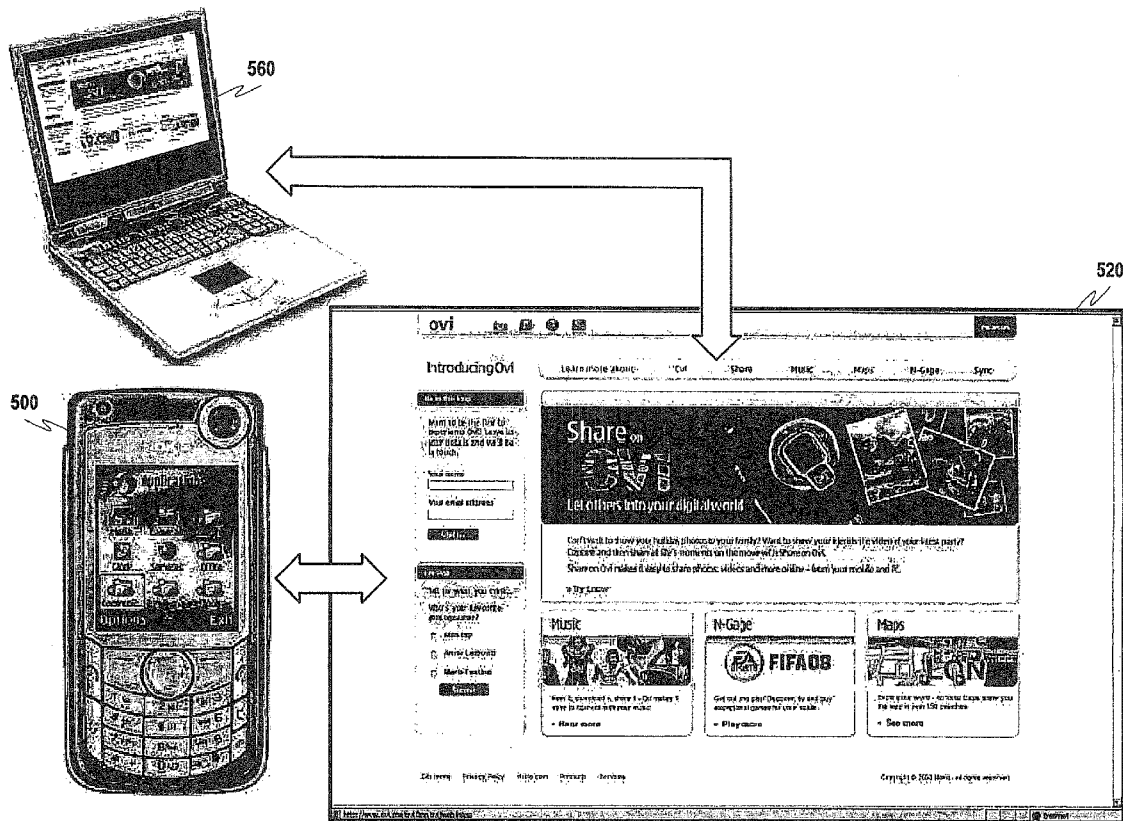




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HALBHERR et al.(10) **Pub. No.: US 2015/0025793 A1**(43) **Pub. Date: Jan. 22, 2015**(54) **ROUTE SELECTION BY DRAG AND DROP**(71) Applicant: **HERE GLOBAL B.V.**, Veldhoven (NL)(72) Inventors: **Michael HALBHERR**, Berlin (DE);
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G01C 21/36 (2006.01)(52) **U.S. Cl.**CPC **G01C 21/3682** (2013.01); **G01C 21/362**
(2013.01)USPC **701/426**(57) **ABSTRACT**

The various embodiments of the present invention may be directed to a system for facilitating data processing in a visual manner. An application may include, inter alia, a basket component for visually representing the particular data items that a user desires to be processed by an application. The application may allow a user to initially search for data items that may be of interest (e.g., points-of-interest or POIs). A user may select POIs to obtain additional descriptive information regarding each data item. If the selected POI is to be included in processing, a user may drag the visual representation of the POI into the basket component. When the basket component contains all POIs desired for processing, the user may further instruct the application to formulate a result that is a composite of some or all of the POIs in the basket component.



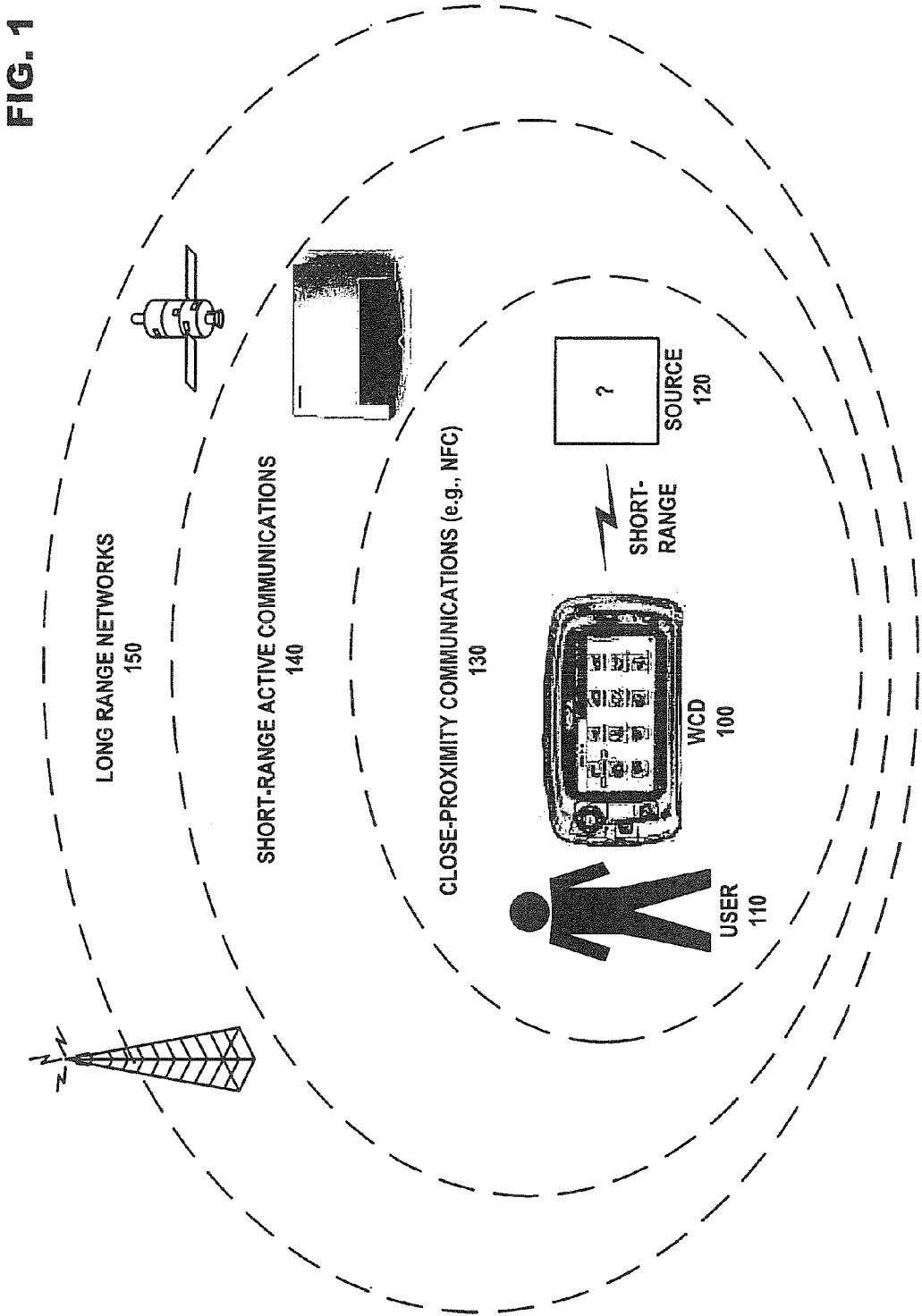


FIG. 2

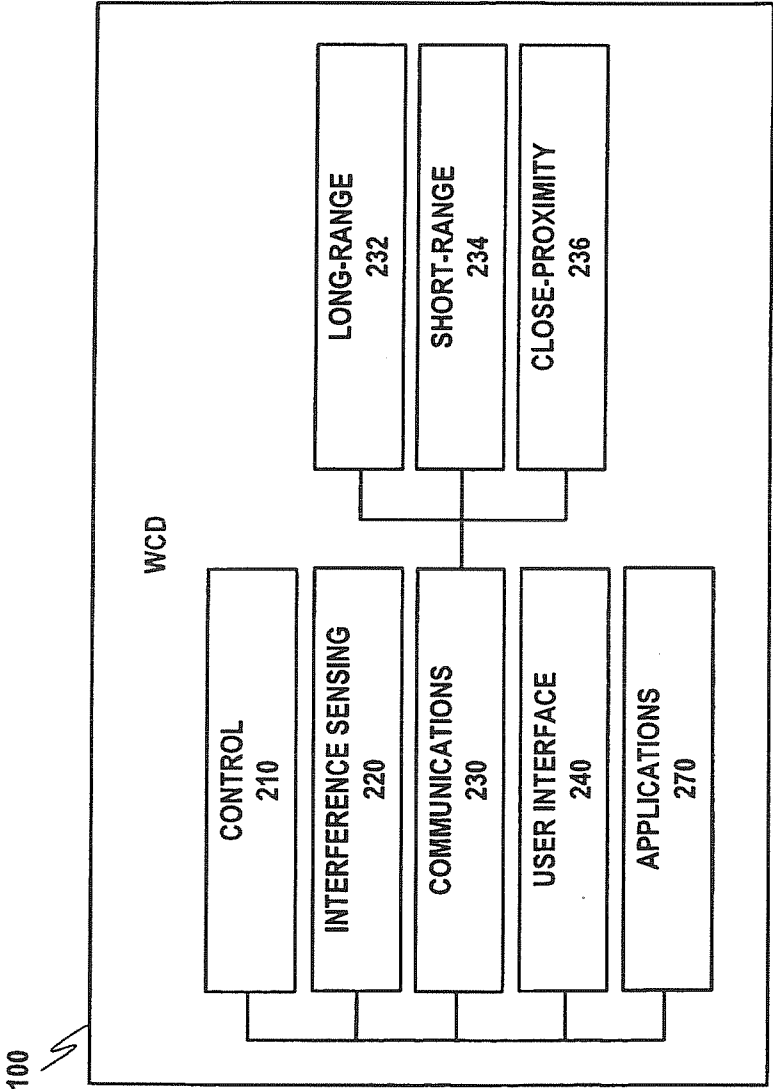


FIG. 3

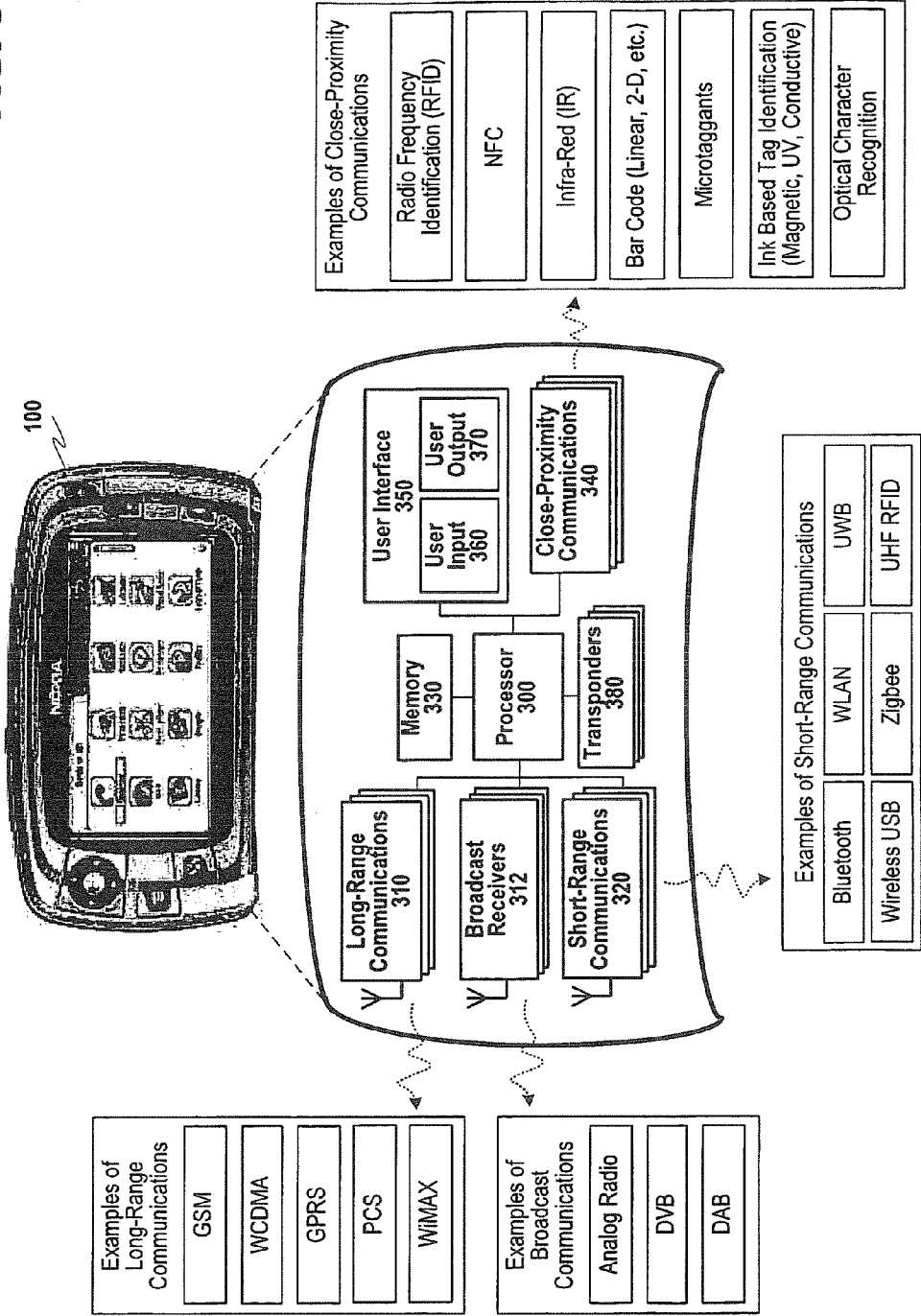
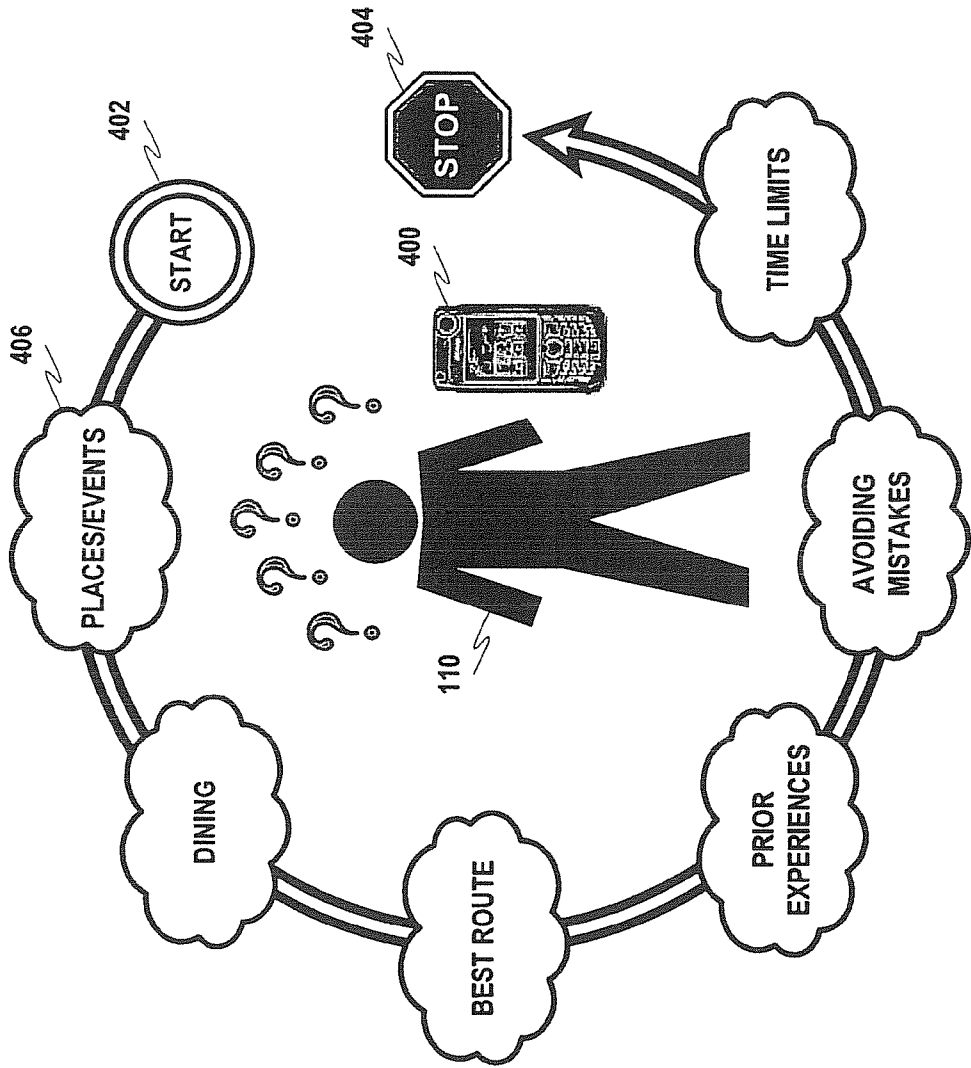


FIG. 4



LE

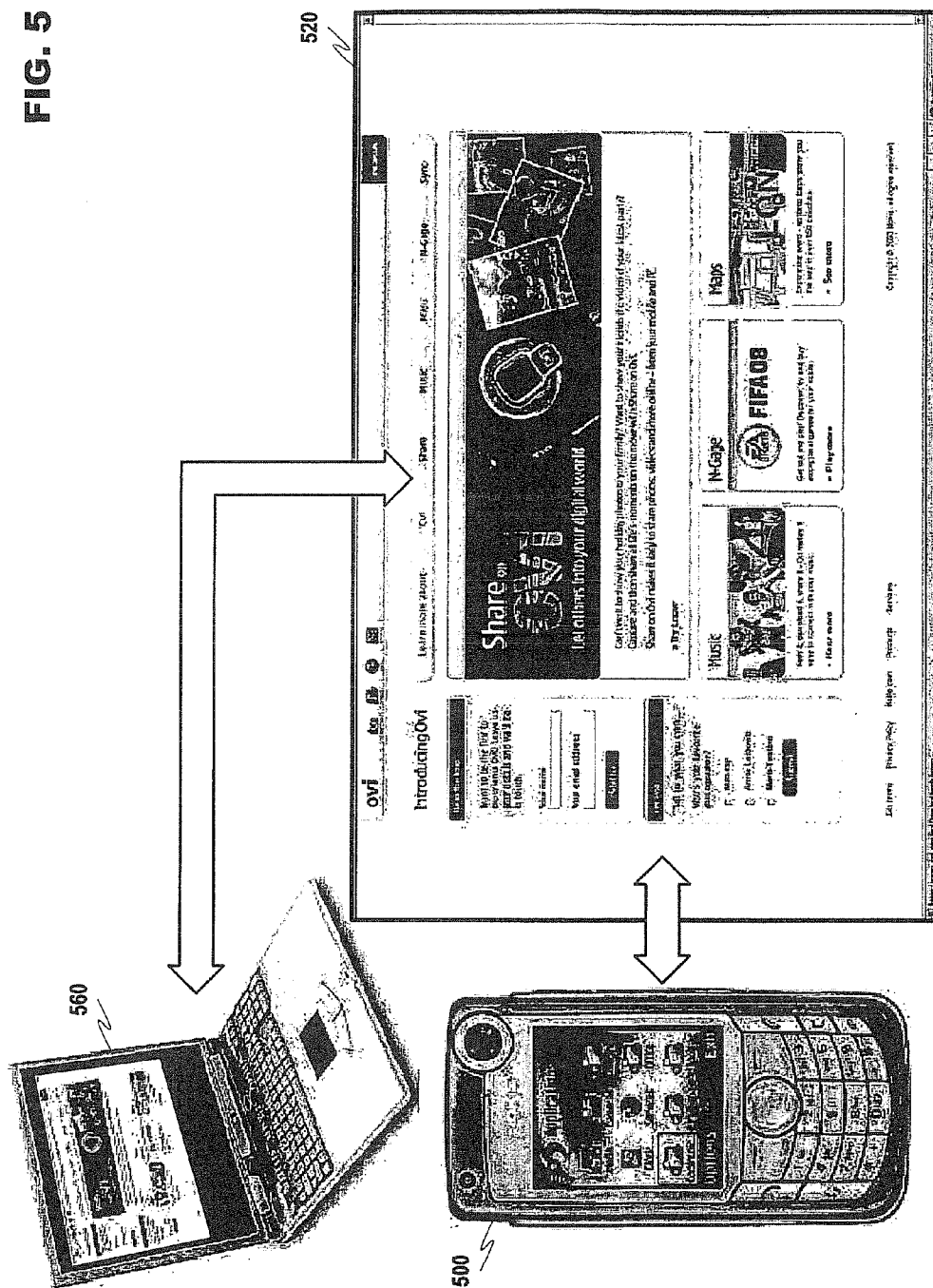


FIG. 6

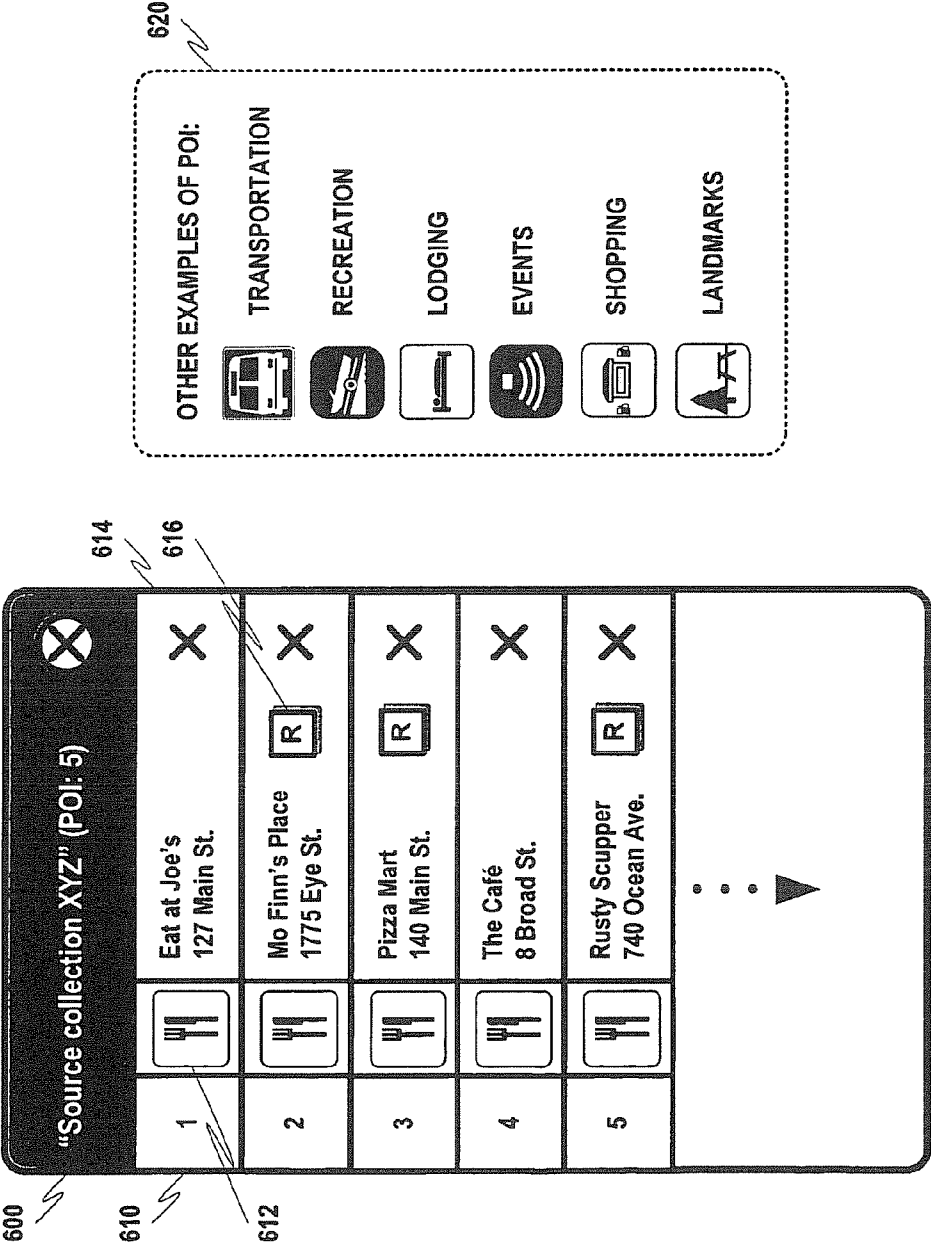


FIG. 7A

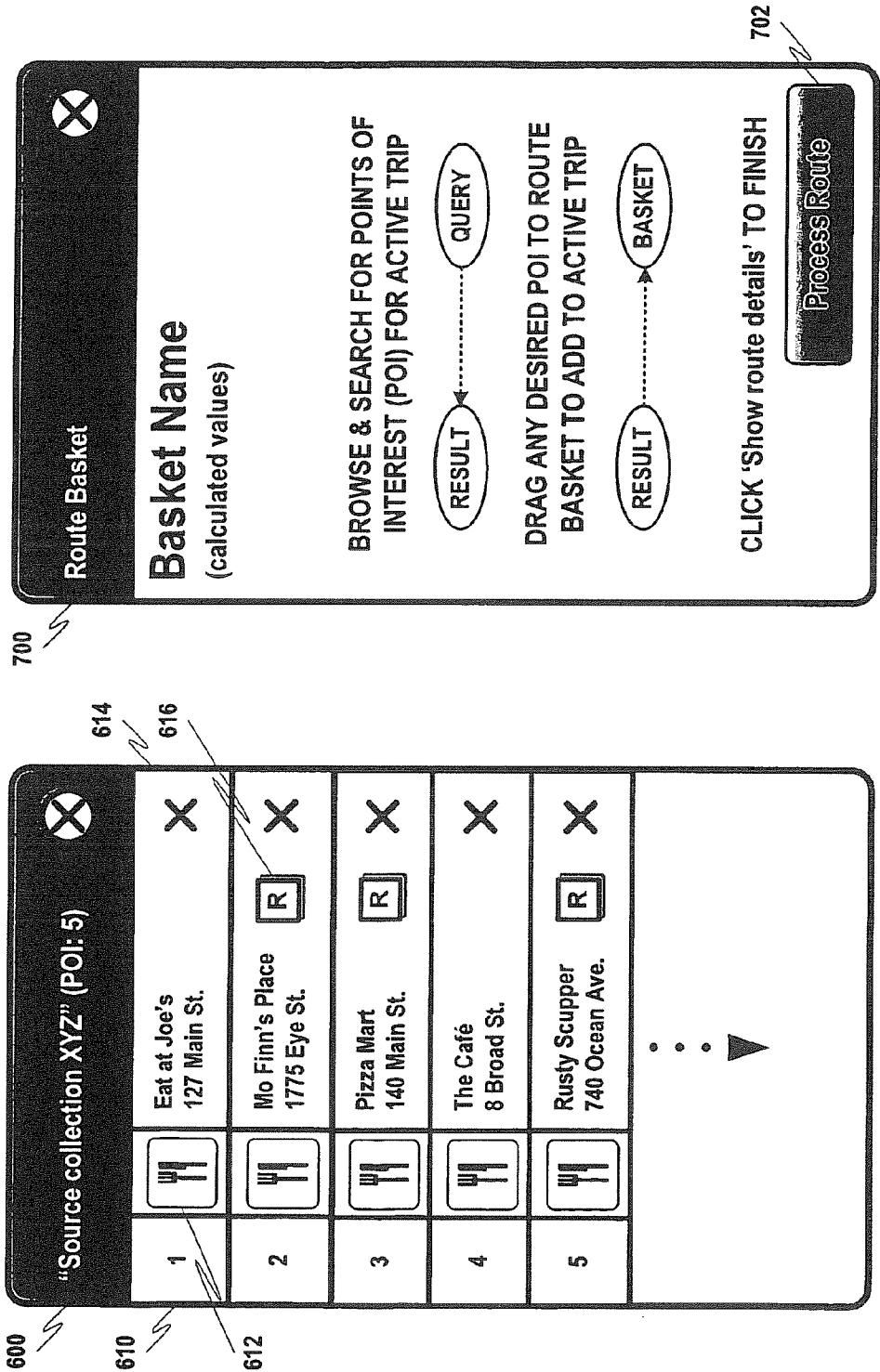


FIG. 7B

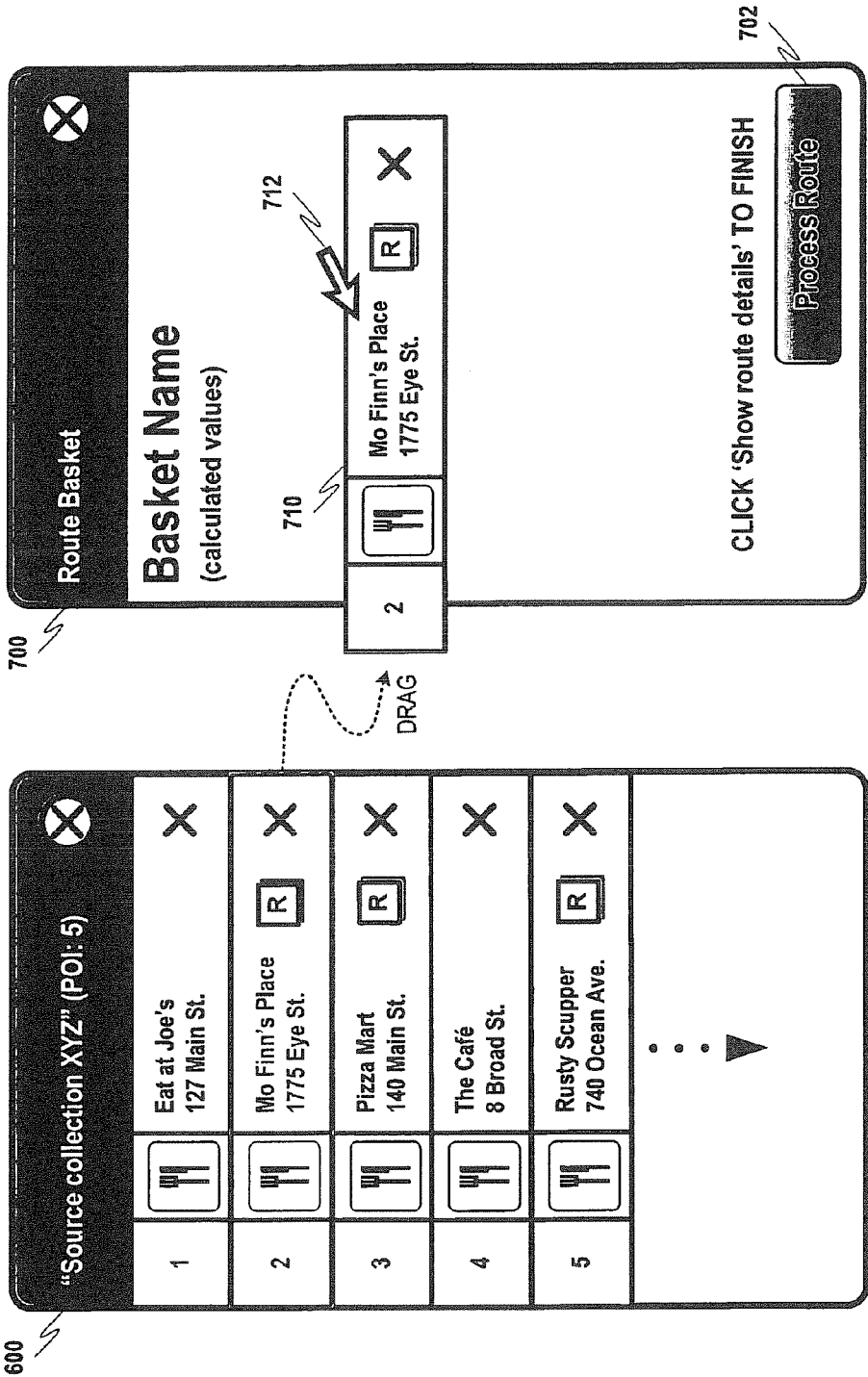


FIG. 7D

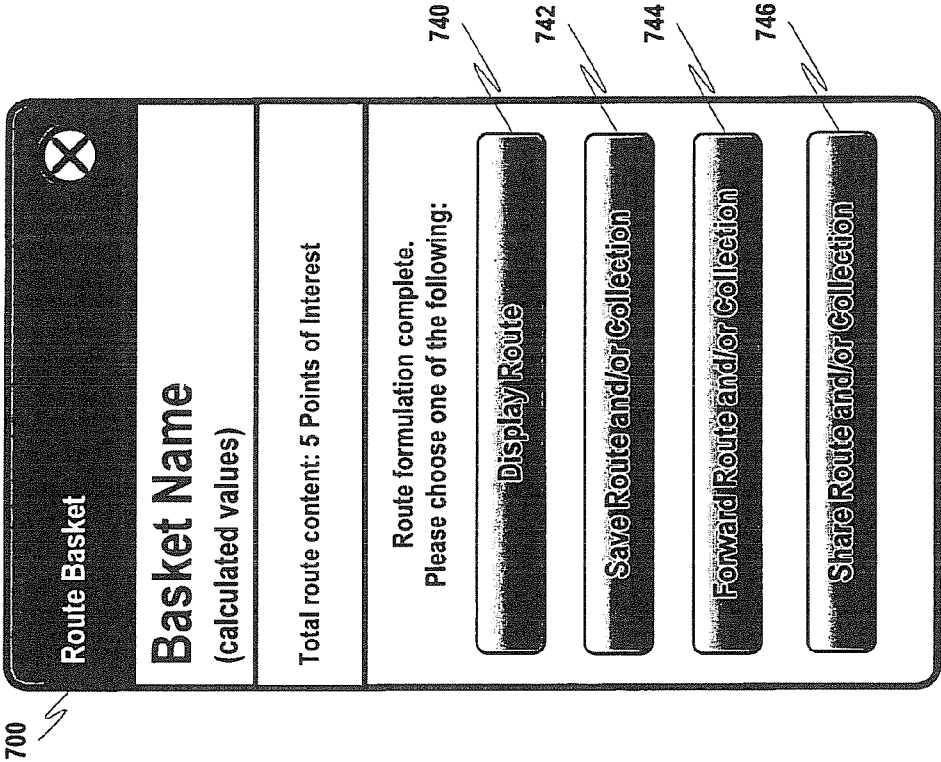


FIG. 8A

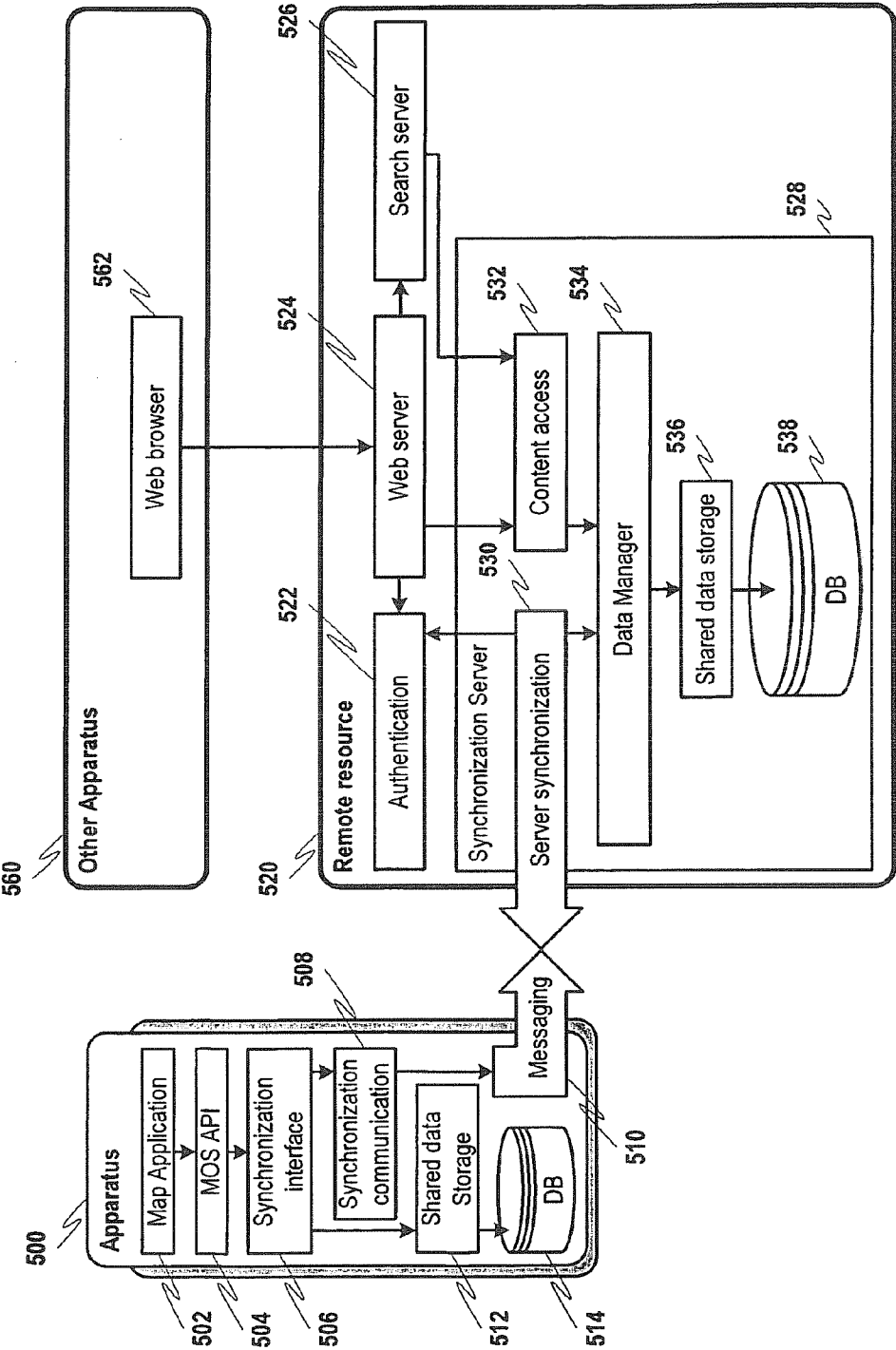


FIG. 8B

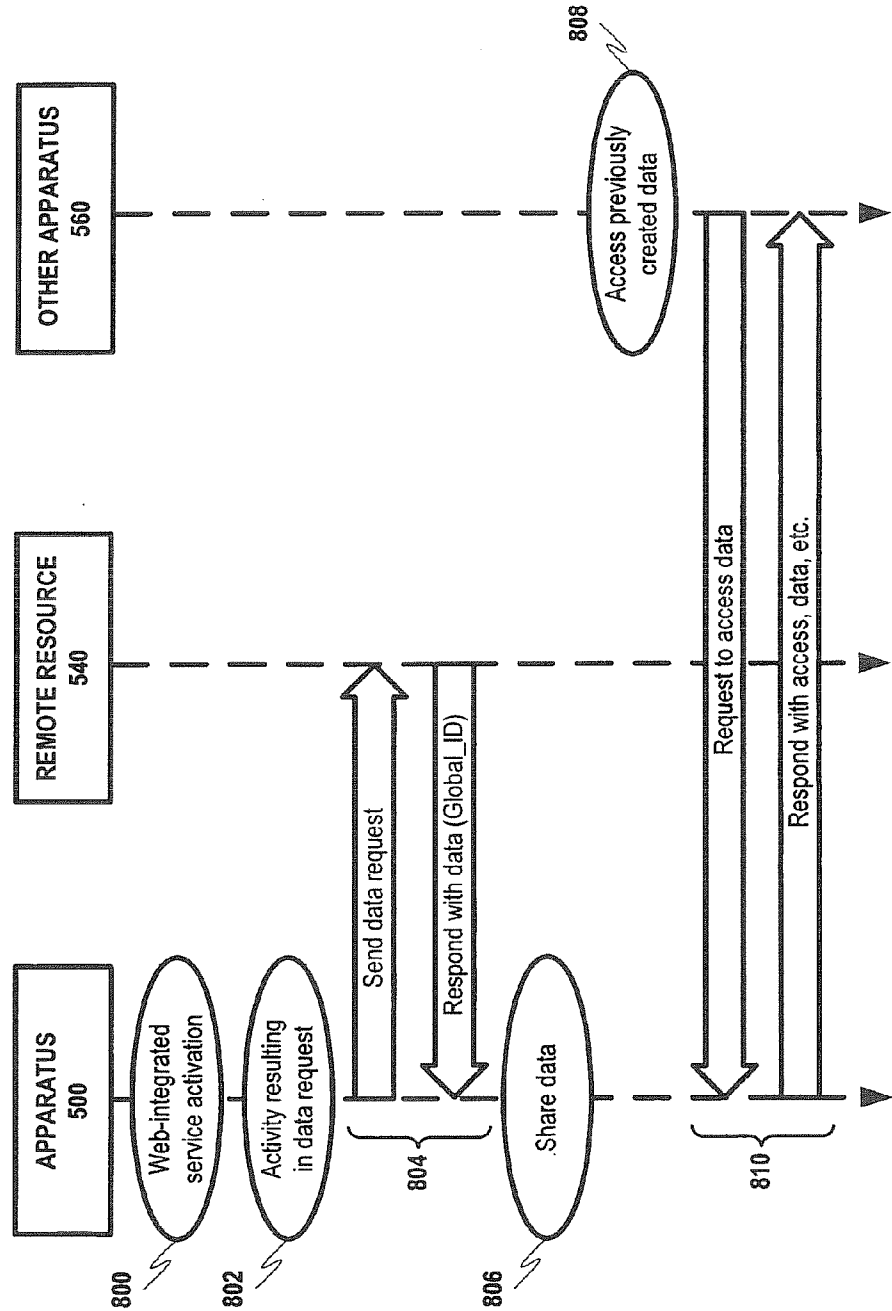


FIG. 8C

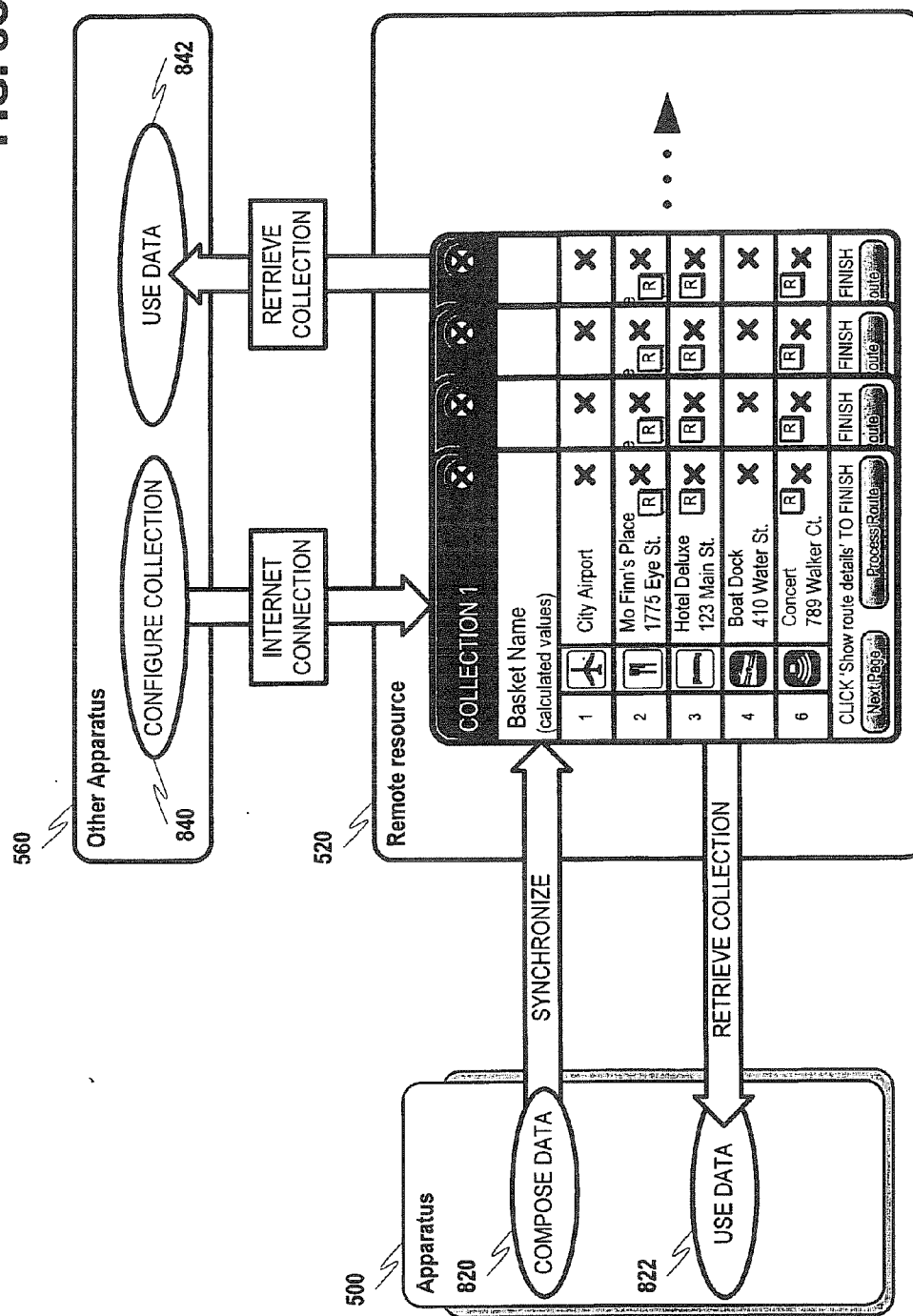


FIG. 9A

900

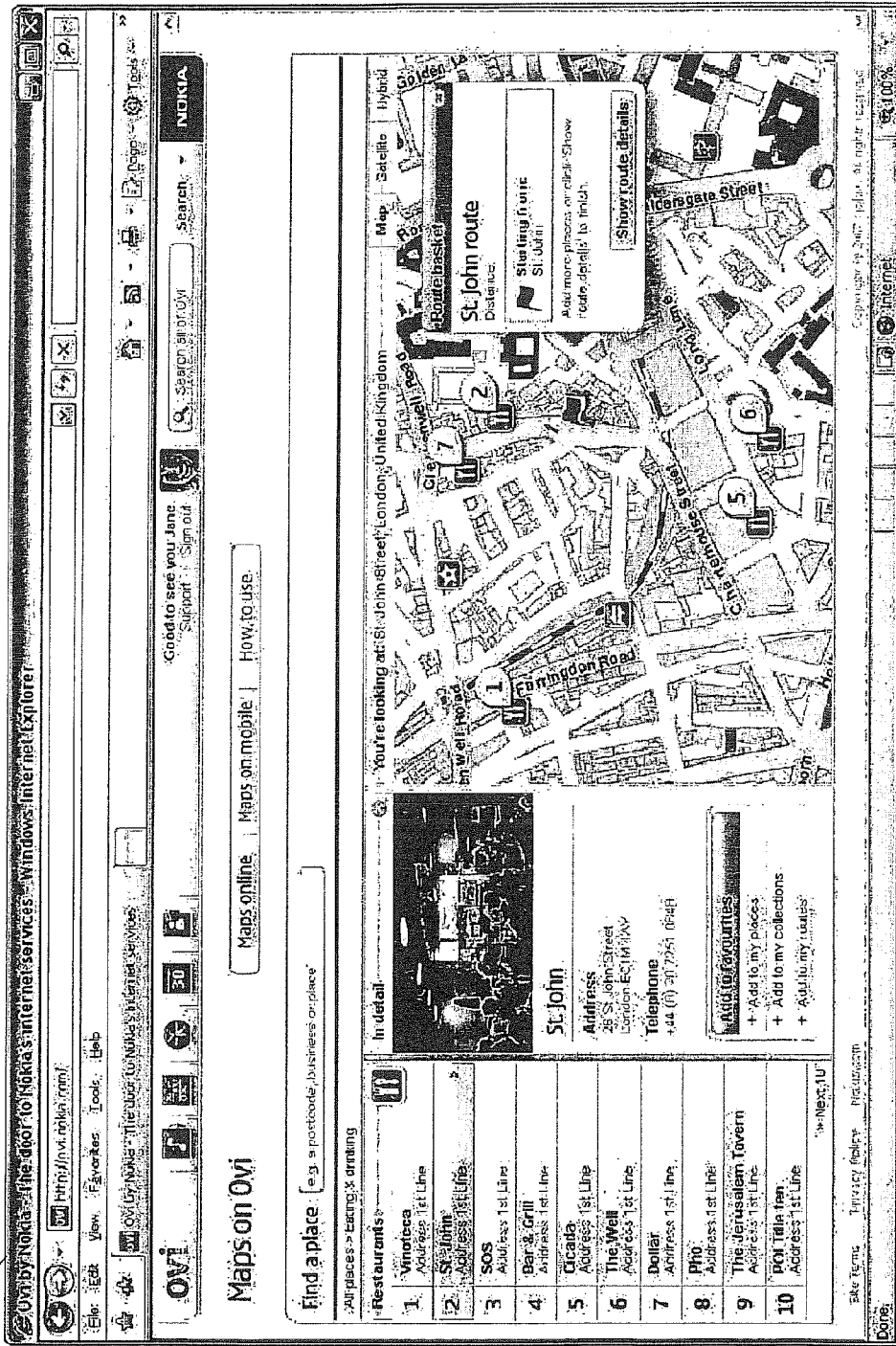


FIG. 9B

902

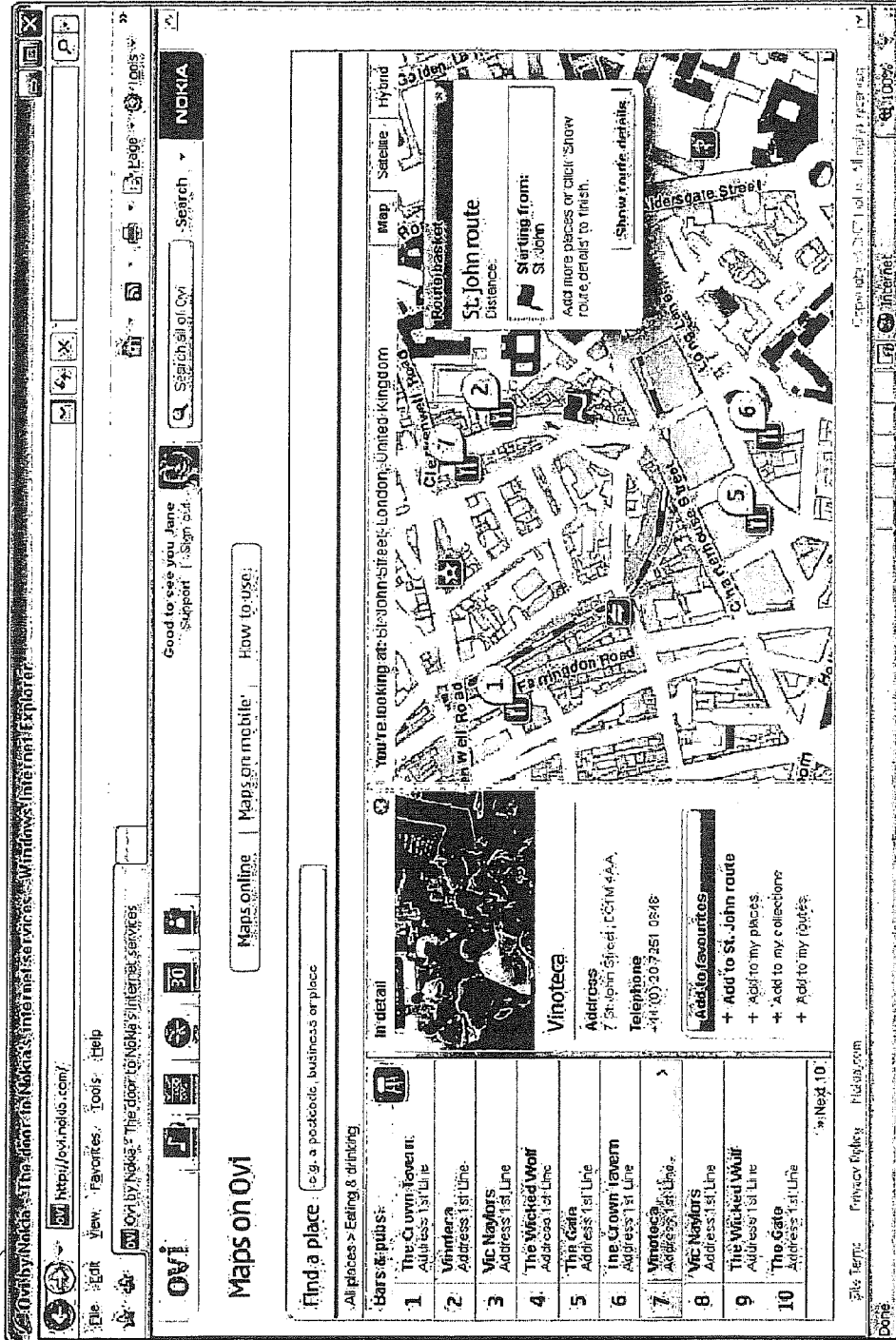


FIG. 9C

904

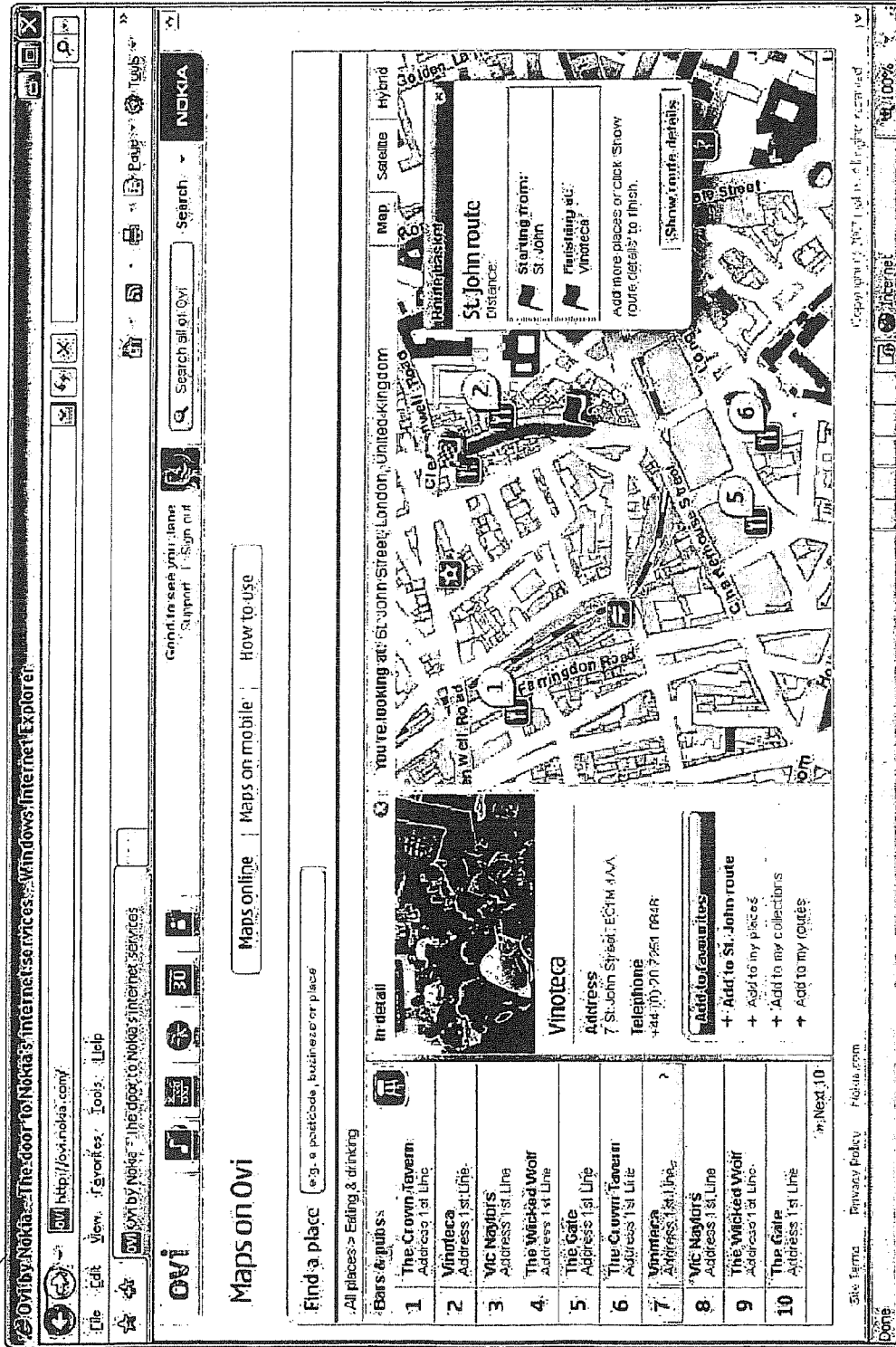
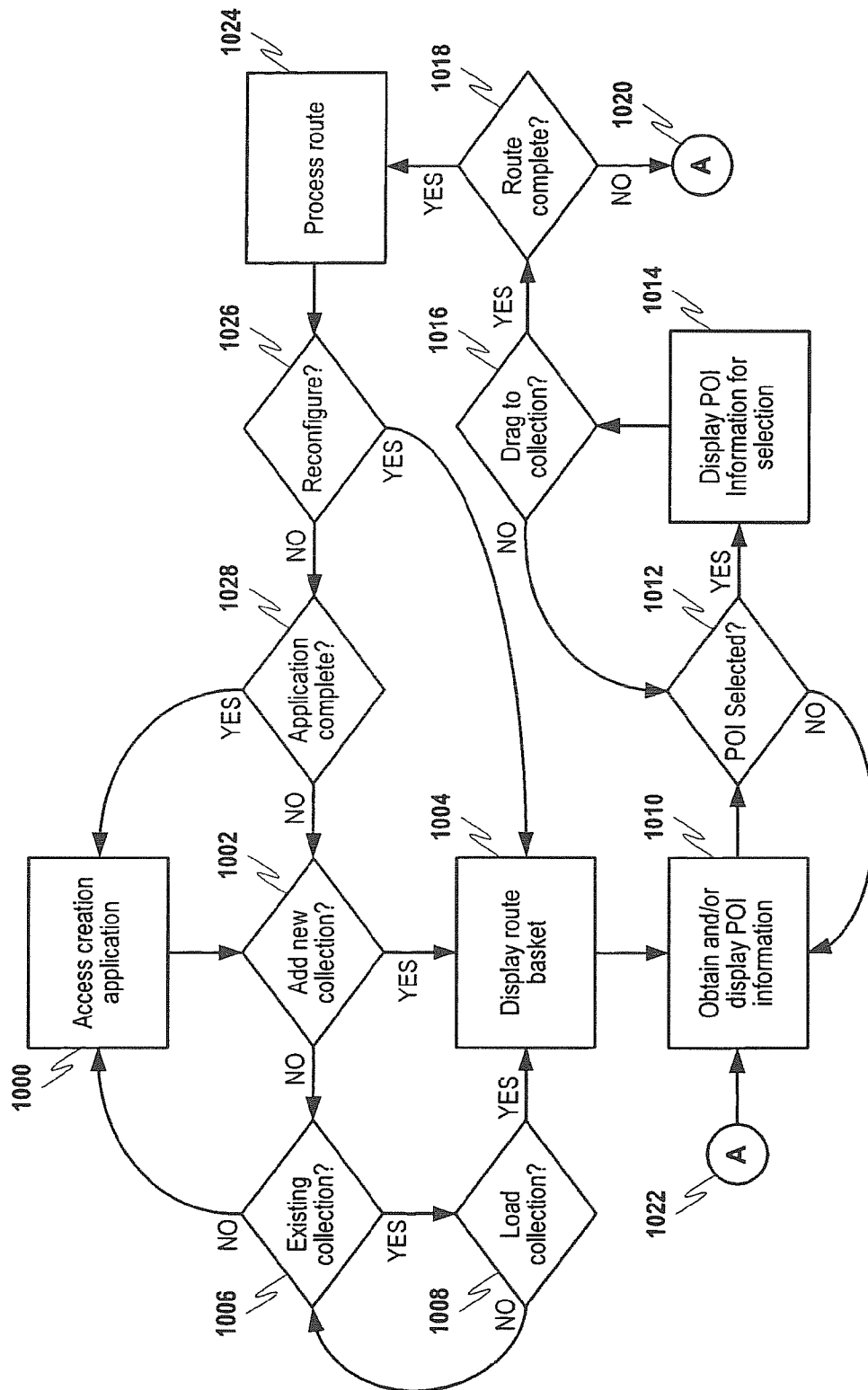


FIG. 10



ROUTE SELECTION BY DRAG AND DROP

RELATED APPLICATION

[0001] This application is a continuation of U.S. application Ser. No. 12/118,726, entitled “ROUTE SELECTION BY DRAG AND DROP”, by Michael Halbherr, et al., filed May 11, 2008, the content is incorporated herein by reference in its entirety.

BACKGROUND

[0002] 1. Field of Invention

[0003] Various embodiments of the present invention relate to the visual facilitation of data selection, and more specifically, to a system for formulating a composite result by visually dragging and dropping elements of the composite result into a visual representation of a basket.

[0004] 2. Background

[0005] Modern society has adopted, and is becoming reliant upon, devices for wireless communication. For example, cellular telephones continue to proliferate in the global marketplace due to technological improvements in both communication quality and device functionality. These wireless communication devices (WCDs) have become common for both personal and business use, allowing users to transmit and receive voice, text and graphical data from a multitude of geographic locations. The communication networks utilized by these devices span different frequencies and cover different transmission distances, each having specific features desirable for various applications.

[0006] The desire for users to employ wireless apparatuses in many different settings continues to keep pace with new communication enhancements incorporated in these devices. Additional functionality such as, for example, messaging clients (email, instant messenger, etc.), business applications (document readers, scheduling programs, interfaces to inventory management systems, etc.), location systems (GPS, mapping, navigation, etc.), multimedia and entertainment applications, as well as many more. These various applications may retrieve information via wired or wireless communication that, in view of a user configuration, may be required in order to perform the requested activity. The information needed during application execution may come from, for example, a remote source accessible via wireless communication.

[0007] While the above functionality is desirable, the configuration required in order to achieve a desired result may be prohibitive. In a least one scenario, a user of limited technical ability may be able to generally operate an apparatus, but may not possess the skills required to configure higher level applications. For example, the advent of various location-related features on modern wireless devices allow users to not only pinpoint their current location, but to find other destinations via visual mapping, voice actuated direction-finding, etc. However, the configuration required to use such applications may require the entry of a substantial amount of information. If this configuration requires, for example, a large amount of menu navigation, text entry and parameter configuration, a user may deem the application too burdensome, technical, time consuming, etc. This problem may be made worse in situations where the apparatus may only include an extremely limited user interface (e.g., for example in some more rudimentary wireless handheld devices). As a result, users may not take full advantage of the various features now available

in multifunction devices because they don't feel that the burden of comprehending and then executing the required configuration justifies the benefits bestowed by the application.

SUMMARY

[0008] Various embodiments of the present invention are directed to at least a method, system, apparatus, chipset, interface architecture and computer program for facilitating data processing in a visual manner. An application may comprise, inter alia, a user interface for configuring functionality within the application, the user interface including at least a basket component for visually representing the particular data items that a user desires the application to process. The application may initially allow a user to locate data items that may be of interest to the user (e.g., points-of-interest or POIs). The user may then select each POI to obtain additional descriptive information about the POI. If the selected POI is to be included in processing, a user may then drag the visual representation of the POI into the basket component. When the basket component contains all POIs desired for processing, the user may instruct the application to formulate a result that is a composite of the POI information contained in the basket component.

[0009] In accordance with at least one exemplary embodiment of the present invention, a user may configure and execute a search or query in the application in order to compile one or more POIs. These POIs may be, for example, a subset of the total POIs available as defined by user-configured parameters. Upon selection, for example in response to positioning a computer cursor over a POI, the user may be presented with additional descriptive information concerning the POI. The user may repeat this procedure with some or all of the POIs in order to determine the particular data items that should be included for processing in the resulting composite data.

[0010] A user may then choose one or more desired POIs for inclusion in processing, for example, by dragging them into the basket component. After all of the desired data items have been placed in the basket, the user may instruct the application to formulate a composite result, based on the contents of the basket component, that may then be displayed to the user and/or stored for later use, forwarded to other users (e.g., along with the selected POI data), etc. An exemplary later use may involve configuring information to be shared with other users. In at least one scenario, users may configure and formulate a composite result using a web interface on a laptop/desktop computer in order to take advantage of better user interfaces and resources (e.g., processing, speed, power, etc.). The selected POI information and/or the composite result data may then be conveyed (e.g., shared) to a portable device for easy transport, availability, etc. Sharing may further be conducted on a larger scale, for example, via the use of a remote resource accessible by various wired and/or wireless apparatuses. Apparatuses may, in accordance with various embodiments of the present invention, store the contents of the basket component (e.g., as a data collection) and/or composite results on the remote resource, and may further search for, request access to or transmission of, etc. data that was previously stored on the remote resource.

DESCRIPTION OF DRAWINGS

[0011] The invention will be further understood from the following detailed description of various exemplary embodiments, taken in conjunction with appended drawings, in which:

[0012] FIG. 1 discloses an exemplary wireless operational environment, including wireless communication mediums of different effective range.

[0013] FIG. 2 discloses a modular description of an exemplary wireless communication device usable with at least one embodiment of the present invention.

[0014] FIG. 3 discloses an exemplary structural description of the wireless communication device previously described in FIG. 2.

[0015] FIG. 4 discloses a problem scenario example set forth for the sake of explaining the various exemplary embodiments of the present invention.

[0016] FIG. 5 discloses an exemplary interaction between various apparatuses and a remote resource in accordance with at least one embodiment of the present invention.

[0017] FIG. 6 discloses an exemplary source collection including a plurality of POIs in accordance with at least one embodiment of the present invention.

[0018] FIG. 7A discloses an exemplary source collection and basket component in accordance with at least one embodiment of the present invention.

[0019] FIG. 7B discloses an exemplary drag operation in accordance with at least one embodiment of the present invention.

[0020] FIG. 7C discloses an exemplary route basket including a plurality of POIs in accordance with at least one embodiment of the present invention.

[0021] FIG. 7D discloses exemplary completed route basket processing options in accordance with at least one embodiment of the present invention.

[0022] FIG. 8A discloses functional diagrams of the exemplary apparatuses and remote resource of FIG. 4A in accordance with at least one embodiment of the present invention.

[0023] FIG. 8B discloses a timeline diagram of an exemplary interaction between a wireless apparatus, a remote resource and another apparatus in accordance with at least one embodiment of the present invention.

[0024] FIG. 8C discloses examples of information exchanged in accordance with at least one embodiment of the present invention.

[0025] FIG. 9A discloses an exemplary web interface in a first state in accordance with at least one embodiment of the present invention.

[0026] FIG. 9B discloses an exemplary web interface in a second state in accordance with at least one embodiment of the present invention.

[0027] FIG. 9C discloses an exemplary web interface in a third state in accordance with at least one embodiment of the present invention.

[0028] FIG. 10 discloses a flowchart for an exemplary process in accordance with at least one embodiment of the present invention.

DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0029] While the present invention has been described in a variety of exemplary embodiments, various changes can be made therein without departing from the spirit and scope of the invention, as described in the appended claims.

I. Wireless Communication Over Different Communication Networks

[0030] Wireless communication devices (WCD) may transmit and receive information over a wide array of communication networks, each with different advantages regarding speed, range, quality (error correction), security (encoding), etc. These characteristics may determine the amount of information that can be transferred to a receiving device and the duration of time for this information transfer. FIG. 1 includes a diagram of an exemplary WCD and how it may interact with various types of wireless technologies.

[0031] In the example pictured in FIG. 1, user 110 possesses WCD 100. This device may be anything from a basic cellular handset to a more complex device such as a wirelessly enabled palmtop or laptop computer. Close-proximity communications 130 may include various transponder-type interactions wherein normally only the scanning device requires its own power source. WCD 100 scans source 120 via short-range communication. A transponder in source 120 may utilize the energy and/or clock signal contained within the scanning signal, as in the case of RFID communication, to respond with data stored in the transponder. These types of technologies usually have an effective transmission range on the order of ten feet, and may be able to deliver stored data in amounts from a bit to over a megabit (or 125 Kbytes) relatively quickly. These features make such technologies well suited for identification purposes, such as to receive an account number for a public transportation provider, a key code for an automatic electronic door lock, an account number for a credit or debit transaction, etc.

[0032] The transmission range between two devices may be extended if both devices are capable of performing powered communication. Short-range active communication 140 includes applications wherein the sending and receiving devices are both active. An exemplary situation would include user 110 coming within effective transmission range of a Bluetooth™, WLAN, UWB, WUSB, etc. access point. In the case of Bluetooth™, a network may automatically be established to transmit information to WCD 100 possessed by user 110. The amount of information to be conveyed is unlimited, except that it must all be transferred in the time when user 110 is within effective transmission range of the access point. Due to the higher complexity of these wireless networks, additional time is also required to establish the initial connection to WCD 100, which may be increased if many devices are queued for service in the area proximate to the access point. The effective transmission range of these networks depends on the technology, and may be from some 30 ft. to over 300 ft. with additional power boosting.

[0033] Long-range networks 150 are used to provide virtually uninterrupted communication coverage for WCD 100. Land-based radio stations or satellites are used to relay various communication transactions worldwide. While these systems are extremely functional, the use of these systems is often charged on a per-minute basis to user 110, not including additional charges for data transfer (e.g., wireless Internet access). Further, the regulations covering these systems may cause additional overhead for both the users and providers, making the use of these systems more cumbersome.

II. Wireless Communication Device

[0034] As previously described, various embodiments of the present invention may be implemented utilizing a multi-

tude of wired and/or wireless communication technology. Therefore, it is important to understand the communication tools available to user **110** before exploring these exemplary embodiments. For example, in the case of a cellular telephone or other handheld wireless devices, the integrated data handling capabilities of the device play an important role in facilitating transactions between the transmitting and receiving devices.

[0035] FIG. 2 discloses an exemplary modular layout for a wireless communication device usable with the present invention. WCD **100** is broken down into modules representing the functional aspects of the device. These functions may be performed by various combinations of the software and/or hardware components discussed below.

[0036] Control module **210** may regulate operation of the device. Inputs may be received from various other modules included within WCD **100**. For example, interference sensing module **220** may use various techniques known in the art to sense sources of environmental interference within the effective transmission range of the wireless communication device. Control module **210** may interpret these data inputs, and in response, may issue control commands to the other modules in WCD **100**.

[0037] Communications module **230** incorporates all of the communication aspects of WCD **100**. As shown in FIG. 2, communications module **230** may include, for example, long-range communications module **232**, short-range communications module **234** and close-proximity communications module **236**. Communications module **230** may utilize one or more of these sub-modules to receive a multitude of different types of communication from both local and long distance sources, and to transmit data to recipient devices within the transmission range of WCD **100**. Communications module **230** may be triggered by control module **210**, or by control resources local to the module responding to sensed messages, environmental influences and/or other devices in proximity to WCD **100**.

[0038] User interface module **240** includes visual, audible and tactile elements which allow the user **110** to receive data from, and enter data into, the device. The data entered by user **110** may be interpreted by control module **210** to affect the behavior of WCD **100**. User-inputted data may also be transmitted by communications module **230** to other devices within effective transmission range. Other devices in transmission range may also send information to WCD **100** via communications module **230**, and control module **210** may cause this information to be transferred to user interface module **240** for presentation to the user.

[0039] Applications module **250** incorporates all other hardware and/or software applications on WCD **100**. These applications may include sensors, interfaces, utilities, interpreters, data applications, etc., and may be invoked by control module **210** to read information provided by the various modules and in turn supply information to requesting modules in WCD **100**.

[0040] FIG. 3 discloses an exemplary structural layout of WCD **100** according to an embodiment of the present invention that may be used to implement the functionality of the modular system previously described in FIG. 2. Processor **300** controls overall device operation. As shown in FIG. 3, processor **300** is coupled to one or more communications sections **310**, **320** and **340**. Processor **300** may be imple-

mented with one or more microprocessors that are each capable of executing software instructions stored in memory **330**.

[0041] Memory **330** may include random access memory (RAM), read only memory (ROM), and/or flash memory, and stores information in the form of data and software components (also referred to herein as modules). The data stored by memory **330** may be associated with particular software components. In addition, this data may be associated with databases, such as a bookmark database or a business database for scheduling, email, etc.

[0042] The software components stored by memory **330** include instructions that can be executed by processor **300**. Various types of software components may be stored in memory **330**. For instance, memory **330** may store software components that control the operation of communication sections **310**, **320** and **340**. Memory **330** may also store software components including a firewall, a service guide manager, a bookmark database, user interface manager, and any communication utilities modules required to support WCD **100**.

[0043] Long-range communications **310** performs functions related to the exchange of information over large geographic areas (such as cellular networks) via an antenna. These communication methods include technologies from the previously described 1G to 3G. In addition to basic voice communication (e.g., via GSM), long-range communications **310** may operate to establish data communication sessions, such as General Packet Radio Service (GPRS) sessions and/or Universal Mobile Telecommunications System (UMTS) sessions. Also, long-range communications **310** may operate to transmit and receive messages, such as short messaging service (SMS) messages and/or multimedia messaging service (MMS) messages. Various IP protocols may also be included in the long-range communication network category.

[0044] As a subset of long-range communications **310**, or alternatively operating as an independent module separately connected to processor **300**, transmission receiver **312** allows WCD **100** to receive transmission messages via mediums such as Digital Video Broadcast for Handheld Devices (DVB-H). These transmissions may be encoded so that only certain designated receiving devices may access the transmission content, and may contain text, audio or video information. In at least one example, WCD **100** may receive these transmissions and use information contained within the transmission signal to determine if the device is permitted to view the received content.

[0045] Short-range communications **320** is responsible for functions involving the exchange of information across short-range wireless networks. As described above and depicted in FIG. 3, examples of such short-range communications **320** are not limited to Bluetooth™, WLAN, UWB and Wireless USB connections. Accordingly, short-range communications **320** performs functions related to the establishment of short-range connections, as well as processing related to the transmission and reception of information via such connections.

[0046] Close-proximity communications **340**, also depicted in FIG. 3, may provide functionality related to the short-range scanning of machine-readable data. For example, processor **300** may control components in close-proximity communications **340** to generate RF signals for activating an RFID transponder, and may in turn control the reception of signals from an RFID transponder. Other examples of technologies for scanning machine-readable data that may be implemented in close-proximity communications **340** may

include RFID functionality corresponding to Near field communication (NFC), IR communication, linear and 2-D (e.g., QR) bar code readers (including processes related to interpreting UPC labels), and optical character recognition devices for reading magnetic, UV, conductive or other types of coded data that may be provided in a tag using suitable ink. In order for close-proximity communications **340** to scan various types of machine-readable data, the input device may include optical detectors, magnetic detectors, CCDs or other sensors known in the art for interpreting machine-readable information.

[0047] As further shown in FIG. 3, user interface **350** is also coupled to processor **300**. User interface **350** facilitates the exchange of information with a user. FIG. 3 shows that user interface **350** includes a user input **360** and a user output **370**. User input **360** may include one or more components that allow a user to input information. Examples of such components include keypads, touch screens, and microphones. User output **370** allows a user to receive information from the device. Thus, user output portion **370** may include various components, such as a display, light emitting diodes (LED), tactile emitters and one or more audio speakers.

Exemplary displays include liquid crystal displays (LCDs), and other video displays.

[0048] WCD **100** may also include one or more transponders **380**. This is essentially a passive device that may be programmed by processor **300** with information to be delivered in response to a scan from an outside source. For example, at least one RFID scanner (or in a more specific scenario, at least one RFID scanner that may be configurable to communicate utilizing NFC) may be mounted in an entryway may continuously emit radio frequency waves. When a person with a device containing transponder **380** walks through the door, the transponder is energized and may respond with information identifying the device, the person, etc.

[0049] Hardware corresponding to communications sections **310**, **312**, **320** and **340** provide for the transmission and reception of signals. Accordingly, these portions may include components (e.g., electronics) that perform functions, such as modulation, demodulation, amplification, and filtering. These portions may be locally controlled, or controlled by processor **300** in accordance with software communication components stored in memory **330**.

[0050] The elements shown in FIG. 3 may be constituted and coupled according to various techniques in order to produce the functionality described in FIG. 2. One such technique may link separate hardware components corresponding to processor **300**, communications sections **310**, **312**, **320** and **340**, memory **330**, user interface **350**, transponder **380**, etc. together via one or more wired or wireless bus interfaces. Alternatively, any and/or all of the individual components may be replaced by an integrated circuit in the form of a programmable logic device, gate array, ASIC, multi-chip module, etc. programmed to replicate the functions of the stand-alone devices. In addition, each of these components is coupled to a power source, such as a removable and/or rechargeable battery (not shown).

[0051] The user interface **350** may interact with a communication utilities software component, also contained in memory **330**, which provides for the establishment of service sessions using long-range communications **310** and/or short-range communications **320**. The communication utilities component may include various routines that allow the recep-

tion of services from remote devices according to mediums such as the Wireless Application Medium (WAP), Hypertext Markup Language (HTML) variants like Compact HTML (CHTML), etc.

III. An Exemplary Interaction Scenario

[0052] An exemplary scenario is shown in FIG. 4 that will further be utilized to explain various embodiments of the present invention. Implementation of the present invention is not strictly limited to the various embodiments disclosed herein, and may be established using a multitude of configurations. In particular, various embodiments of the present invention may be implemented with various wireless-enabled apparatuses communicating using different wireless communication mediums. Disclosed devices and/or mediums are for explanation purposes only.

[0053] FIG. 4 discloses a confusing scenario being experienced by user **110**. User **110** is attempting to plan travel, but is being overwhelmed by the number of contingencies involved in planning this trip. As shown in FIG. 4, the entire trip may begin at **402** and end at **404**. However, during the course of travel various aspects **406** of the trip must be accounted for. User **110** would like to visit a number of places/events, which in this example may include landmarks, historical areas, museums, festivals, fairs, etc. During visits to these places/events, user **110** wants to know the worthwhile dining establishments, for example, based on other user's reviews. Like most travelers, user **110** wants to know the best route between destinations, as well as the routes to avoid, based for example on the comments of other travelers. Finally, as is the case with most travelers, user **110** has a limited time period in order to account for the above criteria.

[0054] Various embodiments of the present invention may include at least a system for formulating composite information based on various data items. The elements of the system such as applications, data items (also identified herein as points-of-interest) may reside on one or more apparatuses coupled via wired and/or wireless communication. An exemplary apparatus arrangement usable in accordance with at least one embodiment of the present invention is disclosed in FIG. 5. Exemplary wireless apparatus **500**, may include any and/or all of the modules, components, functionality, etc. described with respect to exemplary WCD **100**. Wireless apparatus **500** may participate in various interactions with remote resource **520**. Remote resource **520** in this example may include one or more networked computing resources (e.g., computers, file servers, routers, modems, etc.) having an Internet webpage interface that is accessible via a wired or wireless link. These access methods may include, for example, a long-range wireless data connection (e.g., cellular communication) may be established directly with a service provider in order to access the Internet, a short-range connection established to an access point using a medium like Bluetooth™, WLAN, etc., a wired link via Ethernet, Firewire, etc.

[0055] Other apparatuses may also access remote resource **520** via the aforementioned examples of wired and/or wireless connection. For example, a computing device (e.g., a laptop computer) **560** is shown accessing remote resource **520** via a web browser. The web browser is configurable to display the Internet webpage interface of remote resource **520** so that a user of apparatus **560** can interact with various resources residing in remote resource **520**. Both wireless apparatus **500** and other apparatus **560** may send information to, as well as receive information from remote resource **520**.

In this example, a website www.ovi.com has been used to represent remote resource **520**. This website, created and supported by Nokia Corporation, is a central repository via which users can share information (pictures, multimedia, etc.) or obtain information (e.g., maps, music, games, etc.) that may be stored or formulated according to user configuration. While this particular website has been used for the sake of example in explaining the various embodiments of the present invention, the invention is not specifically limited to the disclosed implementation.

IV. Exemplary Resources for Supporting Information Sharing.

[0056] FIG. 6 discloses an exemplary collection of points-of interest usable with various embodiments of the present invention. Source collection **600** may be the result of, for example, a query defined by a user in a map and/or route creation application residing on an apparatus or available via the Internet. For example, an application may utilize information defined by user interaction (e.g., via an application user interface) to formulate results that may be composed of some or all of the user-defined information. In this example, composite results may include terrain or transportation-related maps (e.g., driving, train, etc.), routes, directions, etc. However, map and/or route creation is only one use to which various embodiments of the present invention may be applied, and therefore, this exemplary use is not intended to limit the present invention.

[0057] Initially, source collection **600** may be named in accordance with the process that created it. In this example the source collection has been assigned the generic name “XYZ.” Further, the title bar of source collection **600** may also include additional information, such as the number of POIs **610** returned from the process that created source collection **600**. In the particular example disclosed herein, user **110** may define a geographic area, a type of food, an estimated meal cost, a rating level, etc. that results in the POIs **610** in source collection **600**. POI **610** may include, for example, an ordinal value, a symbol **612** identifying the type of POI. The ordinal value for POI **610** may, for example, indicate the level of relevance the data item has with regard to the query parameters configured by user **110** in order to create source collection **600**. In source collection **600**, all POIs **610** have a symbol **612** indicating that they are dining establishments. However, the various embodiments of the present invention are not limited only to this type of POI. More specifically, examples of other POIs that may be queried according to the present example are shown in table **620**. A user may also create “custom” POIs by inputting data like name, location, address, type, description, etc. into a template. In various embodiments of the present invention, a simple form of source collection may comprise a user-viewable map format. With this configuration POIs may be displayed on the map for a user to select and drag to the basket. Further, it may be possible to activate different kinds of POI “layers” for display which may present different POI categories, like restaurants, transportation, shopping, etc.

[0058] POI **610** may also include identification and location information **614** comprising data such as the name of the POI, the address, directions, contact information such as telephone numbers, email, website information, etc. It is important to note that not all of identification and location information **614** may be readily available to a user. For example, some location-related data (e.g., longitude/latitude coordinates,

cell IDs, etc.) may exist within the POI data structure but would not be visible during normal user interaction. Identification and location information **614** may further be accompanied by one or more signals **616**. These signals may indicate, for example, that additional information is available in relation to the particular POI **610**. In the disclosed example, “R” may indicate that user review information is available for the particular POI **610**. In addition, both the source collection **600** and each POI **610** may include one or more controls typically associated with a window-based software architecture. For example, a close control “X” for removing a POI **610** or for closing the entire source collection **600**.

V. Source Collection Basket Interaction.

[0059] FIG. 7A-7C discloses an interaction example between source collection **600** and a basket component **700**. In accordance with the example being utilized for explanation herein, basket component **700** shown in FIG. 7A is a route basket for accumulating travel-related data items. As described within route basket **700**, a user may browse and search for POIs **610** for the active trip, and then drag any results of interest into route basket **700**. Once all desired POIs **610** have been added to route basket **700**, the “process route” button **702** may be clicked, triggering the travel application to formulate a composite result including all of the POIs **610**.

[0060] Now referring to FIG. 7B, an example of “dragging” a data item from source collection **600** is disclosed. Dragged POI **710** may be moved from source collection **600** to route basket **700** using a typical click, hold, drag and release action as generally known in the art of computer input devices. In at least one embodiment of the present invention, simply moving cursor **712** over a POI **610** may cause descriptive information to be displayed to user **110**. For example, moving the cursor over (e.g., “mouse-over”) POI **610** may trigger a pop-up box to become visible including a brief summary of available descriptive information pertaining to the data item. In at least one exemplary configuration, only part of the descriptive information may be selectable, and this selectable part may be available for drag-and-drop, or would be desirable to drag-and-drop. Further, selecting (e.g., “clicking on”) POI **610** may display the entire body of information previously summarized with respect to the exemplary “mouse-over” operation.

[0061] FIG. 7C takes the exemplary interaction of FIG. 7B further by showing an example of a fully complete route basket **700**. In the particular scenario disclosed, queries **710** may yield a number of difference source collections **600** (e.g., query results). Items from each of these queries may be utilized to build a complete assortment of data, which may be processed into a composite output include at least some elements of all POIs **720-728**. In this example, user **710** has defined a travel itinerary. User **110** may initiate travel with an airplane flight, which is why the first POI **702** is the arrival airport. After user **110** lands in the area of travel, a meal represented by dining POI **722** may be followed by a trip to a hotel at **724** (e.g., to drop off luggage). User **110** may then plan tourist activities including, for example, visiting a boat dock at POI **726**, followed by a band concert at an amphitheater represented by POI **728**. In at least one configuration, if the number of POIs **610** exceeds the display size of route basket **700**, then user **110** may click the “Next Page” button **730** in order to continue adding POIs **610** to route basket **700**. Once all desired data items have been added to route basket **700**, processing of the POIs **610** in route basket **700** may be

triggered by pushing “Process Route” button **702**. In accordance with at least one embodiment, certain configurations of the present invention may only allow one route basket to be modified at time. However, users may create and store several alternative POI collections based on, for example, the time available for completing the route.

[0062] Initiating route processing may, in accordance with at least one embodiment of the present invention, prompt a choice of preferred output processing. FIG. 7D discloses an exemplary display of output processing options. For example, a user may simply display the resulting composite output (e.g., the route) by clicking on **740**. However, if a user wants to save the formulated route information and/or the contents of route basket **700** (e.g., as a collection), then clicking on **742** may offer options for configuring saving functionality. Alternatively, users may want to provide some or all of this information to other users. In situations where, for example, the other users to receive the information are specific, clicking on **744** may provide options for entering address information for transmitting route and/or collection information via email, SMS, etc. Route and/or collection information may also be configured for “sharing” by clicking **746** so that other users (e.g., registered with a remote resource) may also access the information. An exemplary sharing architecture and configuration are described further below.

VI. Sharing Information with Other Users.

[0063] In accordance with at least one embodiment of the present invention, FIG. 8A now discloses examples of functional configurations that may be utilized in apparatus **500**, remote resource **520** and other apparatus **560**. Apparatus **500** may include elements **502-518** implemented in software and/or hardware form. Map application (MA) **502** is an example of an user-configurable software interface for obtaining location and/or map information from, or for providing similar information to, remote resource **420** (e.g., www.ovi.com). For example, users may request information (e.g., directions, estimated time, traffic conditions, etc.) pertaining to a desired travel route by configuring a request using MA **502**. An exemplary request configuration may include a user setting parameters in a software interface in order to obtain a desired output. MA **502** may then access map operating services application programming interface (MOS API) **504** to compute maps, location, direction or other related informational tasks. While various embodiments of the present invention are discussed herein in terms of exemplary map and/or location applications, this particular usage has been selected for the sake of explanation only, and is not intended to be limiting the disclosed embodiments to only being applied in this manner.

[0064] After a request has been configured by a user, MA **502** may utilize resources in apparatus **500** to access internal information, and/or may request information from an external source, in order to formulate a response to the request. The output information formulated in response to user configuration of MA **502** may, in some instances, be beneficial or desirable to other users of remote resource **520**. In accordance with at least one embodiment of the present invention, information may be shared using synchronization elements **506-514** in apparatus **500**.

[0065] Synchronization interface **506** may provide access to applications residing on apparatus **500** (e.g., MOS API **504**) for sending information to, or receiving information from, the exemplary synchronization architecture disclosed in FIG. 8A. As part of this functionality, synchronization interface **406** may interact with synchronization elements

supporting specific operations like information storage and communication. For example, shared data storage **512** and database **514** may incorporate software and/or hardware components usable for the storage of information used in a data sharing process in accordance with various embodiments of the present invention. Database (DB) **514** may contain, for example, search index data and/or actual stored information that is being made available to (“shared with”) other users of remote resource **520**. Synchronization communication **508** may further provide access, via messaging **510**, for the transmission and reception of synchronization requests, commands and other information related to the synchronization system, such as information regarding data that is being shared.

[0066] Remote resource **520** may include exemplary elements **528-538** configured to support synchronization messaging, web browser access over an Internet connection, and sharing information amongst the users of remote resource **520** via wired and/or wireless communication. Initially connection to remote resource **520** may be controlled via authentication **522**. This module may verify identification and/or security information for apparatuses, users, applications, etc. that attempt to connect to, or request information from, remote resource **520**. Authentication **522** may, for example, verify the identity of entities connecting to synchronization server **528** via server synchronization **530**, or from other apparatus **560** connecting to web server **524** using, for example, web browser **562**. Web server **524**, aside from granting general access to remote resource **520**, may allow web browser **562** to connect to search server **526**. Web server **524** and Search server **526** may, for example, utilize content access **532** to make search inquiries with data manager **534** in synchronization server **528** regarding shared information. For example, web browser **562** may directly access shared information via web server **524**, while search server **526** may provide the ability to search for shared information in accordance with search parameters set in web browser **562**.

[0067] Data manager **534** may also be accessed via server synchronization **530**. This direct access may allow for synchronization of information in DB **414** and DB **538** (e.g., via shared data storage interface **536**). Synchronization may ensure that data manager **534** has the most recent information regarding resources being shared by apparatuses enabled to access remote resource **520** (e.g., apparatus **500**). Data stored in these apparatuses (e.g., apparatus **500**) may also be accessed by querying global identifier information maintained in remote resource **520** (e.g., in DB **538** and/or data manager **534**). For example, search server **526** may query data manager **534** (e.g., via content access **532**) in order to determine what information is available on remote resource **520**, as well as on apparatuses enabled to access remote resource **520** (e.g., apparatus **500**). When desired information is located, remote resource **520** may respond with the desired information, global identifier information, etc. to the searching entity (e.g., other apparatus **560**). The global identifier information may allow the inquiring apparatus to access the desired information at the source, request the transmission of the information, etc.

[0068] FIG. 8B discloses a timeline laying out exemplary transactions between devices that may share information in accordance with at least one embodiment of the present invention. This examples include apparatus **500** (e.g., a device including some or all of the functionality of WCD **100**), remote resource **540** and other apparatus **560**. Initially,

in FIG. 8B a web-integrated service is activated in apparatus 500 at 800. While a web-integrated service is used in FIG. 8B, the embodiments of the present invention do not require use of this particular type of application.

[0069] After the application is activated, activity in apparatus 500 may result in the formulation of a data request at 802 to remote resource 540. For example, a user may configure the application to formulate composite data based on a plurality of POIs 610, and in order to fulfill this request, some or all of POI information may be requested from remote resource 540. At 804, apparatus 500 may send a data request to remote resource 540. The data request may trigger the accessing of databases in remote resource 540, computation, etc. in order to produce the resulting composite information, which may then be sent back to apparatus 500 for eventual presentation to the user. The information sent by remote resource 540 may also include global identifier information (e.g., Global ID).

[0070] A user may then decide to share some or all of the information resulting from the requested execution of the web-integrated service application. When being used internally to an apparatus, information need only be identified by a local identifier. A local identifier (e.g., Local ID) is an identifier known only to apparatus 500, and therefore, is not recognized by other apparatuses. However, as set forth above, remote resource may provide global identifier information with the information returned to apparatus 500. Apparatus 500 may then modify identification information corresponding to the information to be shared based on the global identifier information. Identification information for the shared information may be modified, for example, by replacing the Local ID with a Global ID, appending Global identification information to Local ID, cross-referencing the local ID to a Global ID in apparatus 500, etc.

[0071] Other apparatus 560 (e.g., another device including computing capabilities such as a laptop computer coupled to the Internet via wired or wireless communication) may desire to access previously created information at 808. Shared information may be attractive to a user due to, for example, the desire to obtain previously unknown information, speed, time and processing savings in avoiding reformulation of the same information, descriptive material corresponding to the material, etc. In terms of the previous exemplary scenario, a user review of a mapped route may reside in remote resource 540 along with related global identifier information. This review may state, for example, that shared information pertains to a route for a trip that was extremely enjoyable. As a result, other users may want to access this information from apparatus 400.

[0072] Access to the previously created information may be requested in the transaction of 810. For example, other apparatus 560 may transmit a wireless message requesting access to apparatus 400. This request may include, for example, identification information confirming that other apparatus 560 (user, application, etc.) is allowed to access shared information. Apparatus 500 may then respond by granting access to other apparatus 560, sending the shared information (e.g., via wireless communication), etc. The above transaction may assume that other apparatus 560 knows the identification (e.g., the Global ID and location) of the desired information.

[0073] In accordance with the previously described exemplary sharing architecture, FIG. 8C discloses a scenario where information may be shared in terms of the example

initially set forth in FIG. 4. Apparatus 500 and other apparatus 560 may compose data (or configure collection information) at 820 and 840, respectively, that may later be shared. This data may include, for example, POIs 610 saved during a routing session (e.g., saved in the form of a data collection), or the resulting composite data. Further, both devices may search for and access previously compiled data at 822 and 842. While apparatus 500 may automatically obtain and deliver shared information via a synchronization process such as previously described, other apparatus 560 may access and request this information via, for example, a web browser linked to remote resource 520 via an Internet connection.

VII. Example Display in a Web Browser.

[0074] FIG. 9A discloses a webpage example at 900. A source collection pertaining to “Bars & Pubs” is being viewed for possible addition to a Route Basket. One POI, “St. John,” has already been added to the route basket. In addition, a user is viewing additional descriptive information related to “St. John” by selecting the POI in the “Bars & Pubs” source collection.

[0075] FIG. 9B includes a later state of the webpage example now at 902. Here the user is now viewing another POI, “Vinoteca.” In various embodiments of the present invention, a user may obtain information related to “Vinoteca” simply by placing the cursor over the POI, or alternatively, selecting the POI. Exemplary descriptive information shown may include name, address information and other data handling options related to mapping (e.g., determining coordinates for a POI).

[0076] In FIG. 9C at 904, the “Vinoteca” POI has now been added to the route basket. If this completes the list of POIs for the particular “St. John Route” collection, then the user may press the “show route details” button. This action may, in accordance with various embodiments of the present invention, cause the Application to process the data items in the route basket. In at least one embodiment of the present invention, routes may be shown on the map by illustrating a path of travel between POIs 610 in the route basket. Further, arrows in the route of display 904 may indicate a destination and/or direction of the movement of the user towards a POI 610.

[0077] A flow chart in accordance with at least one embodiment of the present invention is now disclosed with respect to FIG. 10. In step 1000 an application may be accessed. The exemplary application, used only for the sake of explanation herein, may be an application for “map and/or route creation.” For example, a route basket may serve as a receptacle into which POIs are placed (e.g., via drag and drop interaction) in order to formulate a route between all of the “dragged” POIs. Outputs from the application may include, for example, the formulation of various maps and/or routes consolidating some or all of the dragged POI data. Further, the POI information added to the route basket may be saved as a collection of data accessible by the user (e.g., for revising), or possibly for other users if a determination is made to share the collection.

[0078] In step 1002 a determination may then be made as to whether to start a new data collection. If a new data collection is desired (e.g., in the case of starting a new travel plan) then the process may move to step 1004 where a new route basket is created. However, if the user does not want to create a new collection in step 1002, then in step 1004 a determination may be made as to whether there are any existing collections. If there are no existing collections then the process may not

continue, and it may reset by returning to step **1000**. However, if at least one existing collection exists then in step **1008** a collection may be loaded and the process may move to step **1010**. If more than one collection exists, the process may loop in step **1008** until the desired collection is loaded, or no collection is loaded, which returns the process to step **1000** to restart.

[0079] Given either a new collection or an existing collection, in step **1010** POI information may be obtained or loaded. Obtaining POI information may include, for example, a user inputting a query which generates a source collection in accordance with the parameters configured by the user. In another instance, a user's previous source collections may still exist, and these may be loaded, for example, when the existing collection is loaded. In step **1012** a user may select a POI. If no POI is selected, then a case may exist where additional searching must be done to obtain the desired POI, and therefore the process returns to step **1010**. If a POI is selected, then in step **1014** descriptive information for the selected POI may be displayed.

[0080] A user must then decide in step **1016** whether to drag the selected POI into the collection. If the user does not desire to include the selected POI, then the process may return to step **1012** for another selection. However, if the user desires to include the POI then it may be added. In step **1018** an inquiry is then made as to whether all of the desired POIs have been added. If not all the POIs have been added, then on-chart reference **1020** may return to on-chart reference **1022** to obtain and/or display new POI information. However, if the route is complete then the user may trigger formulation of the composite result (e.g., via clicking on a button to proceed), and the results may be displayed, stored, transmitted, shared, etc. in step **1024**.

[0081] It is foreseeable that, in some instances, users may not be satisfied with the result outputted by the application, or that a process parameter may have changed (e.g., a mode of transportation, a POI, a time, etc.), and therefore, that the application should be reconfigured and rerun. In step **1026** a determination may be made as to whether reconfiguration is necessary. If a decision to reconfigure is approved, then in step **1004** the route basket for the active collection may be redisplayed, and the process may continue on from this point as previously described. If no change is deemed to be required in step **1026**, and no further formulation is required from the application, then in step **1028** the process may end and return to step **1000**. Alternatively, the process may return to step **1002** in order to edit a new collection, or load an existing collection.

[0082] In at least one exemplary embodiment of the present invention, the selection order of "dragged" POIs **610** may be retained and preserved in route basket **700** so that the data items appear in the order as selected by the user. In conjunction with the above, or in accordance with another exemplary embodiment of the present invention, when the map application is executing on an apparatus including a touch screen, touching a POI **610** may automatically copy it into route basket **700**, if, for example, an "add to route basket" mode is activated in the apparatus.

[0083] Accordingly, it will be apparent to persons skilled in the relevant art that various changes in form and detail can be made therein without departing from the spirit and scope of the invention. The breadth and scope of the present invention should not be limited by any of the above-described exem-

plary embodiments, but should be defined only in accordance with the following claims and their equivalents.

What is claimed is:

1. A method comprising:

presenting, via a graphical user interface, one or more data items specifying points-of-interests of a user;
selecting the one or more data items to obtain descriptive information about the respective data items;
dragging the one or more data items into a basket component that visually represents the selected data items;
generating composite information using the data items dragged in the basket component; and
initiating storage of the composite information to a remote resource for sharing the composite information with one or more devices associated with the user.

2. The method of claim **1**, further comprising:

initiating storage of the data items to the remote resource for sharing the data items with the one or more devices.

3. The method of claim **2**, wherein the sharing of the data items is part of a synchronization function that permits the sharing of the data items with a plurality of subscribers.

4. The method of claim **1**, wherein the data items relate to a map application, the method further comprising:

determining to display a map containing the data items for selection by the user; and

presenting a button that, upon activation by the user, initiates the generation of the composite information, wherein the composite information represents a route associated with the map for the selected data items.

5. The method of claim **1**, wherein a first one of the devices provides the graphical user interface for the selection of the data items, and a second one of the devices retrieves the composite information from the remote resource.

6. The method of claim **1**, further comprising:

generating a request to obtain one of the data items from the remote resource from a corresponding one of the devices to generate the composite information.

7. The method of claim **1**, wherein order of the data items to be processed is in accordance with the selection order of the dragged data items into the basket component.

8. An apparatus comprising:

at least one processor; and

at least one memory including computer program code for one or more programs,

the at least one memory and the computer program code configured to, with the at least one processor, cause the apparatus to perform at least the following,

present, via a graphical user interface, one or more data items specifying points-of-interests of a user;

select the one or more data items to obtain descriptive information about the respective data items;

drag the one or more data items into a basket component that visually represents the selected data items;

generate composite information using the data items dragged in the basket component; and

initiate storage of the composite information to a remote resource for sharing the composite information with one or more devices associated with the user.

9. An apparatus of claim **8**, wherein the apparatus is further caused to:

initiate storage of the data items to the remote resource for sharing the data items with the one or more devices.

10. An apparatus of claim **9**, wherein the sharing of the data items is part of a synchronization function that permits the sharing of the data items with a plurality of subscribers.

11. An apparatus of claim **8**, wherein the data items relate to a map application, the apparatus is further caused to:
determine to display a map containing the data items for selection by the user; and
present a button that, upon activation by the user, initiates the generation of the composite information, wherein the composite information represents a route associated with the map for the selected data items.

12. An apparatus of claim **8**, wherein a first one of the devices provides the graphical user interface for the selection of the data items, and a second one of the devices retrieves the composite information from the remote resource.

13. An apparatus of claim **8**, wherein the apparatus is further caused to:
generate a request to obtain one of the data items from the remote resource from a corresponding one of the devices to generate the composite information.

14. An apparatus of claim **8**, wherein order of the data items to be processed is in accordance with the selection order of the dragged data items into the basket component.

15. A non-transitory computer-readable storage medium carrying one or more sequences of one or more instructions which, when executed by one or more processors, cause an apparatus to at least perform the following steps:

present, via a graphical user interface, one or more data items specifying points-of-interests of a user;
select the one or more data items to obtain descriptive information about the respective data items;
drag the one or more data items into a basket component that visually represents the selected data items;

generate composite information using the data items dragged in the basket component; and
initiate storage of the composite information to a remote resource for sharing the composite information with one or more devices associated with the user.

16. A computer-readable storage medium of claim **15**, wherein the apparatus is further caused to:
initiate storage of the data items to the remote resource for sharing the data items with the one or more devices.

17. A computer-readable storage medium of claim **16**, wherein the sharing of the data items is part of a synchronization function that permits the sharing of the data items with a plurality of subscribers.

18. A computer-readable storage medium of claim **15**, wherein the data items relate to a map application, the apparatus is further caused to:

determine to display a map containing the data items for selection by the user; and
present a button that, upon activation by the user, initiates the generation of the composite information, wherein the composite information represents a route associated with the map for the selected data items.

19. A computer-readable storage medium of claim **15**, wherein a first one of the devices provides the graphical user interface for the selection of the data items, and a second one of the devices retrieves the composite information from the remote resource.

20. A computer-readable storage medium of claim **15**, wherein the apparatus is further caused to:
generate a request to obtain one of the data items from the remote resource from a corresponding one of the devices to generate the composite information.

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