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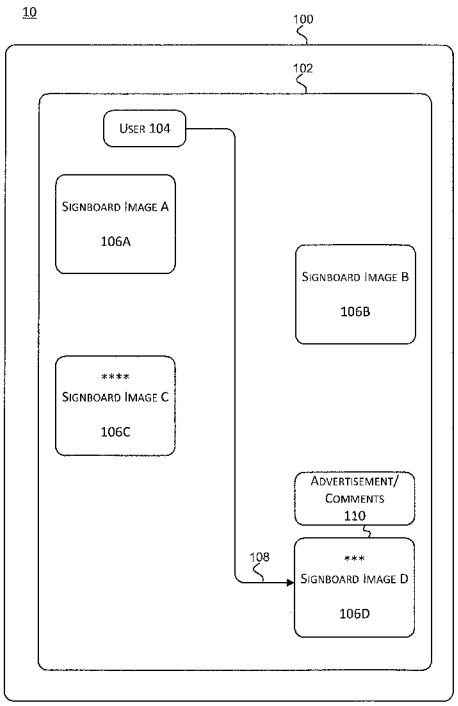

FIG. 1

(57) Abstract: Technologies are generally described for methods, instructions, and applications for landmark-based mapping. In some examples, a computer-readable medium for a landmark-based mapping may store one or more executable instructions that, when executed, cause one or more processors to register a user's profile, receive a requested destination, execute a personalized service by utilizing at least one of plural stored signboard images, and display results of the executed service relative to the requested destination.

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LANDMARK-BASED MAPPING

BACKGROUND

[0001] Web mapping includes the generation and delivery of maps via the Internet, to personal computers (PC) and mobile computing devices such as, *e.g.,* laptop computers, tablet/slate devices, personal digital assistants (PDAs), global positioning system (GPS) devices, mobile phones, and smart phones. Web mapping that is implemented on mobile devices may exploit location-based services, which make use of the geographical position of the mobile computing device to locate another mobile device user, an object, or even a place of commerce.

SUMMARY

[0002] In at least one example, a computer-readable medium for landmark-based mapping is generally described. In such examples, the computer-readable medium may store one or more executable instructions that, when executed, cause one or more processors to register a user's profile, receive a requested destination, execute a personalized service by utilizing at least one of plural stored signboard images, and display results of the executed service relative to the requested destination.

[0003] The foregoing summary is illustrative only and is not intended to be in any way limiting. In addition to the illustrative aspects, embodiments, and features described above, further aspects, embodiments, and features will become apparent by reference to the drawings and the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] The foregoing and other features of this disclosure will become more fully apparent from the following description and appended claims, taken in conjunction with the accompanying drawings. Understanding that these drawings depict only several embodiments in accordance with the disclosure and are, therefore, not to be considered limiting of its scope, the disclosure will be described with additional specificity and detail through use of the accompanying drawings, in which:

[0005] FIG. 1 shows an example interface upon which services associated with landmark-based mapping may be implemented;

[0006] FIG. 2 shows an example communication model between a web mapping service and a client device to implement at least one example embodiment of landmark-based mapping;

[0007] FIG. 3 shows a processing flow for an example implementation of landmark-based mapping; and

[0008] FIG. 4 shows a block diagram illustrating an example computing device by which various examples and embodiments of the landmark-based mapping described herein may be implemented.

DETAILED DESCRIPTION

[0009] In the following detailed description, reference is made to the accompanying drawings, which form a part of the description. In the drawings, similar symbols typically identify similar components, unless context dictates otherwise. Furthermore, unless

otherwise noted, the description of each successive drawing may reference features from one or more of the previous drawings to provide clearer context and a more substantive explanation of the current example embodiment. Still, the example embodiments described in the detailed description, drawings, and recited in the claims are not meant to be limiting. Other embodiments may be utilized, and other changes may be made, without departing from the spirit or scope of the subject matter presented herein. It will be readily understood that the aspects of the present disclosure, as generally described herein, and illustrated in the Figures, may be arranged, substituted, combined, separated, and designed in a wide variety of different configurations, all of which are explicitly contemplated herein.

[0010] FIG. 1 shows an example interface 100 upon which services associated with landmark-based mapping may be implemented. As depicted, a device 10 includes interface 100, which shows a map 102 having graphic representations thereon of a user 104, signboard images 106A - 106D, a route 108, and an advertisement/comments 110.

[0011] Device 10, upon which example embodiments of landmark-based mapping may be implemented, may include a computing device such as a personal computer (PC) though more likely a mobile device, *e.g.,* laptop computer, tablet/slate device, personal digital assistant (PDA), global positioning system (GPS) device, mobile phone, or smart phone. Further, device 10 may be communicatively coupled to a web mapping service via, *e.g.,* a hard-wired Internet connection or, more likely, a wireless local area network technology (WLAN), *e.g.,* Wi-Fi. Alternatively, device 10 may be implemented as a self-contained device, by which the components, features, and services described regarding the web mapping service, may be implemented as part of an application or program hosted on device 10.

[0012] Interface 100 may be implemented as at least part of a graphical user interface (GUI) by an application or program hosted on device 10 having executable instructions to facilitate user interaction.

[0013] Map 102 may be displayed in the form of web pages or static or dynamic images that include high-resolution satellite images, aerial view images, street view images, or even graphic representations in either two-dimensions (2-D) or three-dimensions (3-D), depending upon the user interface capabilities. Map 102 may depict a present location, or desired starting point, for a user of device 10; a route to a destination requested by the user; signboard images corresponding to places of business or points of interest at, near, or along the route to, the requested destination; and advertisements or social media commentaries for one or more of the aforementioned places of business or points of interest.

[0014] User 104 may refer to a graphic icon to represent a geographic placement of the user of device 10 relative to other displayed features on map 102. The geographic placement of the user may include either the present geographic location of the user of device 10 or another specified reference point specified by the user. The graphic depiction of user 104 on map 102 may be based upon data received from the web mapping service or, alternatively, upon data geographic data entered at device 10.

[0015] Signboard image A 106A, signboard image B 106B, signboard image C 106C, and signboard image D 106D may refer to signboard images that are stored at either of the web mapping service or on device 10, and are displayed on map 102 to represent one or more places of business or points of interest that may be worthy of the user's consideration at, near, or along the route to, the requested destination. Signboard images 106A - 106D

may be collectively referred to as "signboard images 106," particularly when describing the implementation of various features associated with landmark-based mapping and, therefore, reference to the quantity thereof is not paramount. Further, signboard images 106 may vary in quantity, placement, or even manner of depiction on map 102. For example, a display of any one of signboard images 106 may include an actual scaled photograph of the respective signboard image, from either a web page or a static or dynamic image, or the display may include an icon representation or substitute thereof.

[0016] Highlighting of signboard image D 106D, located at the requested destination, may be graphically depicted in various forms, such as a bold font, a stand-out color, or, as depicted in the example of FIG. 1, a star-rating. Signboard image D 106D may be further highlighted by an accompanying display of a corresponding advertisement or social media comments or reviews for the place of business or point of interest located at the requested destination.

[0017] Because signboard image D 106D corresponds to the place of business or point of interest at the requested destination, it may be displayed and highlighted as a default action. However, alternative embodiments of landmark-based mapping may include signboard image D 106D being displayed and/or highlighted if a description of the corresponding place of business or point of interest matches at least one feature of a pre-registered profile for the user of device 10.

[0018] Route 108 may refer to a graphic representation of directions from user 104 to the place of business or point of interest at the requested destination. Route 108 may be accompanied by, or even replaced by, textual directions to show the user of device 10 one or more routes from user 104 to the requested destination.

[0019] Advertisement/comments 110 may refer to advertisements or social media comments or reviews for a place of business or point of interest located at, near, or along the route to, the requested destination from user 104. Advertisements/comments 110 may be displayed as a graphic "pop-up" display, in a new window, or in some other graphic manner that indicates the relationship thereof to the respective place of business or point of interest. Further, advertisements/comments 110 may be displayed for one or more of the displayed signboard images 106, dependent upon factors including, but not limited to, a match between a description of a respective place of business or point of interest and one or more features of a personal profile of the user of device 10, a business model of implementers of the web mapping service by which revenue is generated by advertisement placements, or other customized preferences.

[0020] **FIG. 2** shows an example communication model 200 between a web mapping service 202 and client device 10 to implement at least one example embodiment of landmark-based mapping.

[0021] Device 10 may be communicatively coupled to web mapping service 202 via, *e.g.,* a hard-wired Internet connection or, more likely, a wireless local area network technology (WLAN), *e.g.,* Wi-Fi; however, device 10 may also be implemented as a self-contained device, by which the components, features, and services attributed to web mapping service 202 may be implemented as part of an application or program hosted on device 10. Therefore, the description of communication model 200 may refer to, at least, either of the embodiments of web mapping system 202 or device 10, unless otherwise noted. Thus, the references to the features having similar functionality in the embodiments of web mapping service 202 and device 10 are referenced in combination.

[0022] Communication model 200 may include web mapping service 202, which, as depicted, includes an image database 204, a profile database 206, a map generator 208, a search filter 210, and an interface 212; and device 10, as depicted, includes an image database 214, a profile database 216, a map generator 218, a search filter 220, and an interface 100. Device 10 is also depicted as displaying map 102. Further, the components of web mapping service 202 and device 10, which are not necessarily inclusive of all such components, may be implemented as software, firm, ware, hardware, or any combination thereof.

[0023] Image database 204/214 may be configured to store signboard images 106. Signboard images 106 may be cataloged in accordance with one or more criteria including but certainly not limited to, geography and other user demographics. Each of respective signboard images 106 may be stored as, *e.g.,* an actual scaled photograph or photo icon of the respective signboard image, from either a web page or a static or dynamic image, or any combination of 2-D and 3-D high-resolution satellite images, aerial view images, or street view images thereof. The sources of stored signboard images 106 may be varied, including any combination of public domain catalogs, third-party vendors, business owners, and social media outlets.

[0024] Image database 204 at web mapping service 202 may be further configured as a middleware server to connect web mapping service 202 to a web-based media service, *e.g.,* a web advertising service or a social media network. Such web-based media service may serve as a source of signboard images 106, descriptions of places of business or points of interest corresponding to respective ones of signboard images 106, advertisements for

those places of business or points of interest, and social media comments and reviews for those places of business or points of interest.

[0025] Image database 214 on device 10 may be configured to receive from image database 204, and store, a subset of signboard images 106 and any corresponding descriptions, advertisements, and social media comments and reviews for the respectively corresponding places of business or points of interest.

[0026] Profile database 206/216 may be configured to receive a user profile from the user of device 10. The user profile may be entered via an interface 100 on device 10, as a mandatory or optional condition to receive personalized mapping services from web mapping service 202. Features of the user profile may include, as non-limiting examples, an entry of a gender, age, or vocation for the user of device 10. Alternatively, the user profile may be customized to include, as non-limiting examples, the user's shopping preferences or dining preferences. Such features may be used to filter out various ones of signboard images 106 for executing a personalized mapping service and a resulting display on map 102 after the user has entered a requested destination on device 102.

[0027] Profile database 206 at web mapping service 202 may be further configured as a server to receive and store the user's profile.

[0028] Profile database 216 on device 10 may be further configured to receive from database 206, and store, the profile for the user of device 10 or the profile for any user who signs in to use the web mapping service 202 on device 10.

[0029] Map generator 208/218 may be configured to generate map 102 that includes route 108 from the current location of user 104 or the specified starting point for the user of device 10 to the requested destination entered by the user. Route 108 may

refer to one or both of a graphic representation of directions from user 104 to the place of business or point of interest at the requested destination and textual directions to show one or more routes from user 104 to the requested destination.

[0030] Map generator 208/218 may be configured to generate a stored map 102 that includes either a web page or static or dynamic image, or any combination of 2-D and 3-D high-resolution satellite images, aerial view images, or street view images thereof, in response to the requested destination.

[0031] Map generator 208 at web mapping service 202 may be further configured as a middleware server to connect web mapping service 202 to a web-based geographic information system.

[0032] Map generator 218 on device 10 may be further configured to receive from map generator 208, and store, a subset of the maps stored or received at map generator 208.

[0033] Search filter 210/220 may be configured to match the requested destination entered by the user of device 10 to one or more of stored signboard images 106 stored in image database 204/214, of which a corresponding description matches at least one feature of the user's profile stored in profile database 206/216.

[0034] Search filter 210/220 may be configured as a software, middleware, or hardware component, or any combination thereof, that may determine which subset of stored signboard images 106 stored in image database 204/214 corresponds to a place of business or point of interest that is, *e.g.,* at the requested destination, within a predetermined distance from the requested destination, or is within a predetermined distance from any road or street along route 108 from user 104 or the specified starting

point for the user of device 10 to the requested destination. In other words, search filter 210/220 may determine which of stored signboard images 106 are relevant to the requested destination. The determination of relevance may be made based on geographic information in the description for the respective places of business and points of interest stored in image database 204/214, provided by a web-based media service, *e.g.,* a web advertising service or a social media network.

[0035] Search filter 210/220 may then match the descriptions for the respective ones of signboard images 106 that are determined to be relevant to the requested destination to one or more features of the user's profile stored in profile database 206/216.

[0036] Accordingly, search filter 210/220 may determine which of signboard images 106 to display on map 102, in response to the requested destination. More particularly, search filter 210/220 may determine which places of business and/or points of interest that are located at, near, or along route 108 may be worthy of the user's attention based on the user's registered profile. A degree to which the respective places of business and/or points of interest match the various features of the user's profile may be made known visually to the user by varying a graphic depiction of the corresponding signboard image 106, such as using fonts of various weight, using various colors, or using star-rating. Such examples are not intended to be limiting, but illustrative only.

[0037] Search filter 210/220 may further determine which of the relevant signboard images are to be displayed accompanied by advertisement/comments 110. Such determination may be based on factors including, but not limited to, revenue-generating business models by which advertisers pay to have any display of signboard images 106 of interest accompanied by an implementation of advertisement/ comments 110.

[0038] Various permutations of the determinations made at search filter 210/220 are feasible, and parameters for what qualifies as being relevant to the requested destination are dynamic, dependent upon user preferences set on device 10 or settings made by implementers of web mapping system 202. That is, relevance may be customized with regard to which places of business or points of interest within a predetermined proximity to the requested destination or a within a predetermined distance to a road or street along route 108 are brought to the user's attention by the display of a corresponding one of signboard images 106.

[0039] Interface 212/100 may be configured to prepare and provide an image for display in response to the requested destination. More particularly, interface 212/100 may prepare map 102, which depicts user 104, signboard images 106, relevant route 108, and appropriate ones of advertisement/comments 110.

[0040] Interface 212 at web mapping service 202 may be configured to transmit prepared map 102 to interface 100 for display on device 10. Alternatively, interface 100 on device 10 may prepare map 102 for display on interface 100.

[0041] FIG. 3 shows a processing flow 300 for an example implementation of landmark-based mapping. Processing flow 300 may include one or more operations, actions, or functions, as illustrated by one or more of blocks 302, 304, 306, and 308. Although illustrated as discrete blocks, various blocks may be divided into additional blocks, combined into fewer blocks, or eliminated altogether, depending on the desired implementation. Moreover, the blocks in the FIG. 3 may be operations that can be implemented in hardware, software, or a combination thereof. In the context of software, the blocks represent computer-executable instructions that, when executed by one or more

processors, cause one or more processors to perform the recited operations. Generally, computer-executable instructions include routines, programs, objects, components, data structures, and the like that cause the particular functions to be performed or particular abstract data types to be implemented.

[0042] Further still, as set forth above regarding FIGS. 1 and 2, device 10 may be communicatively coupled to web mapping service 202 via, *e.g.,* a hard-wired Internet connection or, more likely, a wireless local area network technology (WLAN), *e.g.,* Wi-Fi; however, device 10 may also be implemented as a self-contained device, by which all of the components, features, and services attributed to web mapping service 202 may be implemented as part of an application or program hosted on device 10. Therefore, the description of processing flow 300 may refer to, at least, either of the embodiments of web mapping system 202 or device 10, unless otherwise noted. Thus, the references to the features having similar functionality in the embodiments of web mapping service 202 and device 10 are referenced in combination. Processing flow 300 may begin at block 302.

[0043] Block 302 (Register User's Profile) may refer to the user of device 10, or a user otherwise registering for service from web mapping service 202, entering a user profile that is received and stored to profile database 206. Features of the entered user profile may include, *e.g.,* the user's age, gender, and vocation. Alternatively, the user profile may be customized to include, as non-limiting examples, the user's shopping preferences and dining preferences. Processing flow 300 may proceed to block 304.

[0044] Block 304 (Receive Requested Destination) may refer to the user of device 10 entering a requested destination using interface 100 on device 10. Actions taken at block 304 may be taken with the user having a registered the user profile at profile database

206/216 and having signed in to utilize web mapping service 202 or the web mapping application or program hosted on device 10. Processing flow 300 may proceed to block 306.

[0045] Block 306 (Execute Personal Service) may refer to map generator 208/218 generating map 102 that includes route 108 from a current location of user 104 or a specified starting point for a user of device 10 to the requested destination. Route 108 may refer to one or both of a graphic representation and text presentation of directions from user 104 to the place of business or point of interest at the requested destination to show one or more routes from user 104 to the requested destination. Generated map 102 may include either a web page or static or dynamic image, or any combination of 2-D and 3-D high-resolution satellite images, aerial view images, or street view images thereof, in response to the requested destination.

[0046] Block 306 may further refer to filter 210/220 determining which of signboard images 106 to display on generated map 102. More particularly, search filter 210/220 may determine which places of business and/or points of interest that are located at or near the requested destination or along route 108 may be worthy of the user's attention based on the user's registered profile.

[0047] Accordingly, search filter 210/220 may receive the requested destination, which may be entered as any one or more of, *e.g.,* a street address, cross-street intersection, or name of a place of commerce or point of interest. Using a search algorithm, search filter 210/220 may match the requested destination entered by the user to one or more of stored signboard images 106 stored in image database 204/214, of which a corresponding description matches at least one feature of the user's profile stored in profile database 206/216. That is, the software, middleware, and/or hardware component that

make up search filter 210/220 may determine which subset of stored signboard images 106 stored in image database 204/214 corresponds to a place of business or point of interest that is, *e.g.,* at the requested destination, within a predetermined distance from the requested destination, or is within a predetermined distance from any road or street along route 108 from user 104 or the specified starting point for the user of device 10 to the requested destination.

[0048] That is, at block 306, search filter 210/220 may determine which of stored signboard images 106 are relevant to the requested destination, based on geographic information in the description for the respective places of business and points of interest stored in image database 204/214, provided by a web-based media service, *e.g.,* a web advertising service or a social media network.

[0049] Search filter 210/220 may further determine which of the relevant signboard images are to be displayed accompanied by advertisement/comments 110. Such determination may be based on factors including, but not limited to, revenue-generating business models by which advertisers pay to have any display of signboard images 106 of interest accompanied by an implementation of advertisement/ comments 110.

[0050] Search filter 210/220 may further still determine the degree to which the respective places of business and/or points of interest match the various features of the user's profile, and make the determined degree of relevance visually apparent to the user of device 10 by varying a graphic depiction of the corresponding signboard image 106 by, *e.g.,* using fonts of various weight, using various colors, or using star-rating.

[0051] The parameters for what qualifies as being relevant to the requested destination for executing the personal services at block 206 by search filter 210/220 are

dynamic, dependent upon user preferences set on device 10 or settings made by implementers of web mapping system 202. Thus, relevant may be customized with regard to which places of business or points of interest within a predetermined proximity to the requested destination or a within a predetermined distance to a road or street along route 108 are brought to the user's attention by the display of a corresponding one of signboard images 106. Processing flow may proceed to block 308.

[0052] Block 308 (Display Results of Executed Service) may include interface 212/100 preparing map 102 for display at device 10.

[0053] Interface 212 at web mapping service 202 may be configured to transmit prepared map 102 to interface 100 for display on device 10. Alternatively, interface 100 on device 10 may prepare map 102 for display thereon.

[0054] Regardless, as a result of a registered user entering a requested destination, map 102 on device 10 may have displayed thereon route 108 to a place of business or point of interest represented by a depiction of a respective one of signboard images 106. In addition to, or even instead of, the display of the respective one of signboard images 106 at the depiction of the requested destination, map 102 may have displayed thereon others of signboard images 106 that represent places of business and/or points of interest that are located within a predetermined distance from the requested destination, *e.g.,* 0.5 miles, or are located within a predetermined distance from any road or street that is along route 108, *e.g.,* 0.25 miles. The display of any of signboard images 106 may be highlighted or otherwise distinguished visually to indicate the degree of relevance to one or both of the user's requested destination and one or more features of the user's profile that is registered with web mapping service 202.

[0055] Further still, map 102 may have displayed thereon advertisement/comments 110 associated with one or more of the displayed signboard images 106, to provide an advertisement and/or social media comments or reviews for the place of business or point of interest to which a corresponding one of signboard images 106 corresponds.

[0056] Processing flow 300 may be implemented by a web mapping service 202 in combination with one or more of a web-based geographic information system, a web-based media service, *e.g.*, a web-based advertising system or a social media network, and device 10. Alternatively, processing flow may be implemented by an application or program hosted on device 10 singularly or in combination with one or more of the components of web mapping service 202, and/or with one or more of the web-based geographic information system, and the web-based media service.

[0057] In accordance with above-described embodiments of landmark-based mapping, stored signboard images may be utilized to provide multiple mapping services that are personalized in accordance with a user's registered profile, although alternative embodiments may contemplate other landmarks being utilized in combination with, or instead of, signboard images, to facilitate the services described above.

[0058] The present disclosure is not to be limited in terms of the particular embodiments described in this application, which are intended as illustrations of various aspects. Many modifications and variations can be made without departing from its spirit and scope, as will be apparent to those skilled in the art. Functionally equivalent processes and even apparatuses within the scope of the disclosure, in addition to those described herein, will be apparent to those skilled in the art from the foregoing descriptions. Such modifications and variations are intended to fall within the scope of the appended claims.

The present disclosure is to be limited only by the terms of the appended claims, along with the full scope of equivalents to which such claims are entitled. It is to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting.

[0059] FIG. 4 shows a block diagram illustrating an example computing device by which various embodiments of the example solutions described herein may be implemented.

[0060] More particularly, FIG. 4 shows an illustrative computing embodiment, in which any of the processes and sub-processes described herein may be implemented as computer-readable instructions stored on a computer-readable medium. The computer-readable instructions may, for example, be executed by a processor of a mobile unit, a network element, and/or any other computing device, particularly as applicable to the applications and/or programs described above corresponding to web mapping service 202 and device 10.

[0061] In a very basic configuration 402, a computing device 400 may typically include one or more processors 404 and a system memory 406. A memory bus 408 may be used for communicating between processor 404 and system memory 406.

[0062] Depending on the desired configuration, processor 404 may be of any type including but not limited to a microprocessor (μP), a microcontroller (μC), a digital signal processor (DSP), or any combination thereof.

[0063] Depending on the desired configuration, system memory 406 may be of any type including but not limited to volatile memory (such as RAM), non-volatile memory (such

as ROM, flash memory, etc.) or any combination thereof. System memory 406 may include an operating system 420, one or more applications 422, and program data 424.

[0064] Application 422 may include the aforementioned applications or programs that are arranged to perform the functions ascribed to either of web mapping service 202 and device 10, which are described previously with respect to FIGS. 1 - 3. Program data 424 may include a table 428, which may be useful for implementing the services described herein.

[0065] System memory 406 is an example of computer storage media. Computer storage media may include, but not limited to, RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which may be used to store the desired information and which may be accessed by computing device 400. Any such computer storage media may be part of computing device 400.

[0066] The network communication link may be one example of a communication media. Communication media may typically be embodied by computer readable instructions, data structures, program modules, or other data in a modulated data signal, such as a carrier wave or other transport mechanism, and may include any information delivery media. A "modulated data signal" may be a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal. By way of example, and not limitation, communication media may include wired media such as a wired network or direct-wired connection, and wireless media such as acoustic, radio

frequency (RF), microwave, infrared (IR) and other wireless media. The term computer readable media as used herein may include both storage media and communication media.

[0067] Computing device 400 may be implemented as a portion of a small-form factor portable (or mobile) electronic device such as a cell phone, a personal data assistant (PDA), a personal media player device, a wireless web-watch device, a personal headset device, an application specific device, or a hybrid device that include any of the above functions. Computing device 400 may also be implemented as a personal computer including both laptop computer and non-laptop computer configurations.

[0068] There is little distinction left between hardware and software implementations of aspects of systems; the use of hardware or software is generally (but not always, in that in certain contexts the choice between hardware and software can become significant) a design choice representing cost vs. efficiency tradeoffs. There are various vehicles by which processes and/or systems and/or other technologies described herein may be implemented, *e.g.*, hardware, software, and/or firmware, and that the preferred vehicle may vary with the context in which the processes and/or systems and/or other technologies are deployed. For example, if an implementer determines that speed and accuracy are paramount, the implementer may opt for a mainly hardware and/or firmware vehicle; if flexibility is paramount, the implementer may opt for a mainly software implementation; or, yet again alternatively, the implementer may opt for some combination of hardware, software, and/or firmware.

[0069] The foregoing detailed description has set forth various embodiments of the devices and/or processes for guiding solution 100 via the use of block diagrams, flowcharts, and/or examples. Insofar as such block diagrams, flowcharts, and/or examples contain one

or more functions and/or operations, it will be understood by those within the art that each function and/or operation within such block diagrams, flowcharts, or examples can be implemented, individually and/or collectively, by a wide range of hardware, software, firmware, or virtually any combination thereof. In one embodiment, several portions of the subject matter described herein may be implemented via Application Specific Integrated Circuits (ASICs), Field Programmable Gate Arrays (FPGAs), digital signal processors (DSPs), or other integrated formats. However, those skilled in the art will recognize that some aspects of the embodiments disclosed herein, in whole or in part, can be equivalently implemented in integrated circuits, as one or more computer programs running on one or more computers, *e.g.*, as one or more programs running on one or more computer systems, as one or more programs running on one or more processors, *e.g.*, as one or more programs running on one or more microprocessors, as firmware, or as virtually any combination thereof, and that designing the circuitry and/or writing the code for the software and or firmware would be well within the skill of one of skill in the art in light of this disclosure. In addition, those skilled in the art will appreciate that the mechanisms of the subject matter described herein are capable of being distributed as a program product in a variety of forms, and that an illustrative embodiment of the subject matter described herein applies regardless of the particular type of signal bearing medium used to actually carry out the distribution. Examples of a signal bearing medium include, but are not limited to, the following: a recordable type medium such as a floppy disk, a hard disk drive, a CD, a DVD, a digital tape, a computer memory, etc.; and a transmission type medium such as a digital and/or an analog communication medium (e.g., a fiber optic cable, a waveguide, a wired communications link, a wireless communication link, etc.).

[0070] Those skilled in the art will recognize that it is common within the art to describe devices and/or processes in the fashion set forth herein, and thereafter use engineering practices to integrate such described devices and/or processes into data processing systems. That is, at least a portion of the devices and/or processes described herein can be integrated into a data processing system via a reasonable amount of experimentation. Those having skill in the art will recognize that a typical data processing system generally includes one or more of a system unit housing, a video display device, a memory such as volatile and non-volatile memory, processors such as microprocessors and digital signal processors, computational entities such as operating systems, drivers, graphical user interfaces, and applications programs, one or more interaction devices, such as a touch pad or screen, and/or control systems including feedback loops and control motors, *e.g.*, feedback for sensing position and/or velocity; control motors for moving and/or adjusting components and/or quantities. A typical data processing system may be implemented utilizing any suitable commercially available components, such as those typically found in data computing/communication and/or network computing/communication systems.

[0071] The herein described subject matter sometimes illustrates different components contained within, or connected with, different other components. It is to be understood that such depicted architectures are merely examples and that in fact many other architectures can be implemented which achieve the same functionality. In a conceptual sense, any arrangement of components to achieve the same functionality is effectively "associated" such that the desired functionality is achieved. Hence, any two components herein combined to achieve a particular functionality can be seen as

"associated with" each other such that the desired functionality is achieved, irrespective of architectures or intermodal components. Likewise, any two components so associated can also be viewed as being "operably connected", or "operably coupled", to each other to achieve the desired functionality, and any two components capable of being so associated can also be viewed as being "operably couplable", to each other to achieve the desired functionality. Specific examples of operably couplable include but are not limited to physically mateable and/or physically interacting components and/or wirelessly interactable and/or wirelessly interacting components and/or logically interacting and/or logically interactable components.

[0072] With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

[0073] It will be understood by those within the art that, in general, terms used herein, and especially in the appended claims, *e.g.*, bodies of the appended claims, are generally intended as "open" terms, *e.g.*, the term "including" should be interpreted as "including but not limited to," the term "having" should be interpreted as "having at least," the term "includes" should be interpreted as "includes but is not limited to," *etc.* It will be further understood by those within the art that if a specific number of an introduced claim recitation is intended, such an intent will be explicitly recited in the claim, and in the absence of such recitation no such intent is present. For example, as an aid to understanding, the following appended claims may contain usage of the introductory phrases "at least one" and "one or more" to introduce claim recitations. However, the use

of such phrases should not be construed to imply that the introduction of a claim recitation by the indefinite articles "a" or "an" limits any particular claim containing such introduced claim recitation to embodiments containing only one such recitation, even when the same claim includes the introductory phrases "one or more" or "at least one" and indefinite articles such as "a" or "an," *e.g.*, "a" and/or "an" should be interpreted to mean "at least one" or "one or more;" the same holds true for the use of definite articles used to introduce claim recitations. In addition, even if a specific number of an introduced claim recitation is explicitly recited, those skilled in the art will recognize that such recitation should be interpreted to mean at least the recited number, *e.g.*, the bare recitation of "two recitations," without other modifiers, means at least two recitations, or two or more recitations. Furthermore, in those instances where a convention analogous to "at least one of A, B, and C, *etc.*" is used, in general such a construction is intended in the sense one having skill in the art would understand the convention, *e.g.*, " a system having at least one of A, B, and C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, *etc.* In those instances where a convention analogous to "at least one of A, B, or C, *etc.*" is used, in general such a construction is intended in the sense one having skill in the art would understand the convention, *e.g.*, " a system having at least one of A, B, or C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, *etc.* It will be further understood by those within the art that virtually any disjunctive word and/or phrase presenting two or more alternative terms, whether in the description, claims, or drawings, should be understood to contemplate the possibilities of including one of the terms, either of the

terms, or both terms. For example, the phrase "A or B" will be understood to include the possibilities of "A" or "B" or "A and B."

[0074] From the foregoing, it will be appreciated that various embodiments of the present disclosure have been described herein for purposes of illustration, and that various modifications may be made without departing from the scope and spirit of the present disclosure. Accordingly, the various embodiments disclosed herein are not intended to be limiting, with the true scope and spirit being indicated by the following claims.

CLAIMS

1. A computer-readable medium that stores one or more executable instructions that, when executed, cause one or more processors to:

register a user's profile;

receive a requested destination;

execute a personalized service, based on the received requested destination, utilizing at least one of plural stored signboard images; and

display results of the executed service relative to the requested destination.

2. The computer-readable medium of Claim 1, wherein the one or more executable instructions are included in an application that is hosted on a client device.

3. The computer-readable medium of Claim 1, wherein the one or more processors are disposed in a client device.

4. The computer-readable medium of Claim 1, wherein the one or more processors are disposed in a client device communicatively coupled to a web mapping service.

5. The computer-readable medium of Claim 1, wherein the one or more executable instructions to register cause the one or more processors to register the user's profile with a remote web mapping service database.

6. The computer-readable medium of Claim 1, wherein features of the user's profile include at least one of the user's gender, age, or vocation.

7. The computer-readable medium of Claim 1, wherein the personalized service includes:

displaying a route from a specified location to the requested destination, and

displaying at least one of the stored signboard images that corresponds to the requested destination in a highlighted manner.

8. The computer-readable medium of Claim 7, wherein the at least one displayed signboard image corresponds to a place of business located at the requested destination.

9. The computer-readable medium of Claim 7, wherein:

the at least one displayed signboard image corresponds to a place of business located within a predetermined proximity to the requested destination, and

a description for the place of business matches at least one feature of the user's profile.

10. The computer-readable medium of Claim 9, wherein the personalized service further includes displaying an advertisement for the place of business.

11. The computer-readable medium of Claim 9, wherein the personalized service further includes displaying comments pertaining to the place of business from a social networking site.

12. The computer-readable medium of Claim 7, wherein the personalized service further includes:

displaying at least one of the stored signboard images that corresponds to a place of business, located along the displayed route to the requested destination, of which a description matches at least one feature of the user's profile.

13. The computer-readable medium of Claim 12, wherein the personalized service further includes displaying an advertisement for the place of business.

14. The computer-readable medium of Claim 12, wherein the personalized service further includes displaying comments pertaining to the place of business from an online social networking site.

15. A mapping system, comprising:

an image database to store signboard images;

a profile database to store a user's profile;

a map generator to receive a requested destination and to generate a map with at least one route to the requested destination;

a search filter to match the requested destination to one or more of the stored signboard images of which a description corresponds to at least one feature of the stored user's profile; and

an interface to provide an image for display, including the generated map and the one or more matching signboard images.

16. The system of Claim 15, wherein:

the image database includes a server at a web mapping service, and

the signboard images are stored as street view images thereof.

17. The system of Claim 15, wherein the signboard images are stored as photo icons thereof.

18. The system of Claim 15, wherein the image database is to further store the description.

19. The system of Claim 15, wherein the image database includes a middleware server at a web mapping service to connect the web mapping service to a web advertising service.

20. The system of Claim 15, wherein:

the profile database includes a server at a web mapping service, and

features of the user's profile include at least one of the user's gender, age, or vocation.

21. The system of Claim 15, wherein:

the map generator includes a server at a web mapping service,

the map generator is to receive the requested destination from a client device, and

the generated map is either a webpage or a static or dynamic image file.

22. The system of Claim 15, wherein:

the map generator includes a middleware server at a web mapping service to connect the web mapping service to a web-based geographic information system, and

the user request is received from a client device.

23. The system of Claim 15, wherein the search filter includes a component of a web mapping service.

24. The system of Claim 15, wherein:

the description is provided to the mapping system via a web-based media service, and

wherein the search filter is to match the requested destination to one or more of the stored signboard images that correspond respectively to a point of interest within a predetermined distance of the requested destination.

25. The system of Claim 15, wherein:

the description is provided to the mapping system via a web-based media service, and

the search filter is to match the requested destination to one or more of the stored signboard images that correspond respectively to a point of interest along at least one of the routes to the requested destination.

25. The system of Claim 24, wherein:

the web-based media service is an advertising service,

the search filter is to further match an advertisement to the one or more matching signboard images, and

the interface is to provide the display which further includes the matching advertisement.

26. The system of Claim 24, wherein:

the web-based media service is a social media network,

the search filter is to further match third-party comments to the one or more matching signboard images, and

the interface is to provide the display which further includes the matching third-party comments.

27. The system of Claim 25, wherein:

the web-based media service is a web advertising service,

the search filter is to further match an advertisement to the one or more matching signboard images, and

the interface is to provide the display which further includes the matching advertisement.

28. The system of Claim 25, wherein:

the web-based media service is a social media network,

the search filter is to further match social media party comments to the one or more matching signboard images, and

the interface is to provide the display which further includes the matching social media comments.

29. The system of Claim 15, wherein the interface is to provide the image for display to a client device wi-fi connection.

30. The system of Claim 15, wherein the interface is hosted on a client device.

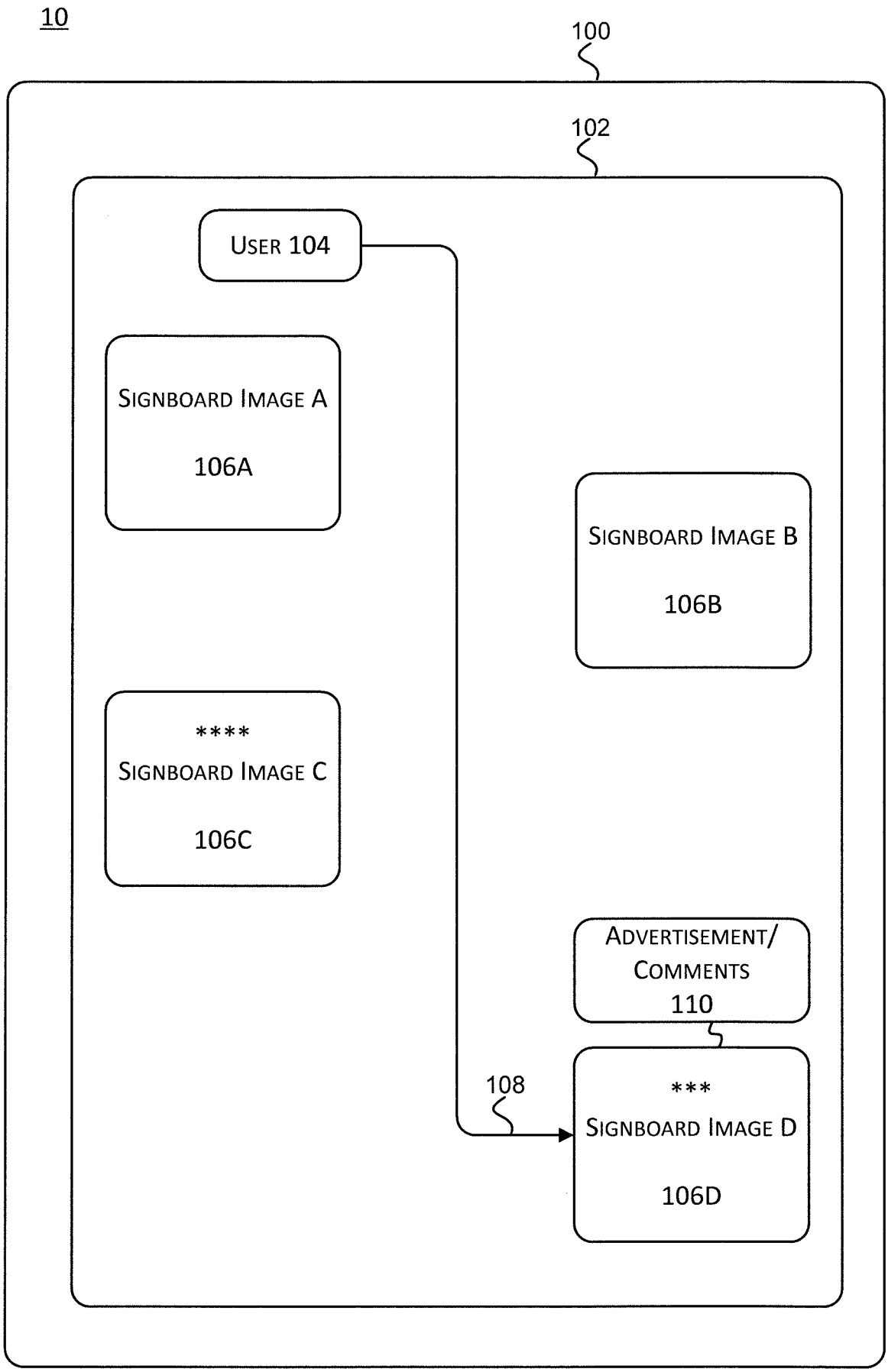

10
100
102
USER 104
SIGNBOARD IMAGE A
106A
SIGNBOARD IMAGE B
106B
****
SIGNBOARD IMAGE C
106C
ADVERTISEMENT/
COMMENTS
110
108
***
SIGNBOARD IMAGE D
106D

FIG. 1

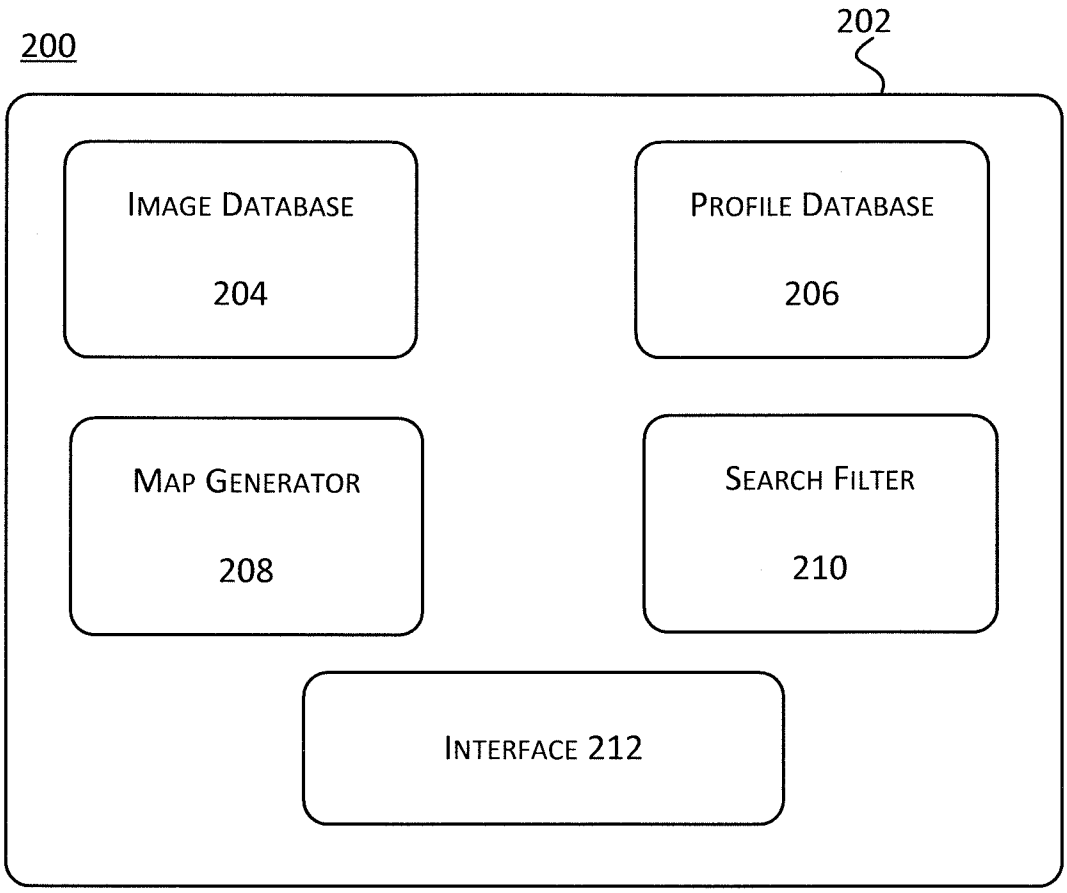
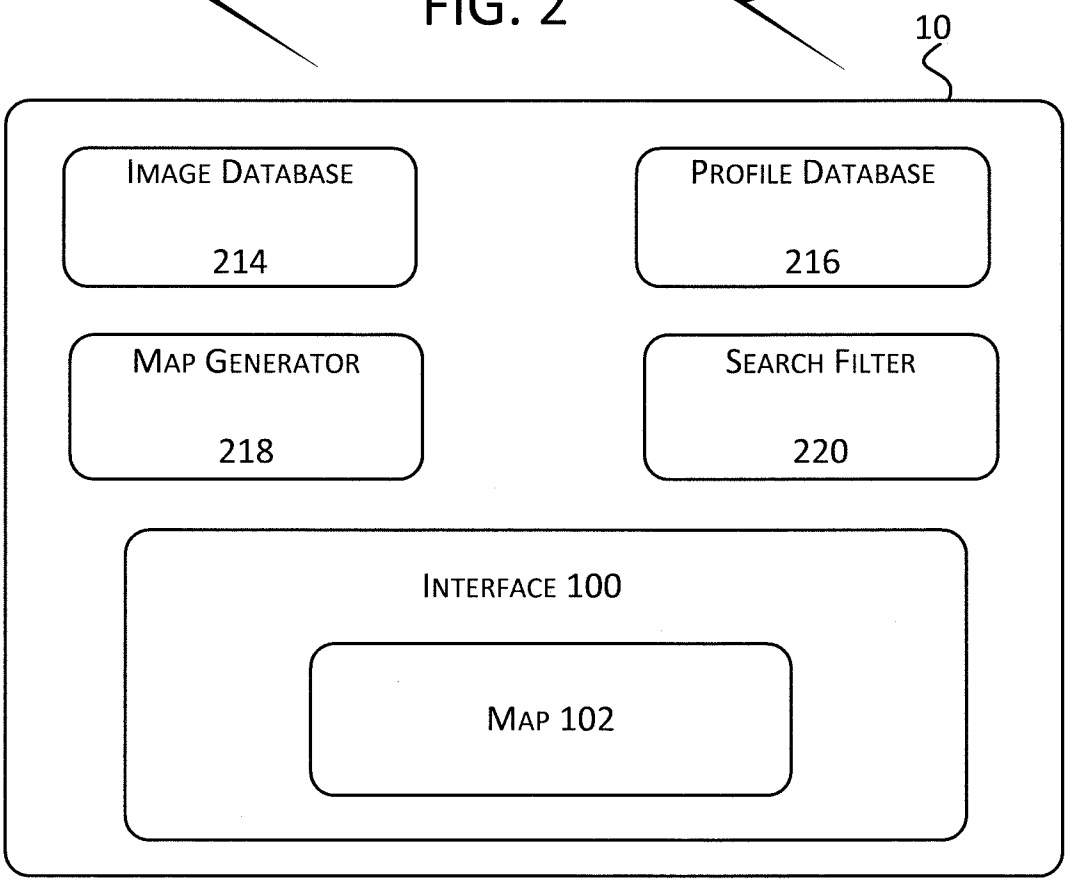

200
202
IMAGE DATABASE
204
PROFILE DATABASE
206
MAP GENERATOR
208
SEARCH FILTER
210
INTERFACE 212

FIG. 2


10
IMAGE DATABASE
214
PROFILE DATABASE
216
MAP GENERATOR
218
SEARCH FILTER
220
INTERFACE 100
MAP 102

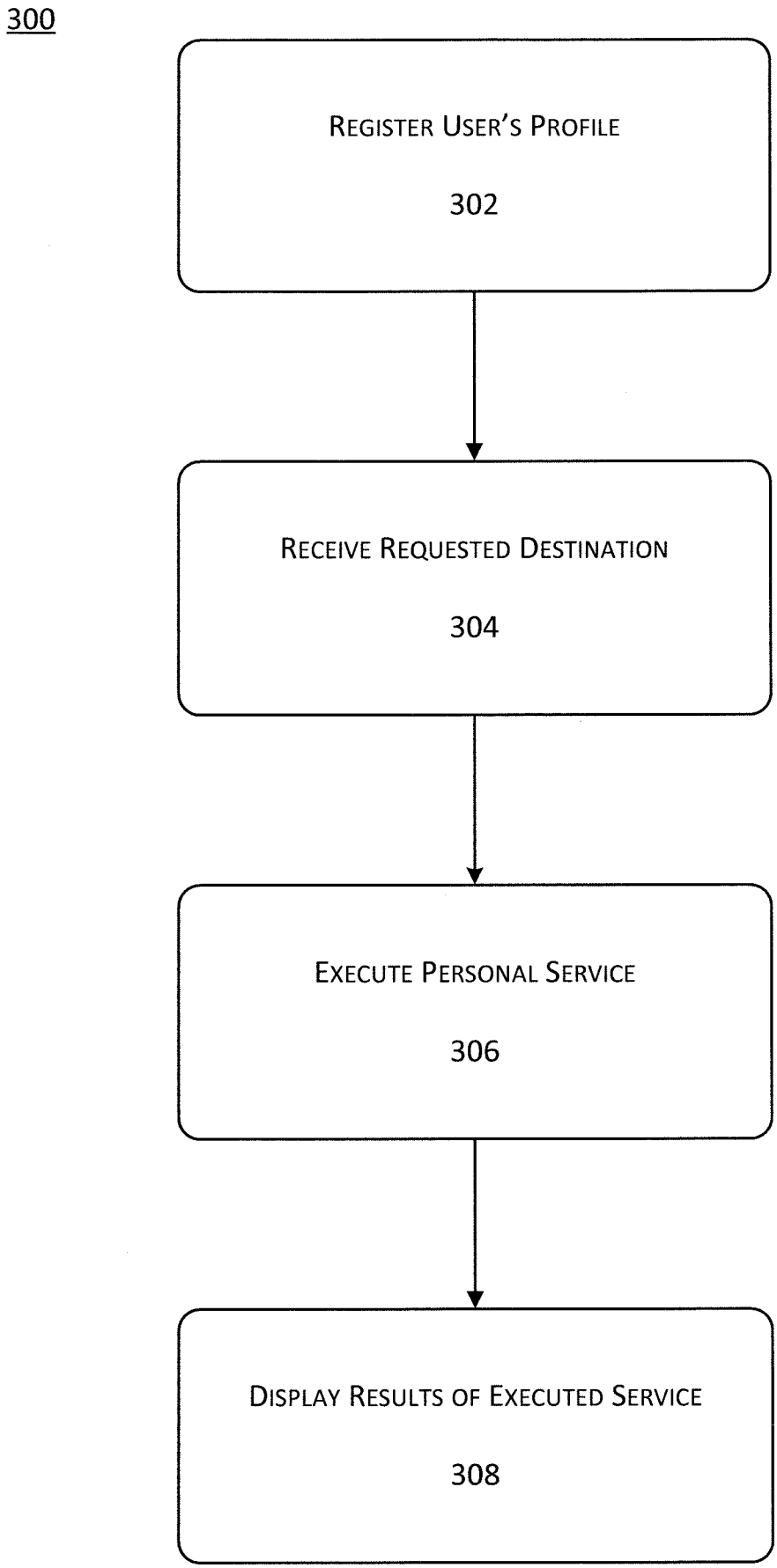

300
REGISTER USER'S PROFILE
302
RECEIVE REQUESTED DESTINATION
304
EXECUTE PERSONAL SERVICE
306
DISPLAY RESULTS OF EXECUTED SERVICE
308

FIG. 3

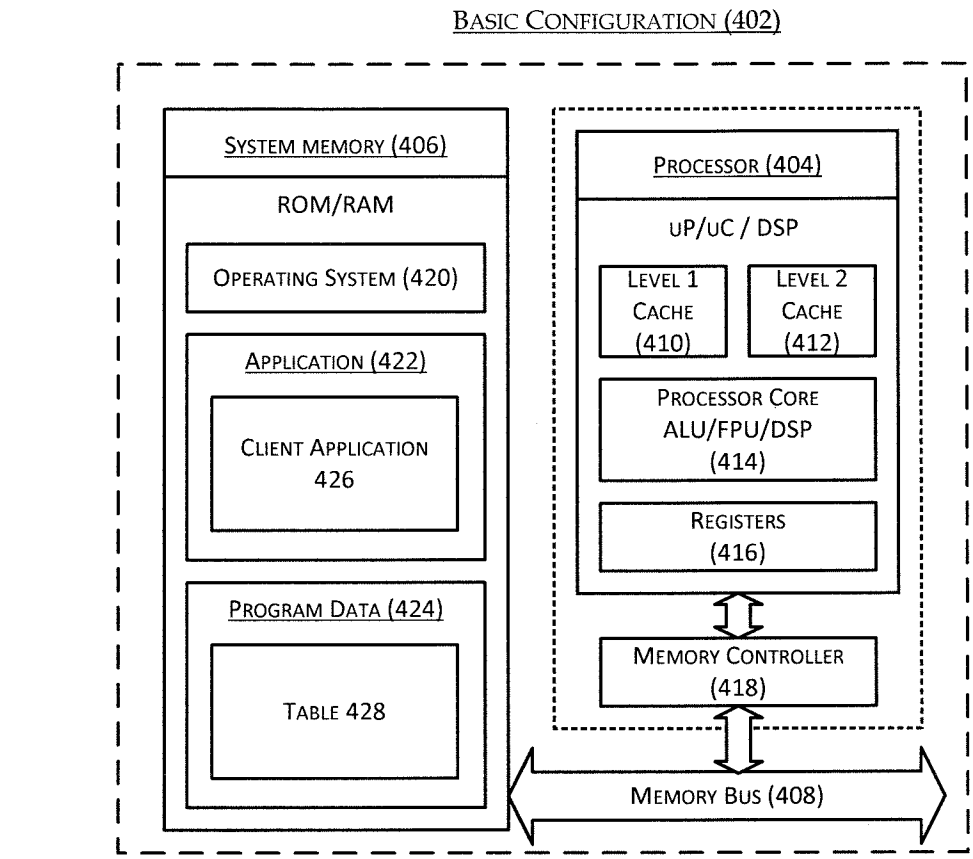

COMPUTING DEVICE (400)
BASIC CONFIGURATION (402)
SYSTEM MEMORY (406)
ROM/RAM
OPERATING SYSTEM (420)
APPLICATION (422)
CLIENT APPLICATION 426
PROGRAM DATA (424)
TABLE 428
PROCESSOR (404)
UP/UC / DSP
LEVEL 1 CACHE (410)
LEVEL 2 CACHE (412)
PROCESSOR CORE ALU/FPU/DSP (414)
REGISTERS (416)
MEMORY CONTROLLER (418)
MEMORY BUS (408)

FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 11/25990

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G01C 21/00 (2011.01)
USPC - 701/26
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC: 701/206
IPC(8): G01C 21/00 (2011.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 701/200-202, 206; 700/1, 90; 705/1.1, 7.11, 7.12 (Keyword limited; terms below)
IPC(8): G01C 21/00 (2011.01) (Keyword limited; terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (PGPB, USPT, EPAB, JPAB); Google (Scholar, Patents, Web)
Terms used: generate web map image database search filter signboard billboard logo user profile gender age occupation destination route directions highlight business street view social network website third party review advertisement middleware wifi

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2009/0125226 A1 (LAUMEYER et al.), 14 May 2009 (14.05.2009), entire document, especially para [0033]-[0034], [0036], [0038], [0044], [0050], [0052]-[0057]	1-3, 5, 7-10, 12-13, 15, 17, 21, 24-25A/25B, 27, 29-30 --- 4, 6, 11, 14, 16, 18-20, 22-23, 26, 28
Y	US 2007/0273558 A1 (SMITH et al.), 29 November 2007 (29.11.2007), especially [0015]-[0016], [0081], [0094], [0102], [0138]	4, 6, 11, 14, 16, 18, 20, 23, 26, and 28
Y	US 2006/0149461A1 (ROWLEY et al.), 06 July 2006 (06.07.06), entire document, especially para [0094]	19, 22
A	US 2008/0215202 A1 (BREED), 04 September 2008 (04.09.2008), entire document	1-30

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"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)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"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
"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
"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
08 April 2011 (08.04.2011)	02 JUN 2011
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)