-
nection via a mobile phone link.
25. The method of claim 24, further comprising storing the
updated fuel pricing information and a location for a plurality
of fuel providing stations.
26. The method of claim 24, further comprising:
determining a designated fuel type prior to receipt of the
updated fuel pricing information, wherein the updating
includes updating fuel pricing information for the des-
ignated fuel type.
27. The method of claim 24, wherein the location is of the
navigation device is determined by receipt of a GPS signal.
28. The method of claim 23, wherein the plurality of select-
able icons includes at least two icons displayed in connection
with a fuel price.
29. The method of claim 23, wherein the plurality of select-
able icons includes at least one of a selectable icon to provide
fuel pricing information based upon relative location and a
selectable icon to provide fuel pricing information based
upon relative pricing.
30. A computer readable medium including program seg-
ments for, when executed on a processor of a navigation
device, causing the navigation device to implement the
method of claim 23.

31. A navigation device, comprising:
a processor to determine a designated fuel type; and
an integrated input and display device to display selectable
fuel pricing information based upon the designated fuel
type and in consideration of a location of the navigation
device.
32. The navigation device of claim 31, wherein the device
is a portable navigation device.
33. The navigation device of claim 31, wherein the dis-
played selectable fuel pricing information includes display of
a plurality of selectable icons.
34. The navigation device of claim 33, wherein the plural-
ity of icons include at least two icons displayed in connection
with a fuel price.
35. The navigation device of claim 33, wherein the plural-
ity of icons includes at least one of a selectable icon to provide
fuel pricing information based upon relative location and a
selectable icon to provide fuel pricing information based
upon relative pricing.
36. The navigation device of claim 34, wherein the plural-
ity of icons includes at least one of a selectable icon to provide
fuel pricing information based upon relative location and a
selectable icon to provide fuel pricing information based
upon relative pricing.
37. The navigation device of claim 33, wherein the plural-
ity of icons includes at least one of a selectable icon display-
ing a relatively cheapest fuel price along a travel route; a
selectable icon displaying a relatively cheapest fuel price
based upon proximity to a current location of the navigation
device; and a selectable icon displaying a relatively cheapest
fuel price based upon location within a designated distance
from a current location of the navigation device.
38. The navigation device of claim 35, wherein the plural-
ity of icons includes at least one of a selectable icon display-
ing a relatively cheapest fuel price along a travel route; a
selectable icon displaying a relatively cheapest fuel price
based upon proximity to a current location of the navigation
device; and a selectable icon displaying a relatively cheapest
fuel price based upon location within a designated distance
from a current location of the navigation device.
39. The navigation device of claim 36, wherein the plural-
ity of icons includes at least one of a selectable icon display-
ing a relatively cheapest fuel price along a travel route; a
selectable icon displaying a relatively cheapest fuel price
based upon proximity to a current location of the navigation
device; and a selectable icon displaying a relatively cheapest
fuel price based upon location within a designated distance
from a current location of the navigation device.
40. The navigation device of claim 35, wherein upon
receipt of an indication of selection of the selectable icon to
provide fuel pricing information based upon relative location,
the integrated input and display device is further used to
display a listing of fuel providing stations in an order deter-
mined, by the processor, based upon relative location to the
navigation device, and upon receipt of an indication of selec-
tion of the selectable icon to provide fuel pricing information
based upon relative pricing, the integrated input and display
device is further used to display a listing of fuel providing
stations in an order determined, by the processor, based upon
fuel pricing information.
41. The navigation device of claim 36, wherein upon
receipt of an indication of selection of the selectable icon to
provide fuel pricing information based upon relative location,
the integrated input and display device is further used to

display a listing of fuel providing stations in an order determined, by the processor, based upon relative location to the navigation device, and upon receipt of an indication of selection of the selectable icon to provide fuel pricing information based upon relative pricing, the integrated input and display device is further used to display a listing of fuel providing stations in an order determined, by the processor, based upon fuel pricing information.

42. The navigation device of claim **37**, wherein upon receipt of an indication of selection of the icon to provide relatively cheapest fuel price along a travel route, the integrated input and display device is further used to display detailed information regarding a fuel providing station providing the relatively cheapest fuel price along a travel route; upon receipt of an indication of selection of the icon to provide a relatively cheapest fuel price based upon proximity to a current location of the navigation device, the integrated input and display device is further used to display detailed information regarding a fuel providing station providing the relatively cheapest fuel price based upon proximity to a current location of the navigation device; and upon receipt of an indication of selection of the icon to provide relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device, the integrated input and display device is further used to display detailed information regarding a fuel providing station providing the relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device.

43. The navigation device of claim **38**, wherein upon receipt of an indication of selection of the selectable icon to provide fuel pricing information based upon relative location, the integrated input and display device is further used to display a listing of fuel providing stations in an order determined, by the processor, based upon relative location to the navigation device; upon receipt of an indication of selection of the selectable icon to provide fuel pricing information based upon relative pricing, the integrated input and display device is further used to display a listing of fuel providing stations in an order determined, by the processor, based upon fuel pricing information; upon receipt of an indication of selection of the icon to provide relatively cheapest fuel price along a travel route, the integrated input and display device is further used to display detailed information regarding a fuel providing station providing the relatively cheapest fuel price along a travel route; upon receipt of an indication of selection of the icon to provide a relatively cheapest fuel price based upon proximity to a current location of the navigation device, the integrated input and display device is further used to display detailed information regarding a fuel providing station providing the relatively cheapest fuel price based upon proximity to a current location of the navigation device; and upon receipt of an indication of selection of the icon to provide relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device, the integrated input and display device is further used to display detailed information regarding a fuel providing station providing the relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device.

44. The navigation device of claim **39**, wherein upon receipt of an indication of selection of the selectable icon to provide fuel pricing information based upon relative location, the integrated input and display device is further used to

display a listing of fuel providing stations in an order determined, by the processor, based upon relative location to the navigation device, and upon receipt of an indication of selection of the selectable icon to provide fuel pricing information based upon relative pricing, the integrated input and display device is further used to display a listing of fuel providing stations in an order determined, by the processor, based upon fuel pricing information; upon receipt of an indication of selection of the icon to provide relatively cheapest fuel price along a travel route, the integrated input and display device is further used to display detailed information regarding a fuel providing station providing the relatively cheapest fuel price along a travel route; upon receipt of an indication of selection of the icon to provide a relatively cheapest fuel price based upon proximity to a current location of the navigation device, the integrated input and display device is further used to display detailed information regarding a fuel providing station providing the relatively cheapest fuel price based upon proximity to a current location of the navigation device; and upon receipt of an indication of selection of the icon to provide relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device, the integrated input and display device is further used to display detailed information regarding a fuel providing station providing the relatively cheapest fuel price based upon location within a designated distance from a current location of the navigation device.

45. The navigation device of claim **31**, wherein the integrated input and display device is further used to display an icon for updating pricing information, and wherein, upon receipt of an indication of selection of the icon for updating pricing information, the navigation device is adapted to receive updated pricing information.

46. The navigation device of claim **33**, wherein the integrated input and display device is further used to display an icon for updating pricing information, and wherein, upon receipt of an indication of selection of the icon for updating pricing information, the navigation device is adapted to receive updated pricing information.

47. The navigation device of claim **45**, wherein the navigation device includes at least one of an antenna and a connection via a mobile phone link to receive the updated pricing information in a wireless manner.

48. The navigation device of claim **46**, wherein the navigation device includes at least one of an antenna and a connection via a mobile phone link to receive the updated pricing information in a wireless manner.

49. The navigation device of claim **31**, further comprising a memory to store pricing information and a location for a plurality of fuel providing stations.

50. The navigation device of claim **45**, further comprising a memory to store the updated pricing information and a location for a plurality of fuel providing stations.

51. The navigation device of claim **46**, further comprising a memory to store the updated pricing information and a location for a plurality of fuel providing stations.

52. A navigation device, comprising:

an integrated input and display device to display an icon for updating fuel pricing information; and

a processor to update, upon receipt of an indication of selection of the icon for updating pricing information,

fuel pricing information, the integrated input and display device being useable to display a plurality of selectable icons, useable to access the updated fuel pricing information in consideration of a location of the navigation device.

53. The navigation device of claim **52**, wherein the navigation device includes at least one of an antenna and a connection via a mobile phone link to receive the updated pricing information in a wireless manner.

54. The navigation device of claim **53**, further comprising a memory to store the updated fuel pricing information and a location for a plurality of fuel providing stations.

55. The navigation device of claim **53**, wherein the processor is used to determine a designated fuel type prior to receipt

of the updated fuel pricing information, wherein the updating includes updating fuel pricing information for the designated fuel type.

56. The navigation device of claim **53**, wherein the location is of the navigation device is determined by receipt of a GPS signal.

57. The navigation device of claim **52**, wherein the plurality of selectable icons includes at least two icons displayed in connection with a fuel price.

58. The navigation device of claim **52**, wherein the plurality of selectable icons includes at least one of a selectable icon to provide fuel pricing information based upon relative location and a selectable icon to provide fuel pricing information based upon relative pricing.

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