

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
1 March 2007 (01.03.2007)

PCT

(10) International Publication Number  
**WO 2007/024257 A1**

(51) International Patent Classification:  
**G01C 21/36** (2006.01) **G08G 1/0968** (2006.01)

(74) Agent: **SMALL, Dean D.**; ARMSTRONG TEASDALE  
LLP, ONE METROPOLITAN SQUARE, Suite 2600, St.  
Louis, Missouri 63102 (US).

(21) International Application Number:  
PCT/US2006/002414

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI,  
NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG,  
SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,  
UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 23 January 2006 (23.01.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
11/212,180 26 August 2005 (26.08.2005) US

(71) Applicant (for all designated States except US): **GARMIN  
LTD.**; P.O. Box 30464 SMB, 5th Floor, Harbour Place, 103  
South Church Street, George Town, Cayman Islands.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,  
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

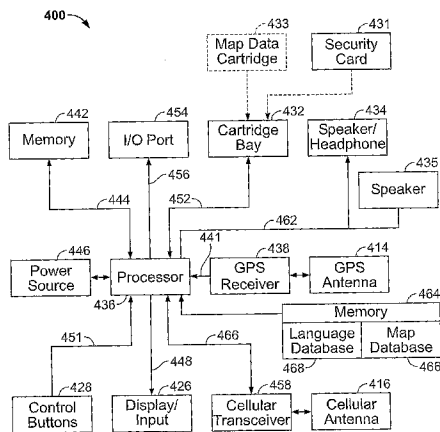
(72) Inventors; and

(75) Inventors/Applicants (for US only): **KAO, Min** [US/US];  
11709 Brookwood Avenue, Leawood, Kansas 66211-2903  
(US). **KELLEY, Sean** [US/US]; 14095 South Mullen  
Street, Olathe, Kansas 66062 (US). **VARMA, Pramod K.**  
[IN/US]; 14135 Broadmoor Street, Apt. 307, Overland  
Park, Kansas 66223-3513 (US).

Published:  
— with international search report

[Continued on next page]

(54) Title: NAVIGATION DEVICE WITH INTEGRATED MULTI-LANGUAGE DICTIONARY AND TRANSLATOR



(57) Abstract: A portable navigation device (400) is provided that includes integrated language dictionary/translation features. The navigation device includes a user interface (426, 428, 434, 435) configured to enable an operator to enter navigation instructions as well as language dictionary/translation instructions. A receiver (438) is provided that is configured to receive signals from global positioning system (GPS) satellites. Memory (468) in the device stores language dictionary/translation information. A processor module (436) receives the navigation instruction and language translation instruction, obtains navigation information based on the navigation instruction, obtains language translation information from the memory based on the language translation instruction entered by the operator. An output is provided for presenting the navigation information and the language translation information to the operator (e.g. audibly and/or visually).

WO 2007/024257 A1



---

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

NAVIGATION DEVICE WITH  
INTEGRATED MULTI-LANGUAGE  
DICTIONARY AND TRANSLATOR

RELATED APPLICATION

[0001] The present application relates to and claims priority from Non-Provisional Application Serial No. 11/212,180, filed August 26, 2005, titled "NAVIGATION DEVICE WITH INTEGRATED MULTI-LANGUAGE DICTIONARY AND TRANSLATOR", the complete subject matter of which is hereby expressly incorporated in its entirety.

BACKGROUND OF THE INVENTION

[0002] The present invention is generally related to a navigational device with integrated multi-language dictionary and translation functions.

[0003] Portable handheld electronic devices exist today for a variety of uses and applications. For example, one type of conventional electronic device is a dedicated multi-language dictionary or translator, such as for use during travel to countries in which the operator is not necessarily fluent in the local language and customs.

[0004] Another type of conventional electronic device is a portable navigation device, such as for use with that the global positioning system (GPS). Portable navigation devices offer a variety of features related to routing and navigating through roadway networks, locating points of interest and the like.

[0005] However, heretofore, travelers were required to carry one portable device language translation and dictionary functions and a separate portable device that offered navigation and routing functions. A need exists for a single portable device capable of offering the functionality of a navigation device and of a language translator/dictionary, where the separate functions and applications are fully integrated with one another.

## BRIEF DESCRIPTION OF THE INVENTION

[0006] In accordance with one embodiment, a portable navigation device is provided that includes integrated language dictionary/translation features. The navigation device includes a user interface configured to enable an operator to enter navigation instructions as well as language instructions related to at least one of dictionary and translation operations. A receiver is provided that is configured to receive signals from global positioning system (GPS) satellites. Memory in the device stores language dictionary/translation information. A processor module receives the navigation instruction and language instruction, obtains navigation information based on the navigation instruction, and obtains language information from the memory based on the language instruction entered by the operator. The navigation information and the language information are provided to the operator (e.g. audibly and/or visually).

## BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Figure 1A illustrates a front isometric view of a portable navigation device with an antennae open formed in accordance with an embodiment of the present invention.

[0008] Figure 1B illustrates a rear isometric view of the portable navigation device of Figure 1A.

[0009] Figure 1C illustrates a rear isometric view of the portable navigation device of Figure 1 with the antenna closed.

[0010] Figure 2A illustrates a front plan view of a portable navigation device formed in accordance with an alternative embodiment of the present invention.

[0011] Figure 2B illustrates an end plan view of the portable navigation device of Figure 2A.

[0012] Figure 3A illustrates a front plan view of a portable navigation device formed in accordance with an alternative embodiment of the present invention.

[0013] Figure 3B illustrates a side plan view of the portable navigation device of Figure 3A.

[0014] Figure 3C illustrates an end plan view of the portable navigation device of Figure 3A formed in accordance with an embodiment of the present invention.

[0015] Figure 4 illustrates a block diagram of the electronic components within the portable navigation devices of Figures 1-3.

[0016] Figure 5 illustrates a series of exemplary screen shots presented by the portable navigation device in connection with a processing flow in accordance with an embodiment of the present invention.

[0017] Figure 6 illustrates a screenshot of a map presented by the display of the portable navigation device.

[0018] Figure 7 illustrates exemplary screen shots presented by the portable device in accordance with an embodiment of the present invention.

[0019] Figure 8 illustrates an exemplary screenshot presented by the portable device in connection with the dictionary/translation functions.

[0020] Figure 9 illustrates an exemplary screenshot presented by the portable device in connection with the dictionary/translation functions.

[0021] Figure 10 illustrates an exemplary screenshot presented by the portable device in connection with the dictionary/translation functions.

[0022] Figure 11 illustrates an exemplary screenshot presented by the portable device in connection with the dictionary/translation functions.

[0023] Figure 12 illustrates an exemplary screenshot presented by the portable device in connection with the dictionary/translation functions.

[0024] Figure 13 illustrates an exemplary screenshot presented by the portable device in connection with the dictionary/translation functions.

[0025] Figure 14 illustrates an exemplary screenshot presented by the portable device in connection with the dictionary/translation functions.

[0026] Figure 15 illustrates a flow chart performed in accordance with an alternative embodiment of the present invention for providing limited access to select features or functions preprogrammed into the portable device in accordance with an embodiment of the present invention.

#### DETAILED DESCRIPTION OF THE INVENTION

[0027] In the following detailed description of the invention, reference is made to the accompanying drawings which form a part hereof, and in which is shown, by way of illustration, specific embodiments in which the invention may be practiced. The embodiments are intended to describe aspects of the invention in sufficient detail to enable those skilled in the art to practice the invention. Other embodiments may be utilized and changes may be made without departing from the scope of the present invention. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the present invention is defined only by the appended claims, along with the full scope of equivalents to which such claims are entitled.

[0028] The embodiment discussed hereafter are is drawn to navigational systems and devices having navigation and, route calculation capabilities. One type of navigational system includes Global Positioning Systems (GPS). Such systems are known and have a variety of uses. In general, GPS is a satellite-based radio navigation system capable of determining continuous position, velocity, time, and in some instances direction information for an unlimited number of users. Formally known as NAVSTAR, the GPS incorporates a plurality of satellites which orbit 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 can determine the precise location of that satellite via one of different conventional methods. The device will continue scanning for signals until it has acquired at least three different satellite signals. Implementing geometric triangulation, the receiver utilizes the three known positions to determine its own two-dimensional position relative to the satellites. Additionally, acquiring a fourth satellite signal will allow the receiving device to calculate its three-dimensional position by the same geometrical calculation. The positioning and velocity data can be updated in real time on a continuous basis by an unlimited number of users.

[0030] FIGS. 1A, and 1B illustrate isometric views of a portable navigation device 100 formed in accordance with an embodiment of the present invention. The device 100 includes a housing 102 having a front face 104 that includes a touch sensitive screen 106 provided therein. The device 100 includes a top 108, a bottom 110 and sides 112. An antenna 114 is rotatably mounted to the housing 102 proximate the top 108. The antenna 114 includes a port 116 that is configured to be joined to an external GPS antenna. As shown in FIG. 1B, the housing 102 has a back face 120 that includes a speaker 122 configured to play audible information to the user, such as navigation and language translation/dictionary information. For example, the speaker 122 may output turn-by-turn directions, words or phrases in a selected language and the like. The back face 120 also includes an open chamber 124 shaped to receive the antenna 114 when the antenna 114 is rotated to the closed position.

[0031] FIG. 1C illustrates the device 100 with the antenna 114 in the closed position. A latch 126 is provided to retain the antenna 114 in the closed position. Side 112 includes a card slot 130 that is configured to receive cards, such as a removable security data card. The side 112 also includes a USB port 132, such as for recharging a battery held within the housing 12. In addition, the USB port 132 may be used for reprogramming and data transfer between the device 100 and a computer.

[0032] FIGS. 2A and 2B illustrate views of an electronic navigational device 230 formed in accordance with an embodiment. The device 230 may be portable and may be utilized in any number of implementations such as automobile, personal marine craft, and avionic navigation. In the embodiment of FIG. 2A a front view of the navigational device 230 is provided showing the navigational device to have a generally rectangular housing 232. The housing 232 is constructed of resilient material and has been rounded for aesthetic and ergonomic purposes. As shown in FIG. 2A, the control face 234 has access slots for an input key pad 238, other individual keys 239, and a display screen 236. In one embodiment, the display screen 236 is a LCD display which is capable of displaying both text and graphical information. The invention, however, is not so limited. Audio information can likewise be provided.

[0033] In FIG. 2B, a side view of the navigational device 230 is provided. FIG. 2B illustrates that the devices housing 232 is defined by an outer front case 240 and a rear case 242. As shown in FIG. 2B, the outer front case 240 is defined by the control face 234. In the embodiment shown in FIG. 2B, the outer front case 240 and the rear case 242 are made of one molded piece to form the device housing 232 and support input key pad 238, other individual keys 239, and display screen 236 in respective access slots shown in the control face 234 of FIG. 2A.

[0034] FIGS. 3A-3C illustrate views for another embodiment of an electronic navigational device 310. The navigational device 310 shown in FIGS. 3A-3C includes a personal digital assistant (PDA) with integrated GPS receiver and cellular transceiver according to the teachings of the present invention. The GPS integrated PDA operates with an operating system (OS) such as, for example, the well-known Palm or Pocket PC operating systems, or the lesser-used Linux OS. As shown in the top view of FIG. 3A, the GPS integrated PDA 310 includes an internal integrated GPS patch antenna 314 and a cellular transceiver 316 contained in a housing 318. The housing 318 is generally rectangular with a low profile and has a front face 320 extending from a top end 322 to a bottom end 324. Mounted on front face 320 is a display screen 326, which is touch sensitive and responsive to a stylus



330 (shown stored in the side view of FIG. 3B) or a finger touch. FIGS. 3A-3C illustrate the stylus 330 nested within housing 318 for storage and convenient access in a conventional manner. The embodiment shown in FIG. 3A illustrates a number of control buttons, or input keys 328 positioned toward the bottom end 324. The invention, however, is not so limited and it is understood that the input keys 328 can be positioned toward the top end 322 or at any other suitable location. The end view of FIG. 3C illustrates a map data cartridge bay slot 332 and headphone jack 334 provided at the top end 322 of the housing 318. Again, the invention is not so limited and instead the map data cartridge bay slot 332 and headphone jack 334 may be provided at the bottom end 324, separately at opposite ends, or at any other suitable location.

[0035] It should be understood that the structure of GPS integrated PDA 310 is shown as illustrative of one type of integrated PDA navigation device. Other physical structures, such as a cellular telephone and a vehicle-mounted unit are contemplated within the scope of this invention.

[0036] FIG. 4 illustrates a block diagram of one embodiment for the electronic components 400 within the device 100, 230 or 310. The electronic components 400 shown in FIG. 4 include a processor 436 which is connected to a GPS antenna 414 through GPS receiver 438 via line 441. The GPS antenna 414 is configured to receive GPS signals from satellites. The processor 436 interacts with an operating system (such as PalmOS; Pocket PC) that runs selected software depending on the intended use of the device 100, 230 or 310. Processor 436 is coupled with memory 442 such as RAM via line 444, and power source 446 for powering the electronic components of the device 100, 230 or 310. The processor 436 communicates with touch sensitive display screen 426 via data line 448.

[0037] The electronic components 400 further include two other input sources that are connected to the processor 436. Control buttons 428 are connected to processor 436 via line 451. A map data cartridge 433 and/or a security card 431 may be inserted into cartridge bay 432 that is connected via line 452 to the processor 436. A conventional serial I/O port 454 is connected to the processor 436 via line 456.

Cellular antenna 416 is connected to cellular transceiver 458, which is connected to the processor 436 via line 466. Processor 436 is connected to the speaker/headphone jack 434 via line 462. Line 462 is also connected to a speaker 435 for audibly playing navigation and language translation/dictionary information. For example, the speaker 435 may output turn-by-turn directions, words or phrases in a selected language and the like. The device may also include an infrared port (not shown) coupled to the processor 436 that may be used to transmit information from one device to another.

[0038] The electronic components 400 also include memory 464 that may be configured to store one or both of a map database 466 and a language database 468. The map database 466 stores cartographic mapping information associated with a roadway network, while the language database 468 stores dictionary information, language information, translation information and the like. In operation, the processor 436 accesses the map database 466 and/or map data cartridge 433 in connection with navigation operations and routing calculations. The processor 436 accesses the language database 468 in connection with translation and other language related operations.

[0039] Optionally, the language database 468 and the map database 466 may be provided in entirely separate memory modules. For example, memory 442 may store the map database 466, while memory 464 stores the language database 468. For example, one or both of the language database 468 and map database 466 may be provided on plug-in memory modules that are plugged into the cartridge bay 432 and subsequently accessed by the processor 436 to perform language/translation operations and navigation operations, respectively.

[0040] The electronic components 400 shown in FIG. 4 are powered by a power source (not shown). Different configurations of the components shown in FIG. 4 are considered within the scope of the present invention. For example, in one embodiment, the components 400 shown in FIG. 4 are in communication with one another via wireless connections and the like. Thus, the scope of the navigation device includes a portable electronic navigational aid device.

[0041] The cartographic database includes any number of locations and data indicative of thoroughfares of a plurality of types connecting certain ones of the locations. In memory, different types of thoroughfares are contained in a data structure organized in a hierarchy of detail levels, or layers. The processor 436 utilizes the route calculation algorithm to find a path, or convergence, between any two of the number of locations based on various criteria. Optionally, a set of criteria includes; a number of jump segments requirement, a distance requirement, a minimum memory usage requirement, a maximum memory usage requirement, and an at least one jump segment requirement. The set of criteria may be independently variable in order to tailor an aggressiveness with which the route calculation algorithm forces switching between different levels in the hierarchy of detail levels. Optionally, the hierarchy of detail levels may include a hierarchy of ever-decreasing detail levels such that a lowest level includes the greatest amount of detail. Any other suitable hierarchy of detail levels may be used.

[0042] In one embodiment, a type of thoroughfare in any given layer of the hierarchy of detail layers is determined by a traversability of the thoroughfare. For example, the traversability of the thoroughfare can be determined by the driveability of a road. Herein, the driveability of the road may be determined by the classification of the road, a speed classification of the road, a driving history on the road, and the like. However, the invention is not so limited and one of ordinary skill in the art will understand upon reading and comprehending this disclosure, that other criteria for determining the presence of a type of thoroughfare in any given layer of the hierarchy can be suited to the present invention.

[0043] Electronic components 400 further include a display 440 in communication with the processor 410 and the memory 430. The display 440 is adapted to display all or part of the navigation information and the language/translation information.

[0044] Next, an exemplary operation flow will be explained in connection with a series of exemplary screens presented on the display 426 and shown in Figures 5-14. Figure 5 illustrates a main menu 500 presented when the device is initially

turned on or returned to the home page/menu. The main menu 500 includes a series of virtual buttons or icons or soft keys associated with certain functions (generally "icons"). Each icon represents a defined area on the screen 502, with each area having a sufficient size and separation from one another to be independently selected with a finger touch (e.g. a 6mm x 6mm square area, a 10mm x 10mm square and the like). The icons may be any shape (e.g. square, rectangle or, circular, triangular, trapezoidal and the like). The icons may be presented in a cascaded window manner such that certain icons overlap one another similar to the operation of independent windows on a computer.

[0045] In the example of Figure 5, the main menu 500 includes a battery icon 504, a time icon 506, a settings icon 508, a volume icon 510, and a light icon 512. The battery icon 504 is selected when the user wishes to determine the remaining battery life, while the settings icon 508 is selected when the user desires to change the system settings of the device. Examples of system settings include map, display, and the like. The volume and lighting icons 510 and 512 are selected when the user desires to adjust the volume of the audio output from the device and the back lighting characteristics of the screen 502, respectively. The main menu 500 also offers a "Where-to" icon 514, a "View-Map" icon 516, and a "Travel-Kit" icon 518. The Where-to icon 514 and View-Map icon 516 are utilized in connection with navigation operations. For example, the user may select the Where-to icon 514 when the user desires to identify a destination (e.g. locate a restaurant, hotel, gas station, and other points of interest). The View-Map icon 516 is selected when the user desires to view a map of an area, such as surrounding the present location of the user, surrounding a point of interest and the like. The Travel-Kit icon 518 is selected when the user desires to perform travel related operations.

[0046] A dashed line 520 is shown to illustrate the next screen shot presented when the user selects the Where-to icon 514. When the user selects the Where-to icon 514, a category menu 522 is shown having various categories of potential interest to the user. From the category menu 522, the user may select an address icon 524 to enter and locate a specific address. The user may select the "my

location" icon 526, from which the device identifies the user's present location and shows it to the user as a map and/or address. A back icon 528 directs the device to move back to a prior screen or the main menu 500. A near icon 530 instructs the device to show the user points of interest within each category nearest the user. Scroll down and scroll up icons 532 and 534 allow the user to view additional categories that, due to space limitations, are not all able to be presented on a single screen. For example, additional categories may include intersections, attractions, shopping, banks/ATM's, entertainment, recreation, community services, and the like.

[0047] The user selects one of the food icon 536, fuel icon 538 and lodging icon 540 depending on whether the user wishes to view near restaurants, gas stations, and hotels, respectively. The "spell name" icon 542 instructs the device to present an ABC formatted keypad, from which the user types a name or address of a particular location or point of interest.

[0048] The following more detailed example is set forth in connection with identifying a restaurant. However, the following description is applicable to any location or point of interest selectable through any category or subcategory. When the food icon 536 is selected, flow passes along dashed line 544 and the screen presents an alphabetical list of food subcategories 546, from which the user may select. Examples include All-Food icon 548, American food icon 550, Asian food icon 552, Chinese food icon 554, French food icon 556 and the like. A back icon 528 permits the user to move back to the category menu 522, while scroll down and scroll up icons 532 and 534 permit the user to view additional food subcategories. When the Chinese food icon 554 is selected flow passes along dashed line 560 and the screen presents a list of Chinese restaurant names 562, along with the distance 564 and direction 566 to each of the corresponding restaurants. Optionally, the restaurant names 562 may be sorted based upon the nearest restaurant to the present location of the user, alphabetically, and the like. When a particular restaurant is identified, flow passes along dashed line 568 and the screen presents information related to a selected restaurant, such as the name, address, phone number and the like. A GO icon 570 is also presented that may be selected when the user desires to calculate a route from the

user's present location to the restaurant. A save icon 572 may be selected when the user desires to save the location of the restaurant as a waypoint in a waypoint list saved in the map database 466. A show map icon 574 may be selected when the user desires to view a roadway map of the area including or surrounding the restaurant selected.

[0049] Figure 6 illustrates a screen shot 602 that is presented when the show map icon 574 is selected in Figure 5. The screen shot 602 includes a roadway map 604 of the road network surrounding a selected restaurant 606. The screen shot 602 includes a direction indicator 608 indicating which direction is north. The screen shot 602 also includes zoom in and zoom out icons 610 and 612 that permit the user to zoom into a lower level more detailed road map surrounding the restaurant 606 or to zoom out to a higher level less detailed road map. Optionally, the user may touch an area on the roadway map 604 to "grab" a point and drag the user's finger across the screen 602 in order to scroll the map up, down, left and right. The device also offers simulated travel to the point of interest from the user's present location. Again, it is reiterated that the above example was provided in connection with identifying a restaurant. However, it is understood that the above process and screen formats may be presented with any point of interest for all categories and subcategories.

[0050] Figure 7 illustrates a flow process carried out when the Travel Kit icon 518 (Figure 5) is selected. When the travel kit option is selected, a travel kit category menu 702 is presented on the screen 502 that includes options such as a currency converter icon 704, a measurement converter icon 706, a dictionary icon 708 and words & phrases icon 710. The travel kit category menu 702 includes a back icon 528 and scroll up and scroll down icons 532 and 534. When the scroll down icon 534 is selected (as denoted by dashed line 720), a second screen is shown of more options in the travel kit category menu 702, including a category page icon 712, a food and drink icon 714, an entertainment icon 716 and a Words icon 718. When the Word icon 718 is selected, a listing of alphabetical words is illustrated. Other examples of potential icons in the travel kit category menu 702 include an MP3 player, audible book player, picture viewer, world clock, a calculator and the like.

[0051] The measurement conversion icon 706 permits the user to enter a measurement in one unit (e.g. miles, yards, feet and the like) and the device automatically converts the units to a another unit (e.g., kilometers, meters, centimeters and the like). The device performs the conversation based upon measurement tables stored in the memory 464 correlating different units to one another. The currency converter icon 74 permits the user to enter a denomination of currency (e.g. US dollars and cents) and the device automatically calculates an equal denomination of currency in a select foreign currency (e.g. pounds, Euros, Shackles, Cronin and the like). The device performs the conversion based upon stored currency conversion data that may be periodically updated through a wireless or wired connection with a remote network, computer, Internet link, GPS satellite auxiliary link and the like.

[0052] The travel kit category menu 702 also includes a language conversion icon 722 that, when selected, permits the user to change the from/base and to/destination languages. When the language conversion icon 722 is selected, a language conversion menu 802 is presented (as shown in Figure 8) that includes the from/base language icon 804 and the to/destination language icon 806. When either of icons 804 or 806 or selected, the user is presented with a list of languages from which to choose.

[0053] Figure 7 illustrates an example of when the food and drink icon 714 is selected. Flow passes along dashed line 740 when the food and drink icon 714 is selected. A phrase menu 742 is presented with a list of phrases 744 related to commonly asked questions in connection with ordering and locating food and drink. For example, the phrases may include "Where it is the nearest restaurant", "May I have a glass of water", "What do you recommend on the menu", "I am allergic to shellfish", "are vegetables included" and the like. The words and phrases in menu 742 are presented in the base/from language. When a phrase 744 is selected, flow passes along path 746 to a phrase translation window 748. The phrase translation window 748 includes the selected phrase in the base language at window 750, along with an audible icon 752. When the audible icon 752 is selected, the phrase is audibly played by the device through speaker 122 (Figure 1) or 435 (Figure 4). The phrase

translation window 748 also includes the same phrase in a conversion window 754, but in the to/destination language. An audible icon 756 is provided proximate the conversion window 754 and, when selected, directs the device to audibly play the phrase in the selected destination language over speaker 122 (Figure 1) or 435 (Figure 4). The phrase translation window 748 also includes the back icon 528, language icon 722 and scroll up and scroll down icons 532 and 534.

[0054] When the dictionary icon 708 is selected, a menu of dictionary conversion options is presented (e.g. French to English, English to Spanish, Spanish to French, and the like). When the user selects one of the bilingual dictionary options, an alphabetical listing of words is presented. The user may enter a desired word through the ABC keypad presented on the screen. Once a desired word is entered, the word is presented in the destination language, along with a textual description of the usage of the word. An audible icon (similar to audible icon 752 or 756) is presented and, when selected, audibly outputs the destination word over speaker 122 (Figure 1) or 435 (Figure 4).

[0055] The language database 468 stores numerous common words and phrases that are used in certain circumstances often experienced by travelers. The words and phrases are organized by category of circumstance.

[0056] When the category page icon 712 is selected, a select category menu 902 is presented (Figure 9) that includes travel-related category of icons, such as a problems icon 904, commerce icon 906, tourist icon 908, transportation icon 910, and a search for Key Word icon 912. The menu 902 includes the back icon 528, language icon 722, scroll up and scroll down icons 532 and 534. When the user selects a category from the menu 902, a list of words or phrases related to the category is presented. The list of words and phrases is presented in the base/from language, to permit a user to locate a desired word or phrase related to a particular category (e.g., circumstance or event). For example, when the problems icon 904 is selected, exemplary words and phrases may include "I need a doctor", "Please call a police man", "I have lost my hotel room key", "My passport has been stolen", "Stop that person, he stole my wallet" "Can you hear me now" and the like. When the



commerce icon 906 is selected, exemplary words and phrases may include "Where is the nearest bank", "Do you take American Express", "How much do I owe" and the like. When the Search for Key Word icon 912 is selected, the user is prompt with an ABC formatted keypad (Figure 10), from which the user may type a particular Key Word.

[0057] Figure 11 illustrates a phrase menu 1102, that includes a series of phrases related to a category or other topic selected by the user from a preceding menu. The phrases in Figure 11 relate to a particular category and are presented in the from/base language. The device provides the ability to customize or build a template phrase using a selected word from a list of words stored in memory. A template represents a word or phrase with a portion that may be customized by the user. The portion may be present blank and the user is afforded options to fill-in the blank. Alternatively, the portion may represent an active field that is initially populated with an initial term. The user is the afforded the opportunity of select the field, after which the user is provided with alternative terms that may be inserted into the field. An active customizable field is preferably highlighted or underlined (or both) to provide a visual indication to the user that the underlined/highlighted field is customizable. Examples of templates are "May I please have \_\_\_\_\_?", "Where is the \_\_\_\_\_?" and the like. The device provides options for the user to fill-in the blank in the template in order to customize a phrase. For example, using a selected phrase template such as "May I have \_\_\_\_\_ wine?", the user be given the option of selecting a type of wine from a provided list for insertion in the blank. In particular, the phrase may be presented as "May I have [red, white, a merlot] wine?"

[0058] Figure 12 illustrates a Select Word menu 1202 that is presented when the user desires to search for a particular Key Word (such as by selecting the Search for Key Word icon 912 in Figure 9).

[0059] Figure 13 illustrates a Select a Dictionary menu 1302 that is presented when the user selects the dictionary icon 708 in Figure 7. The Select a Dictionary menu 1302 permits the user to select the base/from language and the

to/destination language. A “To English” icon 1304 permits the user to select a dictionary that converts words/phrases from a non-English language to English.

[0060] Figure 14 illustrates a dictionary conversion page showing a German Word and two alternative interpretations in English depending upon the usage of the term. The dictionary conversion page may be presented at several points in the toolkit flow, depending upon earlier selections by the user.

[0061] Figure 15 illustrates a flow chart of an operation sequence performed in accordance with an alternative embodiment of the present invention for providing limited access to select features or functions preprogrammed into the device. The device is configured to initially store a full and complete Tool Kit database. When the device is initially purchased by user, the full and complete tool kit database is made fully available to the user for a limited free trial term. At the end of the limited free trial term (e.g. 30 days), the device automatically disables or “times out” all or a portion of the tool kit database. Upon disablement, the tool kit features and functions are no longer accessible to the user, unless and until the user purchases a security card 431 that, when plugged into the device, re-enables all or a portion of the tool kit information, features and functions.

[0062] The security card 431 includes memory storing a code (e.g. encrypted code) that is read by the device once the security card is plugged into the cartridge bay 432 (Figure 4). Once the security card 431 is plugged into the cartridge bay 432, the processor 436 reads the code and, based thereon, determines whether and to what extent to unlock the tool kit features and functions.

[0063] Figure 15 illustrates in exemplary application of the free trial and security card features. At 1500, the device is initially loaded with the travel kit information, including but not limited to the dictionary and translation information. At 1502, the device configures itself to provide complete or limited access to the travel kit information for a trial term. At 1504, upon the completion of the free trial term, the device disables all or select portions of the travel kit features. The disablement occurs unless a security code has been previously loaded into the device

through insertion of a security card 431. If, at the end of the free trial term, no security card 431 has been loaded, then the travel kit features are no longer provided to the user.

[0064] Should the user subsequently decided to purchase permanent access to the travel kit features, the user does so by purchasing a security card 431 that includes in memory, a valid code indicating that the user now has purchased unlimited access to the travel kit features. Once the security card 431 is loaded, the device reads from the memory thereon the code and, at 1508, determines whether the code is valid. For example, all devices may be preconfigured with a common general validation code that is compared to the code on the security card 431. Alternatively, separate codes may be provided to individual devices or devices sold within selected geographic regions or select periods of time (e.g. annually or based on the version of the device). At 1510, once the security code is validated, the device re-enables all or a portion of the travel kit features.

[0065] For example, the user may desire to only have certain travel kit features and thus purchase a lower cost subset of the travel kit features (uniquely identified by a particular security code). Thus, different security codes may indicate to the device that the user is entitled to different levels of access to the features and functionality of the travel kit information. At 1512, the device disables the security code on the security card 431 in order that the same security card 431 may not be subsequently used with the same or different device. The disablement may be achieved by erasing the security code on the security card 431, by writing over the security code, or by writing additional information to memory within the security card 431 indicating that the card has been used.

[0066] While the invention has been described in terms of various specific embodiments, those skilled in the art will recognize that the invention can be practiced with modification within the spirit and scope of the claims.

## WHAT IS CLAIMED IS:

1. A portable navigation device, comprising:

an user interface configured to enable an operator to enter a navigation instruction and a language translation instruction;

a receiver configured to receive signals from global positioning system (GPS) satellites;

memory storing language translation information;

a processor module receiving the navigation instruction and language translation instruction, the processor module obtaining navigation information based on the navigation instruction, the processor module obtaining language translation information from the memory based on the language translation instruction entered by the operator; and

an output for presenting the navigation information and the language translation information to the operator.

2. The device of claim 1, wherein the navigation information includes at least one of routing information, point of interest information, turn by turn directions and map information.

3. The device of claim 1, wherein the language translation information includes at least one of words or phrases in a select language, and dictionary information.

4. The device of claim 1, wherein the memory stores at least one of currency conversion information and measurement units conversion information, the processor module presenting the at least one of currency conversion information and measurement units conversion information at the output.

5. The device of claim 1, wherein the user interface includes a touchscreen that presents active areas for the operator to select, the active areas being finger sensitive

and each being sized large enough to be independently selected by finger touches of the operator.

6. The device of claim 1, further comprising a housing and a GPS antenna that it is rotatably mounted to the housing, the housing having a cavity configured to receive the GPS antenna when the GPS antenna is rotated to a closed position, the GPS antenna extending outward from the housing when rotated to an open position.

7. The device of claim 1, wherein the processor module includes a single common processor configured to perform all navigation and translation operations.

8. The device of claim 1, wherein the navigation instruction directs the processor module to perform a find instruction to locate a point of interest and the language translation instruction directs the processor module to translate at least one of an address and name of the point of interest to a select language.

9. The device of claim 1, wherein the language instruction includes a category selections, the processor module obtaining a list of phrases related to the category selection, the category selections including as least one of problems, commerce, tourist, transportation, and food and drink.

10. The device of claim 1, further comprising a speaker provided within a housing of the device, the speaker audibly outputting language-related information including words or phrases related to a selected category.

11. A method for presenting navigation and language related information on a common portable navigation device, comprising:

enabling an operator to enter a navigation instruction and a language instruction;

receiving signals from global positioning system (GPS) satellites;

storing in memory language information;

obtaining navigation information based on the navigation instruction and the signals from the GPS satellites;

obtaining language information from the memory based on the language instruction entered by the operator; and

presenting the navigation information and the language translation information to the operator on a common display.

12. The method of claim 11, wherein the navigation information includes at least one of routing information, point of interest information, turn by turn directions and map information.

13. The method of claim 11, wherein the language translation information includes at least one of words or phrases in a select language, and dictionary information.

14. The method of claim 11, further comprising storing in the memory at least one of currency conversion information and measurement units conversion information, the presenting including presenting the at least one of currency conversion information and measurement units conversion information on the common display.

15. The method of claim 11, wherein the presenting includes presenting on a touchscreen active areas for the operator to select, the active areas being finger sensitive and each being sized large enough to be independently selected by finger touches of the operator.

16. The method of claim 11, further comprising displaying a list of categories from which the operator may choose, the category selections including as least one of problems, commerce, tourist, transportation, and food and drink.

17. The method of claim 11, further comprising displaying a list of phrases related to a category, the categories including as least one of problems, commerce, tourist, transportation, and food and drink.

18. The method of claim 11, further comprising audibly playing words and phrases related to a selected category, the words and phrases being defined based on the language information.

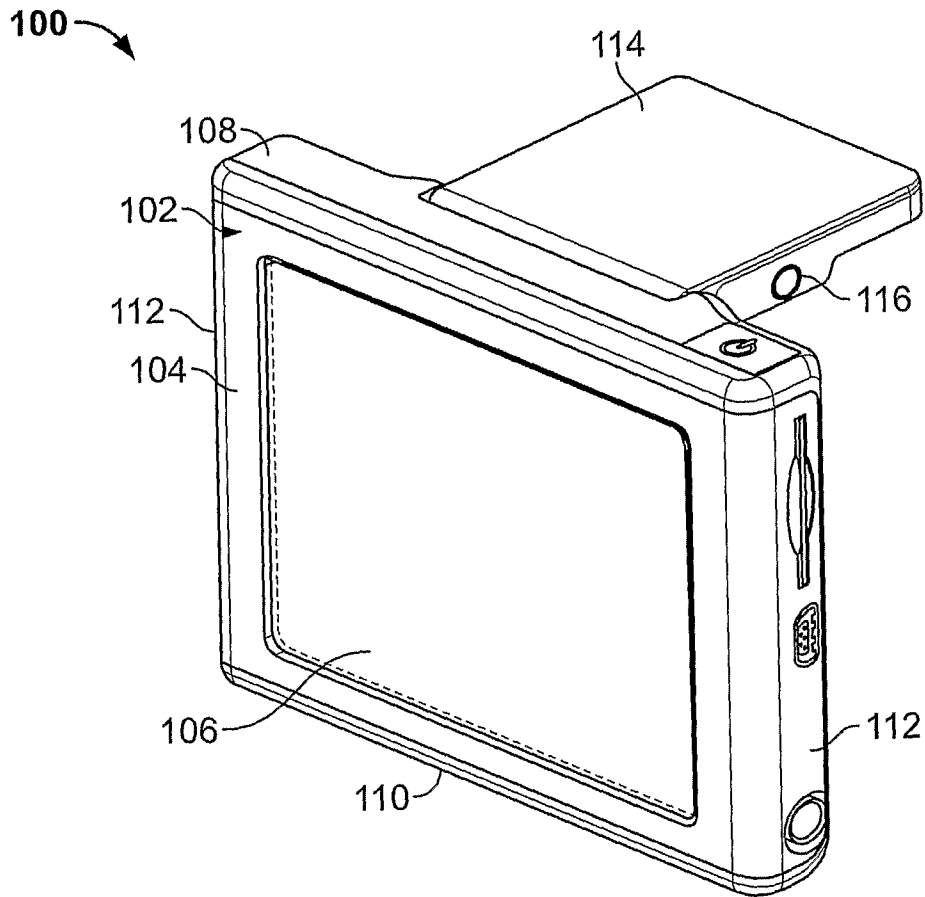


FIG. 1A



2/12

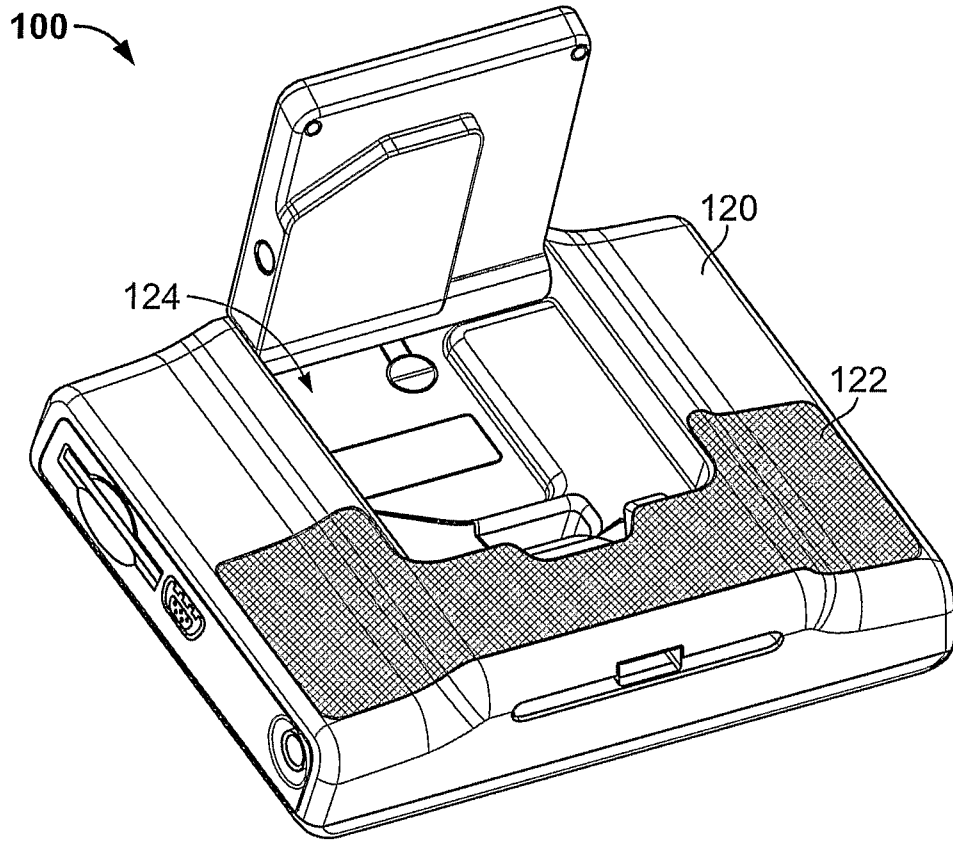


FIG. 1B

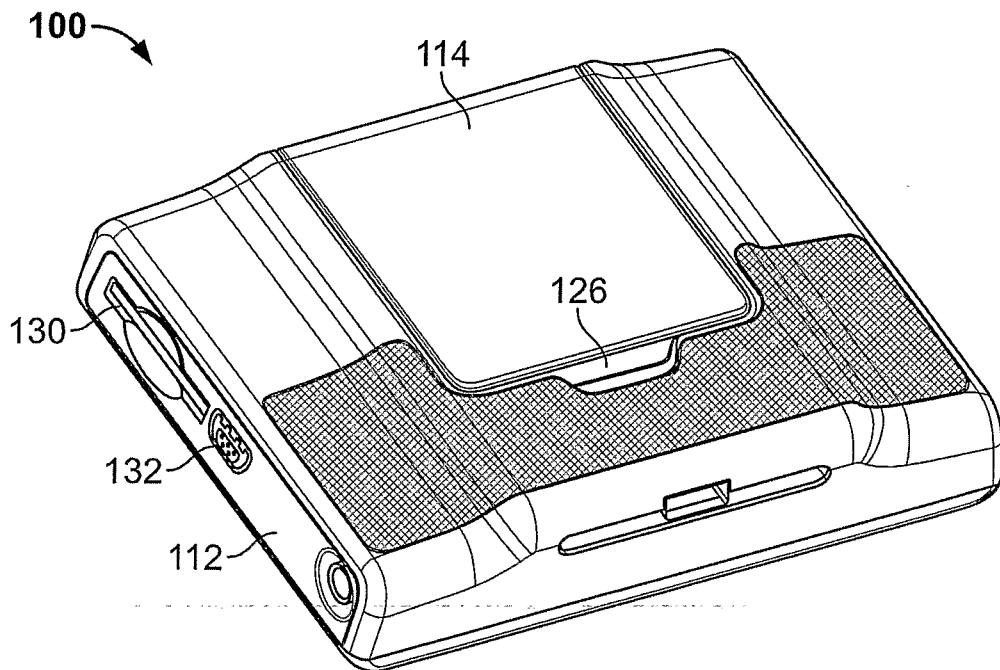


FIG. 1C

3/12

230

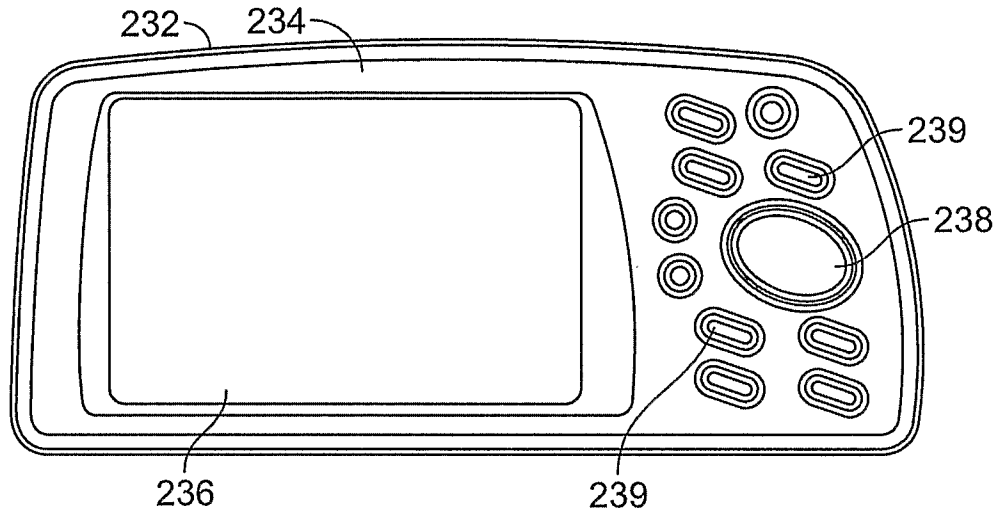


FIG. 2A

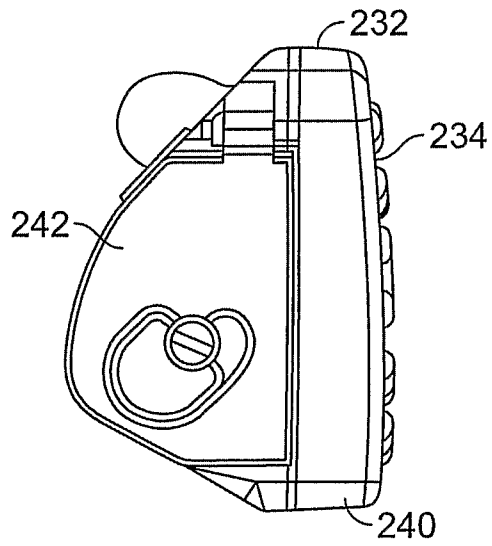


FIG. 2B

4/12

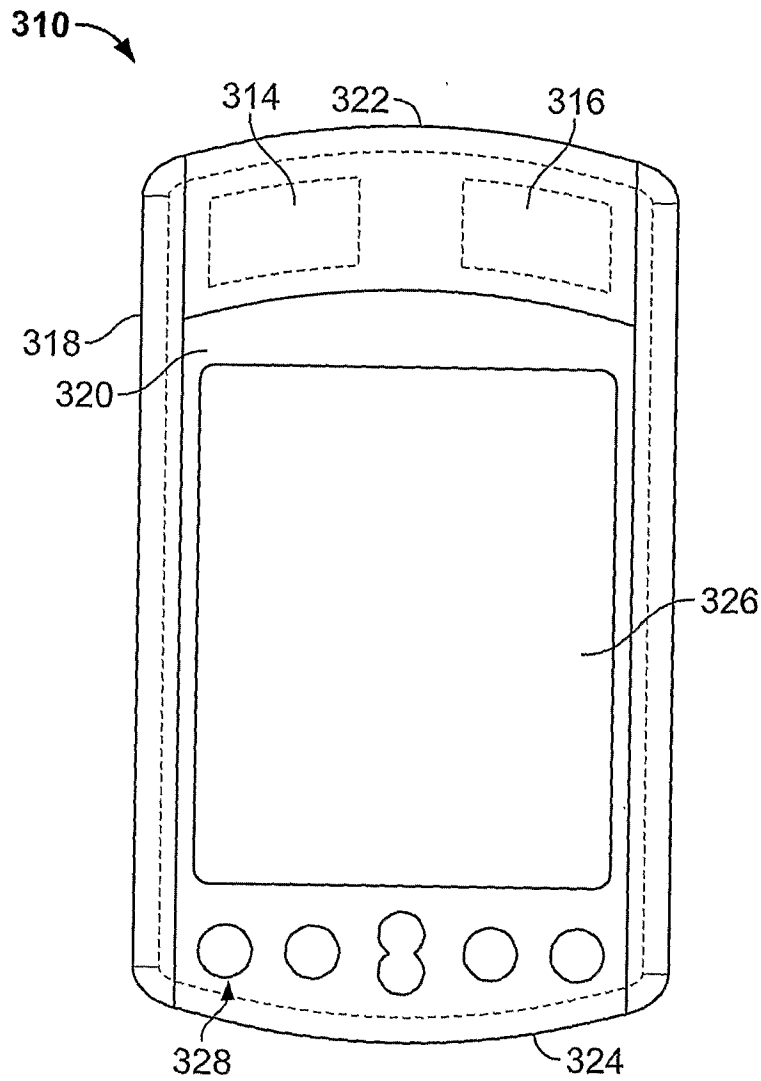


FIG. 3A

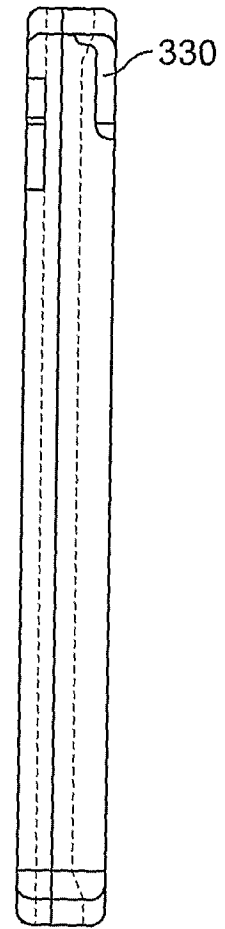


FIG. 3B

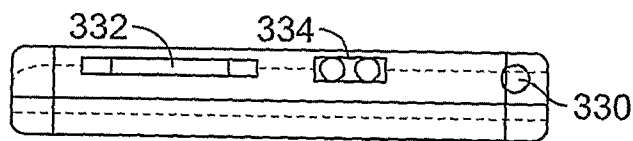


FIG. 3C

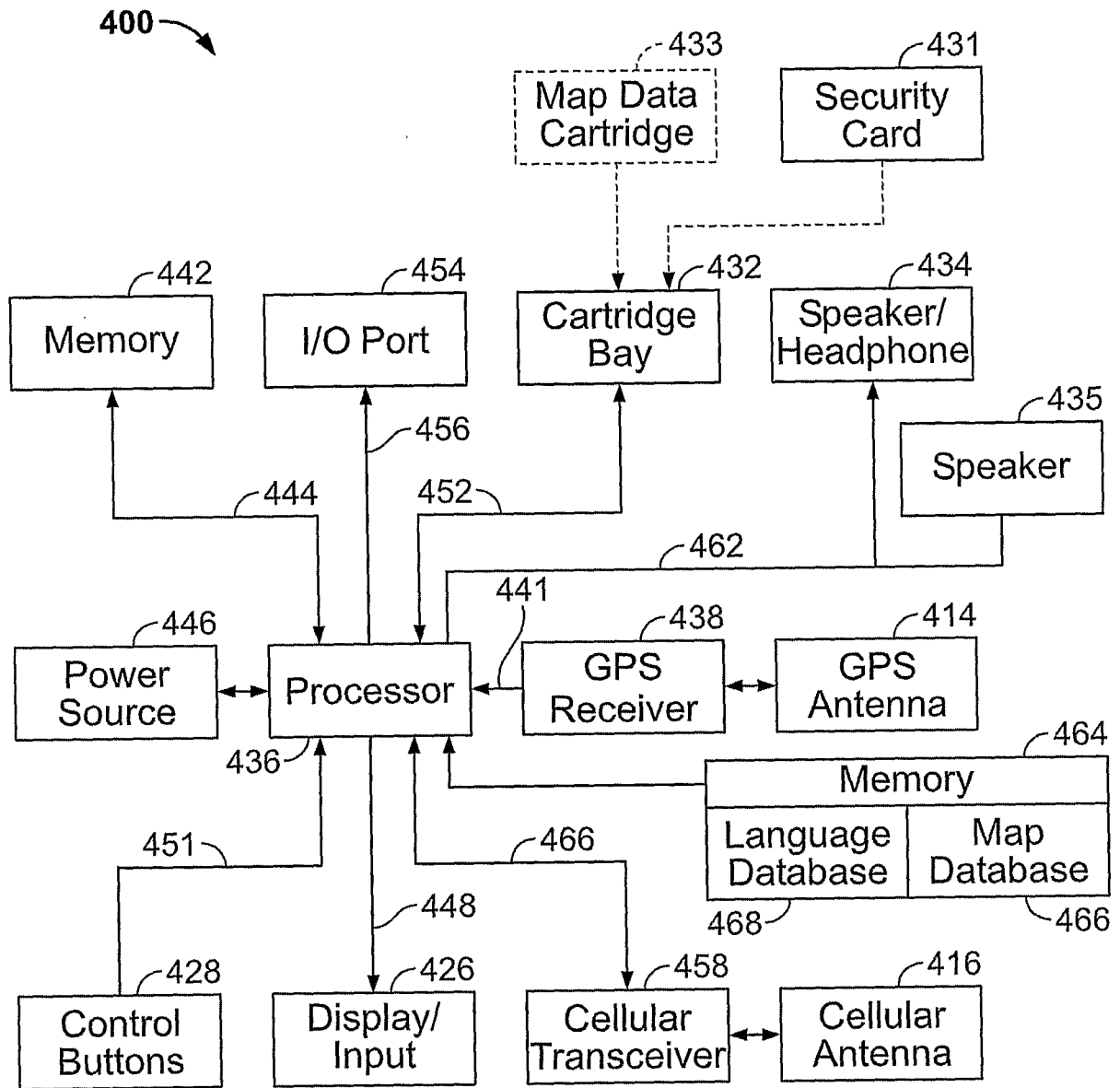


FIG. 4

6/12

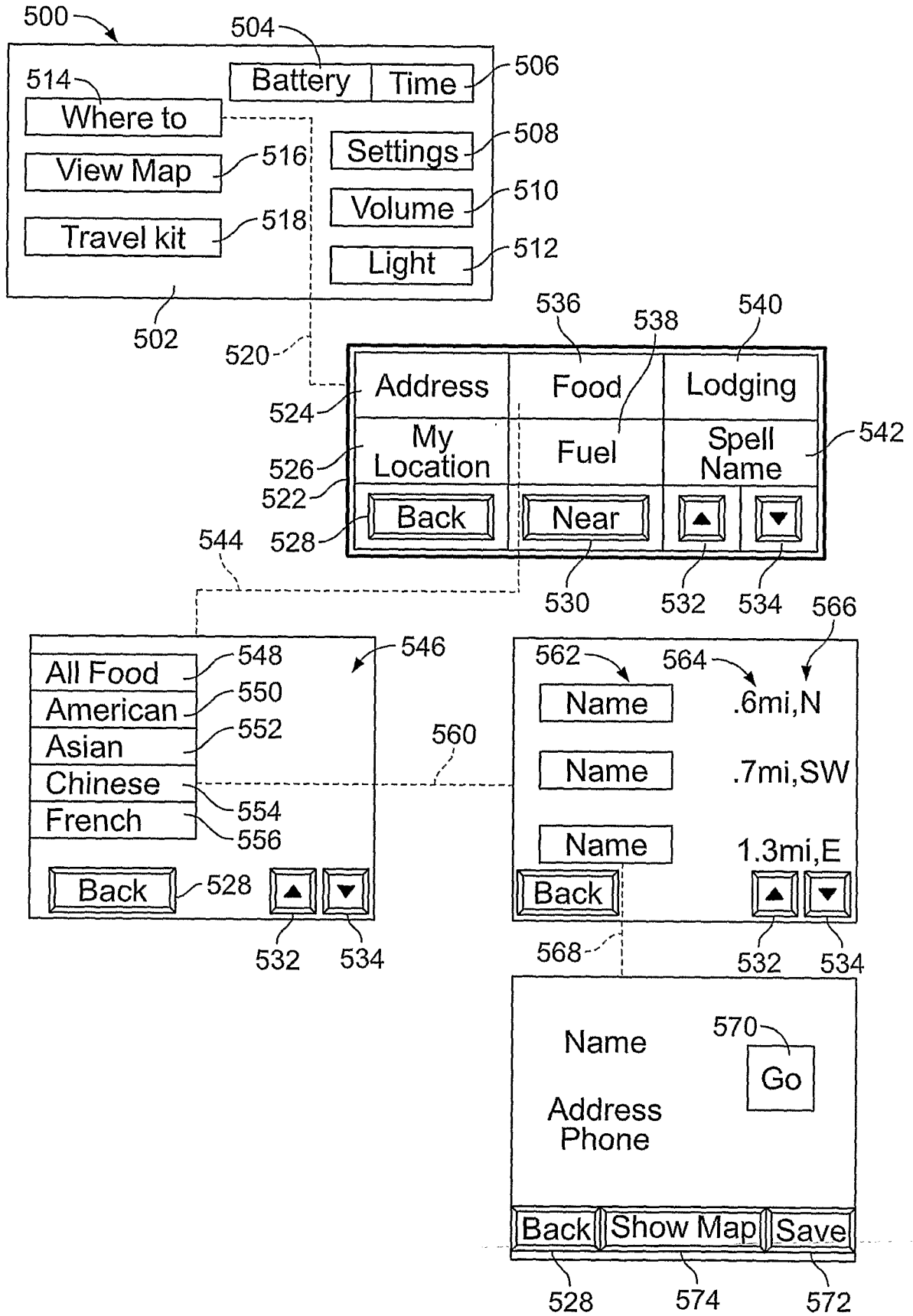


FIG. 5

7/12

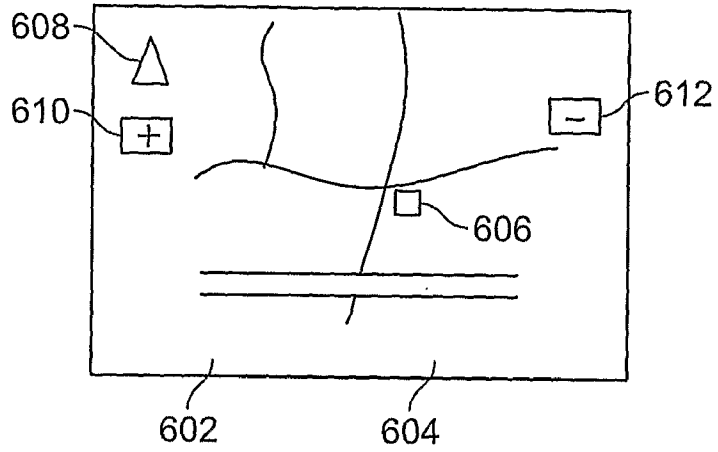


FIG. 6

802 →

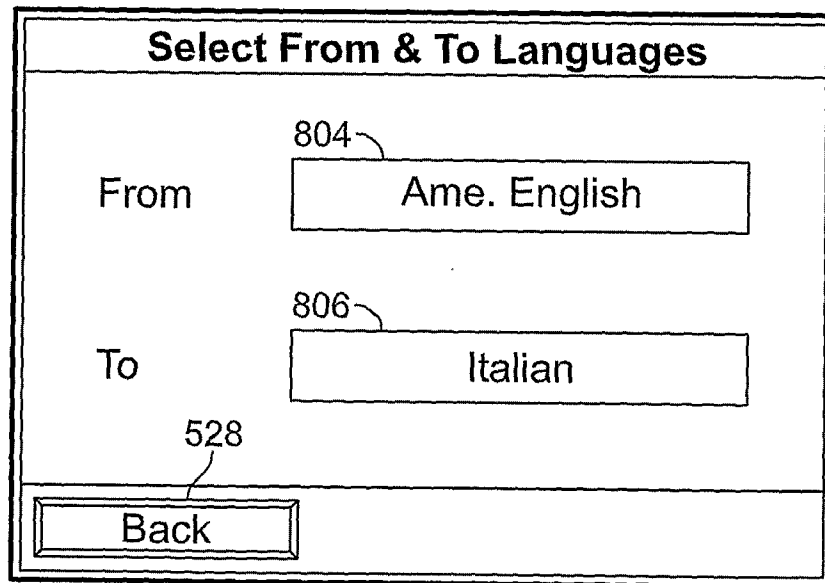


FIG. 8

8/12

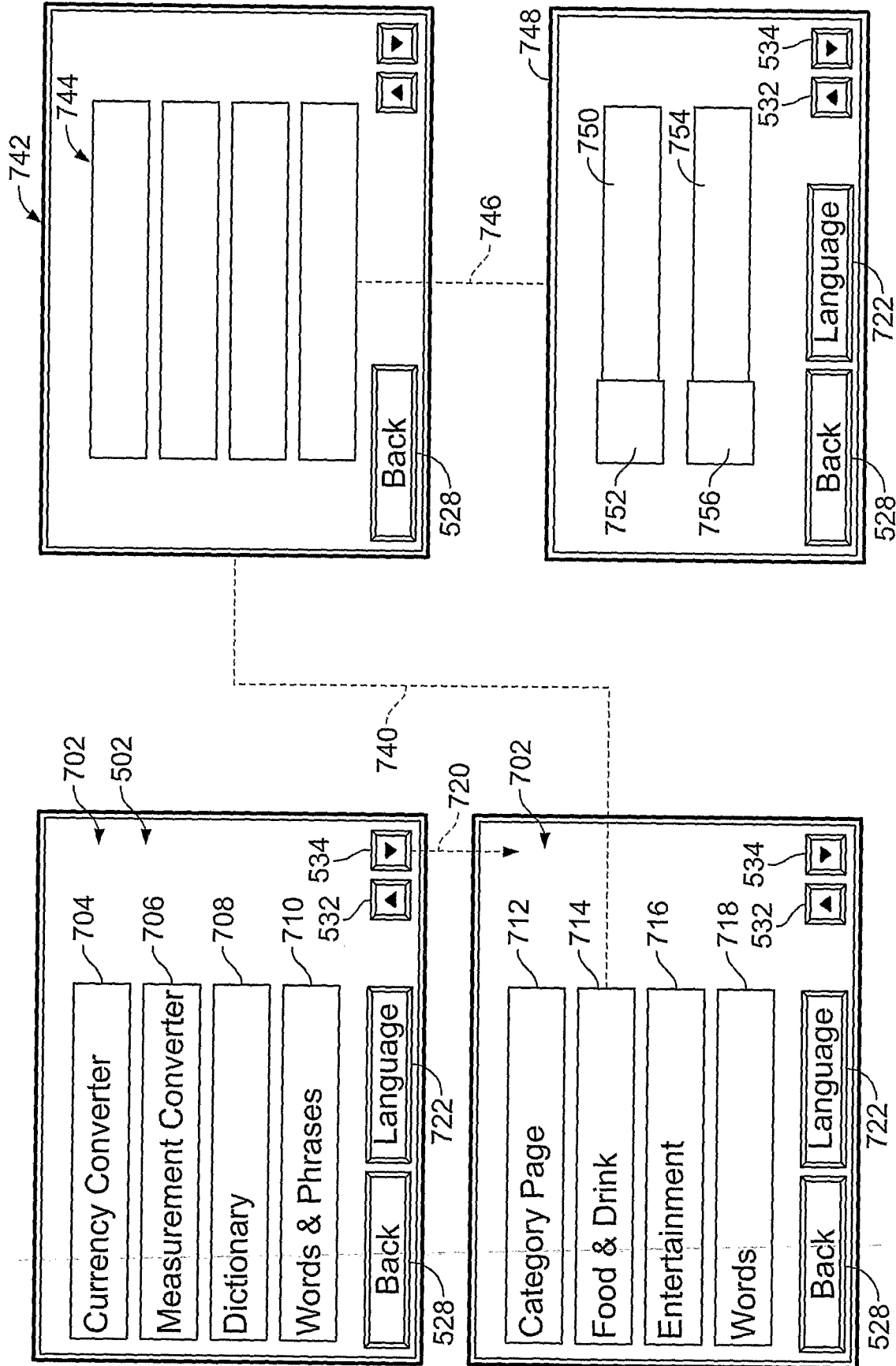


FIG. 7

9/12

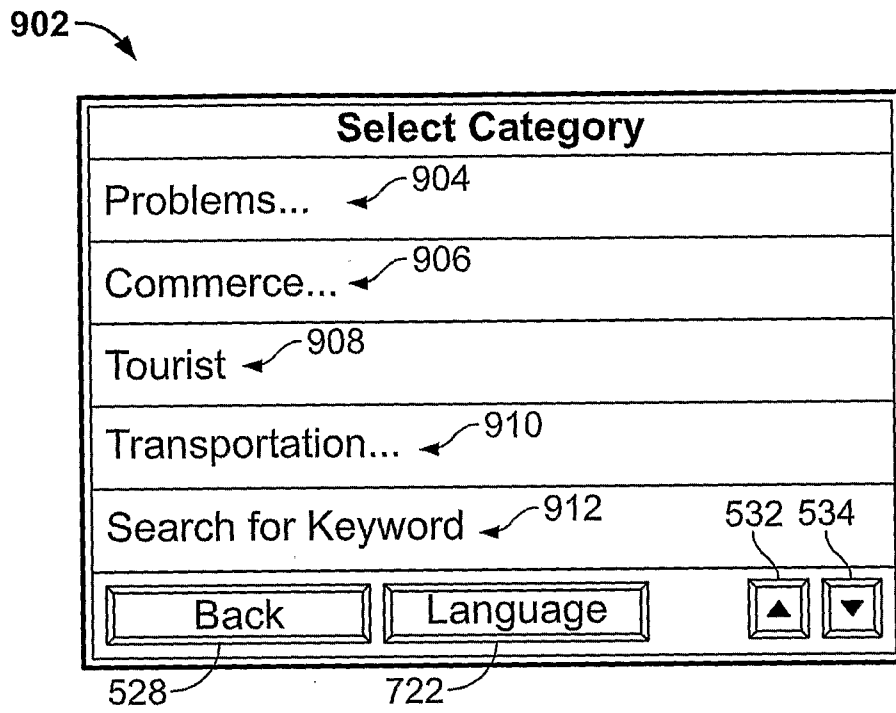


FIG. 9

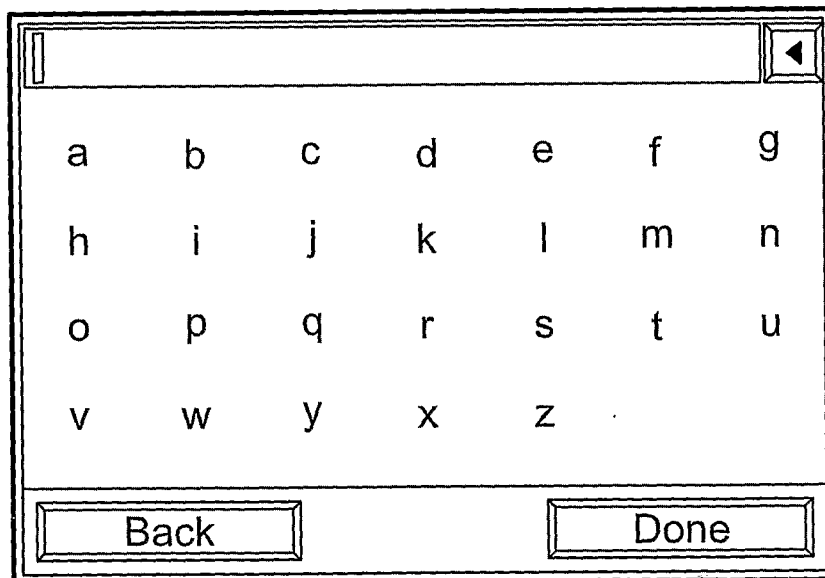


FIG. 10



10/12

1102

Select Phrase	
Posso cambiare <u>gli scarponi</u> ?	
Posso lasciare qui il bagaglio fino a...	
A quale sportello posso incassare...	
Posso pagare in <u>dollari canadesi</u> ?	
Posso avere un modulo di richiesta?	
<input type="button" value="Back"/>	<input type="button" value="▲"/> <input type="button" value="▼"/>

528 532 534

FIG. 11

1202

Select Word	
alberghi (1)	
alla (1)	
alle (1)	
altri (1)	
ammessi (2)	
<input type="button" value="Back"/>	<input type="button" value="Search"/> <input type="button" value="▲"/> <input type="button" value="▼"/>

FIG. 12

11/12

1302

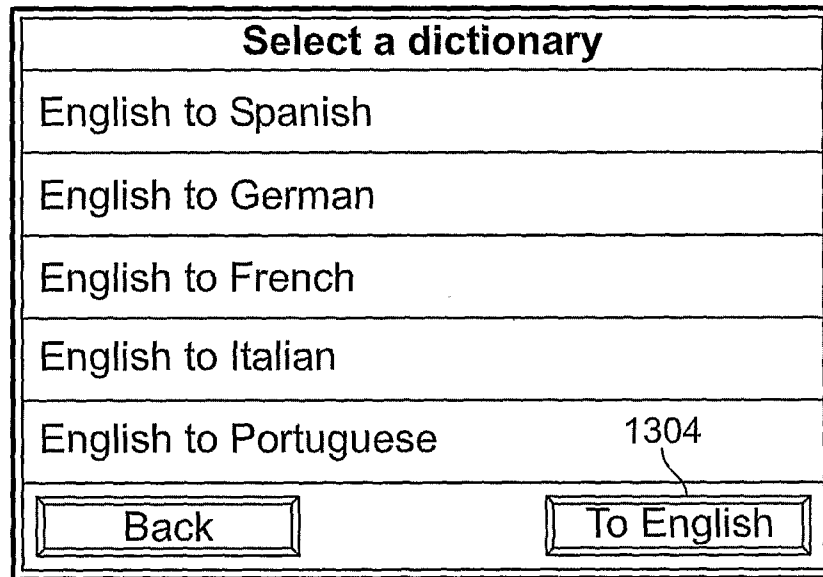


FIG. 13

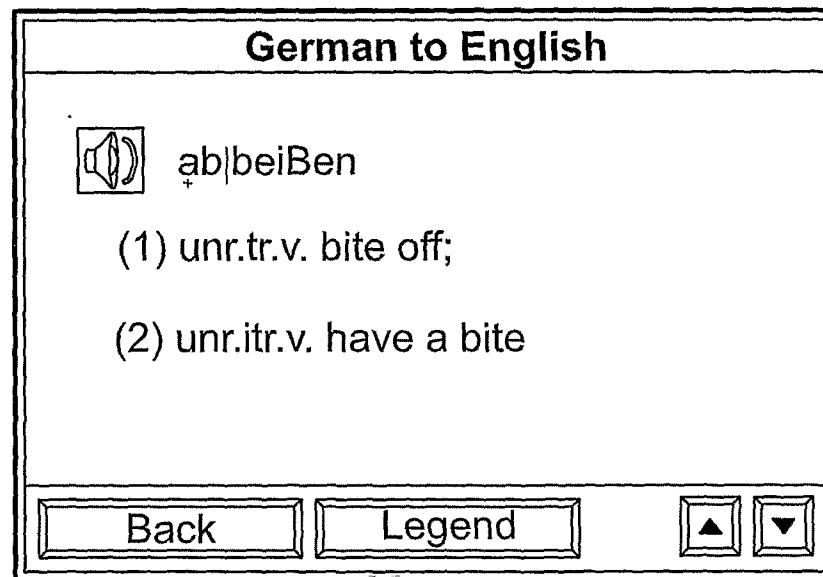


FIG. 14

12/12

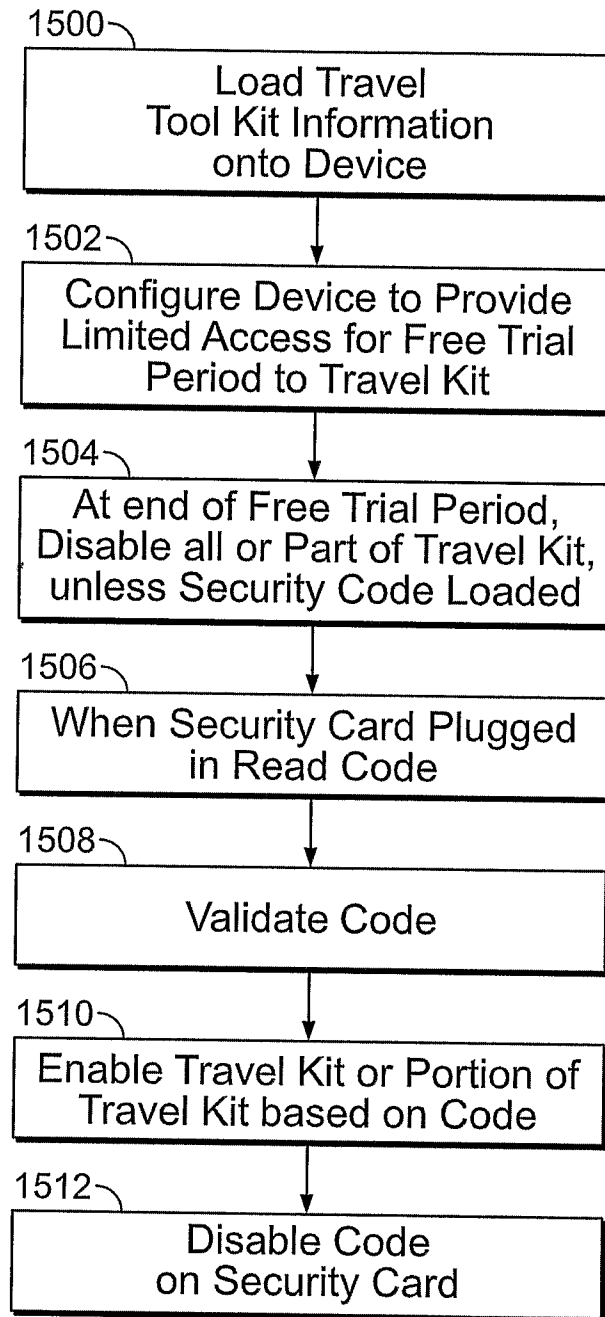


FIG. 15

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2006/002414

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. G01C21/36 G08G1/0968		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) G01C G08G G06F H04L		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, IBM-TDB, INSPEC		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/102931 A1 (ELLIS MICHAEL D ET AL) 27 May 2004 (2004-05-27) abstract; figure 32 paragraph [0273]; figure 29 paragraph [0321]; figures 30,43B paragraph [0404]; figure 89 paragraph [0405]; figure 90 paragraph [0406]; figure 91	1-18
X	DE 10 2004 006467 A1 (VOLKSWAGEN AG) 21 April 2005 (2005-04-21) paragraphs [0007] - [0011] paragraph [0013] - paragraph [0018]; figure 1	1-3,6,7, 10-13, 16-18
-----		
-/--		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.		
<input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"E" earlier document but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search	Date of mailing of the international search report	
18 September 2006	26/09/2006	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  Jakob, Clemens	

INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2006/002414

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 101 48 821 A1 (SURMUND, BENEDIKT) 30 April 2003 (2003-04-30) paragraphs [0015], [0037]; figure 1 paragraphs [0046] - [0052]; figure 5 -----	1-3, 5-7, 11-13, 15

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/002414

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004102931 A1	27-05-2004	NONE	
DE 102004006467 A1	21-04-2005	NONE	
DE 10148821 A1	30-04-2003	NONE	