Title: SOCIAL NETWORKING SERVICES FOR A LOCATION-AWARE MOBILE COMMUNICATION DEVICE

Abstract: The invention provides a system and method for building and sustaining a social network service using a location-aware mobile communication device. A social network service member may see another member on a map display on the mobile device, provided that a trusted friend connection has been established. In addition, the map display may also show nearby points of interest (POI), with links to information about the POIs. This information can include reviews and/or commentary about the POI provided by other social network service members and/or third party content providers. The map display may also show event information related to a POI, and may enable members to invite other members to attend the event. Information about a POI may also include advertising or coupon information.

FIG. 2

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SOCIAL NETWORKING SERVICES FOR A LOCATION-AWARE MOBILE COMMUNICATION DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

FIELD

The invention relate generally to mobile communication networks, and more specifically, to securely and privately displaying geographic locations of users, and providing location-based social networking services for users on mobile communication devices having a touchscreen.

BACKGROUND

Location-aware mobile communication devices, such as the Apple iPhone™, are quickly becoming the device of choice for connecting users of social networks, such as Loopt (owned by the assignee of this application), Facebook, Twitter and the like. A user of a location-aware mobile communication device is able to update his location and status using the location-aware mobile communication device, and have that location and status echoed on any number of these social networks. However, social networks are developing separately from the location-aware mobile communication device used to communicate with them, and there is often a separation between the features available on the location-aware mobile communication device and the features available on the social network. Therefore, software improvements are needed that take advantage of the features of new location-aware mobile communication devices in order to maintain interaction with developing social network applications.

A location-aware mobile communication device is not only used to display a user's most recent location or status on social network applications. A location-aware mobile communication device can also be used to provide information about the area around the location of the device, i.e., points of interest (POI). Some of this information may be readily accessible from conventional computers on an existing network; however, this information is not formatted for the location-aware mobile communication device. Further, this information is not integrated with the social networks that are also accessed by the location-aware mobile communication device. What is therefore needed is a way to publish information about the user's status and location, and to merge that information with POI around the user, while at the same time using the features of the user's location-aware mobile communication device.
BRIEF DESCRIPTION OF THE FIGURES

The invention is illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like references indicate similar elements, and in which:

FIG. 1A is an exemplary block diagram of a location-aware mobile communication device and network, according to an embodiment of the invention.

FIG. 1B is an exemplary block diagram of some elements of a location-based social network system, according to an embodiment of the invention.

FIG. 1C is an exemplary block diagram of a network system comprising users within a defined service network and users outside of the defined service network, according to an embodiment of the invention.

FIG. 2 is an exemplary flow diagram illustrating the steps of an embodiment of the invention.

FIG. 3 is an exemplary screenshot illustrating computer program product graphical user interface, according to an embodiment of the invention.

FIG. 4 is an exemplary screenshot illustrating computer program product graphical user interface, according to an embodiment of the invention.

FIG. 5 is an exemplary screenshot illustrating computer program product graphical user interface, according to an embodiment of the invention.

FIG. 6 is an exemplary screenshot illustrating computer program product graphical user interface, according to an embodiment of the invention.

FIG. 7 is an exemplary screenshot illustrating computer program product graphical user interface, according to an embodiment of the invention.

FIG. 8 is an exemplary screenshot illustrating computer program product graphical user interface, according to an embodiment of the invention.

FIG. 9 is an exemplary screenshot illustrating computer program product graphical user interface, according to an embodiment of the invention.

FIG. 10 is an exemplary screenshot illustrating computer program product graphical user interface, according to an embodiment of the invention.

FIG. 11 is an exemplary screenshot illustrating computer program product graphical user interface, according to an embodiment of the invention.
DETAILED DESCRIPTION

The invention is a computer program product for running on a location-aware mobile communication device. The software application enables a location-aware mobile communication device to transmit the location of the mobile communication device, and also receive information about POI in the vicinity of the mobile communication device. Additionally, a user of the location-aware mobile communication device is able to interact with the display of the received information and request more information. The user can also interact with other members of one or more social networks using the computer program product.

It should be appreciated that the invention can be implemented in numerous ways, including as a process, an apparatus, a system, a device, a method, a computer readable medium such as a computer readable storage medium containing computer readable instructions or computer program code, or as a computer program product comprising a computer usable medium having a computer readable program code embodied therein.

In the context of this document, a computer usable medium or computer readable medium may be any medium that can contain or store the program for use by or in connection with the instruction execution system, apparatus or device. For example, the computer readable storage medium or computer usable medium may be, but is not limited to, a random access memory (RAM), read-only memory (ROM), or a persistent store, such as a mass storage device, hard drives, CDROM, DVDROM, tape, erasable programmable read-only memory (EPROM or flash memory), or any magnetic, electromagnetic, infrared, optical, or electrical system, apparatus or device for storing information. Alternatively or additionally, the computer readable storage medium or computer usable medium may be any combination of these devices or even paper or another suitable medium upon which the program code is printed, as the program code can be electronically captured, via, for instance, optical scanning of the paper or other medium, then compiled, interpreted, or otherwise processed in a suitable manner, if necessary, and then stored in a computer memory.

Applications, software programs or computer readable instructions may be referred to as components or modules. Applications may be hardwired or hard coded in hardware or take the form of software executing on a general purpose computer such that when the software is loaded into and/or executed by the computer, the computer becomes an apparatus for practicing the invention. Applications may also be downloaded in whole or in part through the use of a software development kit or toolkit that enables the creation and implementation of
the invention. In this specification, these implementations, or any other form that the invention may take, may be referred to as techniques. In general, the order of the steps of disclosed processes may be altered within the scope of the invention.

An embodiment of the invention is directed to a location-based social network system, or "geosocial network," that enables the display of maps and real-time location information on a location-aware mobile communication device, such a mobile phone or other similar communication devices. FIG. 1A illustrates an example of a communication and computer network system 100 that implements one or more embodiments. In system 100, a plurality of mobile communication devices, such as cell phones or similar devices 102 are coupled to a communication network, such as cell network 111. The location-aware mobile communication devices (or "mobile devices") are each carried and operated by a user and communicate with one another using known communication methods such as wireless telephony, radio, satellite, cellular systems (e.g., GSM, CDMA, and so on), or other similar systems. For the embodiment exemplified by FIG. 1, the mobile communication devices are cellular phones and the network coupling these devices is a cellular telephone network. It should be noted, however, that any other type of wireless network that supports mobile devices can be used. For example, the mobile communication devices referred to herein and throughout may be devices without any connection to a cellular telephone network, but may have access to a wireless network using the Internet, a Wide Area Network (WAN), a Local Area Network (LAN), or any combination thereof. In an embodiment, the mobile communication devices referred to herein and throughout may be WiFi-enabled multimedia devices such as the Apple iPod®, Apple iPod Touch® or Microsoft Zune®.

The social network system of FIG. 1A includes one or more server computers in order to receive, store and transmit data for the system, including but not limited to web server 114, cell server 116, ad server 118 and server 104. One will appreciate that more servers may interact with the social network system in order to provide additional functionalities to complement the social network. For example, FIG. 1A could incorporate an additional server for storing third party content for transmission to mobile devices 102 or client computers 106, an additional server for managing SMS messages from mobile devices 102, an additional server for communicating with other servers managed by cellular telephone network providers, etc. One will appreciate that these additional server functionalities may also be embodied in any of the servers shown in FIG. 1A.
In an embodiment, server computer 104 runs a location-based social network manager process 112. This process controls various data objects relating to one or more social parameters or characteristics of the users of the mobile devices 102. The users of the mobile devices form a group or number of subgroups of people (social network service members) who desire to interact with one another on a social level by communicating with one another, participating in activities, sharing information or experiences, or other types of social or professional interaction based on their location. Because the users of the mobile devices 102 are inherently transitory, a fundamental data object associated with each of the users of the mobile devices 102 is the location of each user within a particular region. Other parameters include the profile of each user, and the preferences of each user with respect to activities, people, privileges, and so on. Each user who desires to interact with other users in the system using this data utilizes the location-based social network manager process 112. Through a subscription, or similar membership-type (free or fee-based) participation model, each user registers with the server computer 104 by providing certain information relating to the user.

Each principle parameter or characteristic for each user is stored in one or more databases accessible to the server computer 104. For the embodiment of FIG. 1, the data objects are stored in a data store 120 and are organized in databases for user profiles 124, user locations 126, user provided data 128, and map tiles 122. The mobile network 111 supporting the mobile devices 102 may be coupled to the server computer 104 through an intermediate server computer, such as cell server 116. Alternatively, mobile devices 102 may communicate directly with server computer 104 in order to access features of the social network manager process 112.

In an embodiment, each user of a mobile device may also operate or access the location-based social network manager process 112 through a client computer 106, or any device that can access the Internet, such as a WAP (Wireless Application Protocol) device 105. The client computer 106, or similar device 105 (hereinafter also referred to as a "client computer"), facilitates the establishment and management of each user's account on the server computer by providing a comprehensive interface to the databases and processes provided on the server computer 104. For the embodiment shown, the client computer interface supported by the server computer is a World-Wide Web (WWW) based interface through a web server 114 to the network 110 that supports the client computers 106. Thus, for this embodiment, the web server 114 is a server or process that stores data in the form of web pages and transmits these pages as Hypertext Markup Language (HTML) or Extensible Markup Language (XML)
files over the Internet 110 to the client computers 106. For this embodiment, the client computers typically run a web browser program to access the web pages served by the web server 114 and any available content provider or supplemental server that may also be coupled to the network. The client computers may access the Internet 110 through an Internet Service Provider (ISP). It should be noted that network 110 may be the Internet, a WAN, a LAN, or any combination thereof.

As shown in FIG. IA, aspects of the one or more embodiments described herein may be implemented on one or more computing devices executing software instructions. The server computer 104 is typically a server or workstation class computer, but can be any type of computing device with sufficient power and resources. One will appreciate that server computer 104 may be just as powerful as any of the web server 114, cell server 116 or ad server 118, and that the system as illustrated in FIG. IA should not be interpreted to place server computer 104 in a lesser tier than the other servers of FIG. IA. Client computer 106 or 105 can be any type of personal computing devices, such as a workstation, personal computer, notebook computer, mobile communication device, game console, camera, personal digital assistant (PDA), or any device with an appropriate amount of processing capability. Likewise, each mobile device 102 can be a mobile computing device, such as a mobile phone, PDA, notebook computer, game console, or any similar class of mobile computing device with sufficient processing and communication capability to interact with other devices over network 111. In the examples provided herein, mobile device 102 may be an Apple iPhone™ or other smartphone having a touchscreen; however, a person having ordinary skill in the art will appreciate that other devices may comprise mobile device 102 without departing from the scope of this disclosure or the spirit of the invention.

As shown in FIG. IA, server computer 104 runs a server-side location-based social network manager process 112. The client computers 106 may run a client side version of this program, or they may access executable program components over the network 110, such as through web browser. Data for any of the clients 106 or mobile devices 102 may be provided by a data store 120 that is closely or loosely coupled to server 104 and/or each network 110 and 111. A separate content provider computer may provide some of the data that is associated with the social network manager program 112. Although data store 120 is shown coupled to the network server 104, it should be noted that content data may be stored in or more data stores coupled to any of the computers of the network, such as a network client 106 or to devices within the network 110 itself.
In an embodiment, the location-based social network manager process 112 contains one or more program components that perform the tasks of displaying location and user profile information related to each mobile communication device that is part of the network, on each mobile device and client computer, and facilitating communication between devices based on the location information. The process also includes a database manager program that manages the different databases stored in data store 120. It should be noted that the various databases 122 to 128 shown in data store 120 can be organized as separate databases, portions of a single database, or any other logical structure appropriate for storing the data. Data store 120 may manage or have access to other databases beyond those illustrated in FIG. IA. For example, data store 120 may manage another database responsible for storing and aggregating content from third-party content providers.

As illustrated in FIG. IA, data store 120 stores user information in user database 124. This information relates to each user of a mobile device 102 and includes basic information, such as the user's name, identifier (nickname or "uid"), security check information (e.g., date of birth, password), and so on. Depending on the social network services provided by the system, this database can also store the user's social and consumer preference information, such as what type of people the user is interested in meeting or dating, what types of food or events the user prefers, and so on. The user provided database 128 stores graphic information related to each user, such as the user's picture, and any other associated images. These images can be displayed on the other user's mobile devices to provide a visual reference for each user.

The user provided database can also store other data objects, such as video clips, audio clips, hypertext links, documents, information downloaded from other social network sites of which the user is a member, or other data provided by or associated with the user. The user provided database also stores user-generated content that can be included in journals or blogs maintained by the user, or published to other social network sites. The journals comprise journal entries that are stored in chronological order and that can be accessed and commented on by other users of the system.

Real-time location information for each user, and geo-tagged places and journal entries, and so on, may be stored in the location database 126. A map database 122 can also be included. This database provides the background maps that are displayed on each user's mobile device and correspond to an area or region around the user at the time the user invokes the process. In an embodiment, the map images comprise map tiles that are image files of maps with varying degrees of granularity. For example, a map tile of the United States may
provide an image of the continental U.S. that can be zoomed to display a regional street level map for any area in the U.S. by using a two-fingered "pinch," tap, or other touchscreen manipulation. One will appreciate that the map display may be changed without engaging the mobile device's touchscreen. For example, the map display may be manipulated and changed on a mobile device that lacks a touchscreen. Regardless if the mobile device 102 has a touchscreen or not, maps may be stored locally within the data store 120 to be provided by the server 104 to the appropriate mobile device 102, or they may be provided by a third party map provider. Other databases storing information relating to the user's of the system and the areas of their operation can also be included in data store 120, such as an events database, a place of interest (POI) database, a store finder database, an advertising content database, coupons, content aggregated from other third party content providers, and the like. Maps may be two-dimensional or three-dimensional, and may display present real-world locations or function in a virtual world to provide location-based social networking services in a virtual environment. Maps may also feature three-dimensional renderings or buildings or other points of interest that the user may interact with as part of the service. The map display may also change depending upon the orientation and/or angle of the mobile device, if the mobile device is equipped with an internal accelerometer or similar mechanism for determining orientation. Variations of different map displays and other graphical user interfaces are illustrated in FIGs. 3-11, which will be discussed further below.

FIG. 1B is a block diagram of components of an example of a location-aware mobile device that is used in the network of FIG. 1A. For the embodiment of FIG. 1B, location-aware device 160 represents a mobile phone or similar mobile device that incorporates the location sharing feature provided by the location-based social network manager process 112. This allows the location of device 160 to be displayed on its own display 170 as well as on the display of other user devices 102, which may or may not have location capabilities, and/or server computers 104. Location information for the device is determined by position determination unit 166, such as a Global Positioning System (GPS) method, or other location determination process implemented within the device 160, such as cell phone tower triangulation, WiFi MAC address localization, or the like. Location information may also be provided by the user or the network. In an embodiment, location information for a mobile device 102 may run as a background process, constantly or periodically updating location information to location-based social network manager process 112. The location information may be provided in a standardized format, such as latitude/longitude to a processor 162 and a
data radio 164. Because of the limited size of the displays on devices 160 and 102, the
background map must be appropriately scaled depending on user preference. In an
embodiment, the scale information is provided by the user through input 168 (e.g., keypad
input or touchscreen input). The data radio 164 transmits the location data for the device as
well as the scale information over network 110 to server 104.

In an embodiment, the location-based social network manager process 112 executed
by server 104 includes a location-to-display process 152. This process converts the location
data into pixel data that displays an icon representing the device 160 on a map that is
appropriately scaled based on user input. The background maps may be provided by a separate
map server 154. The location-based social network manager process 112 includes components
that display the location information for device 160 to other user devices 102 based on lists of
friends whom user 160 has specified as authorized to view such location information. In an
alternative embodiment, the location-to-display process may be implemented in part or in
whole by a process that is executed locally on device 160.

In general, each of the users of mobile devices 102 in FIGS. 1A and 1B subscribe to a
service provided by the location-based social network manager that operates server 112. This
allows them to utilize the location-sharing capabilities of the service. In an embodiment, the
location-based manager process 112 includes modules that allow a user of the service to
communicate location information with users outside of the service. Features or upgrades to
the service may be transmitted to users of the service without requiring a hardware upgrade. In
this fashion, the service can evolve to provide added benefits to mobile communication device
users without forcing users to replace their device or undergo tedious software installations.

FIG. 1C illustrates a network system comprising users within a defined service
network and users outside of the defined service network. As shown in FIG. 1C, network 170
represents a network of users of mobile devices 102 that subscribe to the service provided by
location-based social network manager 112 that is served by server 104. Within network 170,
the location-based manager process 112 controls certain information relating to the client
devices 102. Mobile devices 102 send location information to the server 104 for display on
other client devices within the network 170. Certain relevant information such as user profile
information, subscription information, location, friend networks, alert settings, journal entries,
and other relevant information is stored in data store 120 that is coupled to server 104.

Each mobile device 102 may execute client-side processes that provide certain
services that are native to the device or that are provided by third party providers such as ISP's
or cellular service providers. These can include messaging services and the like. However, as will be detailed further below, each mobile device 102 may be given additional features by the software embodiment of the invention. Certain data regarding these native and additional features and user settings may be stored in a local storage 176 within the mobile device 102.

In an embodiment, a computer program product comprising a computer usable medium having a computer readable program code embodied therein and adapted to implement the inventive method may be stored in local storage 176. In an embodiment, local storage 176 may store data objects such as contact lists, phone books, user preferences, and the like.

In an embodiment, the location-based social network manager process 112 includes an external network manager process 178 that allows certain limited communication of location-based information to mobile devices 172 that are outside of network 170, and hence are not users of the service provided by the location-based social network manager. The external network manager process 178 allows for the transmission of a user's location to anyone in the locally stored address book or buddy list as a text message to the external mobile device 172.

As previously stated, mobile devices 102 of FIGs. 1A-1C may be enhanced to perform certain features in order to provide the location-based social network services of the invention. In an embodiment, mobile devices 102 of FIGs. 1A-1C are location-aware mobile communication devices that accept instructions using a touchscreen.

In an embodiment, a first user of mobile device 102 can see his or her location on a map display on the mobile device 102. In addition, the first user of mobile device 102 may see other users of other mobile devices 102 (trusted friends) within the defined service network 170 of FIG. 1C, as well as one or more POI locations in the vicinity of the user. In an embodiment, the map display updates when the first user of mobile device 102 moves location to show other trusted friends or other POI locations. Methods by which users of other mobile devices 102 become "trusted friends" may be found in U.S. Pat. App. No. 11/445,730, entitled DISPLAYING THE LOCATION OF INDIVIDUALS ON AN INTERACTIVE MAP DISPLAY ON A MOBILE COMMUNICATION DEVICE, filed June 1, 2006; and U.S. Pat. App. No. 11/881,836, entitled SECURE AND PRIVATE LOCATION SHARING FOR LOCATION-AWARE MOBILE COMMUNICATION DEVICES, filed July 30, 2007; both of which are owned by the assignee of this application and incorporated in full herein.

In some cases, one or more POI locations or trusted friends or other displayed users may lie beyond what is shown on the map display of mobile device 102. For example, there may be one or more POI locations to the north, east, south or west of the first user of mobile
device 102 that cannot be seen on the map display due to screen size constraints or the
selected dimensions of the map. In these circumstances, the number of POI beyond map
display may be shown as a notification number positioned on the corresponding edge of map
display. For example, if there are two POI to the north of the first user that are not shown on
the map display, then the number "2" may be displayed on the northmost part of the map
display. Similarly, if there are five POI to the west of the first user that are not visible on the
map display, then the number "5" may be displayed on the westmost part of the map display.
In an embodiment, as will be discussed further below, the number notification may be
displayed at the bottom of the map display. Alternatively, instead of a number, some other
notification may be displayed in the corresponding direction, such as an arrow, an animated
icon, or the like. Using the touchscreen of mobile device 102, the first user may toggle the
map display to navigate to these other POI by selecting the notification, number, or other such
icon. In an embodiment, the first user may activate some other command, such as zoom, a
finger gesture, or by tilting the mobile device 102 to change location and/or orientation of the
mobile device 102. Whenever the map display changes, these numeric or other such
notifications may automatically update to reflect the change in the displayed position.

As discussed above, one or more POI locations may be shown on a map display on
mobile device 102 relative to the user of mobile device 102. These one or more POI locations
may be associated with other information beyond the location and name of the POI. In an
embodiment, a POI may be tagged or otherwise associated with information as disclosed in
U.S. Pat. App. No. 11/445,751, entitled DISPLAYING AND TAGGING PLACES OF
INTEREST ON LOCATION-AWARE MOBILE COMMUNICATION DEVICES IN A
LOCAL AREA NETWORK, filed on June 1, 2006 and incorporated in full herein.

For example, if the POI is a restaurant, there may be reviews of the restaurant which
may be viewed by clicking or selecting the POI. These reviews may be generated by other
users within the service network 170, or may be aggregated from content providers outside of
the service network 170 and stored in a database managed by data store 120 of FIG. IA.

FIG. 2 is a diagram depicting an embodiment of a method for viewing POI
information by a user of a mobile device 102. Performance of the method shown in FIG. 2
may require use of one or more of the elements shown in FIG. IA, FIG. IB or FIG. IC. In
addition, the method of FIG. 2 assumes that the user of mobile device 102 has downloaded
and installed a computer program product that enables interaction with the location-based
social network manager 112. In the following example, social network manager 112 receives
queries from the user of mobile device 102; however, one will appreciate that any of the servers 104, 114, 116, 117, 118, 154 shown in FIG. IA, FIG. IB and FIG. 1B may in fact receive user queries or may process user queries. Additionally, in the following example, reference is made to a map display on a user's mobile device 102. One will appreciate that information shown on a map display may also be shown as a list or other graphical format.

In 201 of FIG. 2, a user performs a search for one or more POI locations near the user using mobile device 102. This search request is received by the social network manager 112 (or any of the servers listed previously and shown in FIG. IA, FIG. IB and FIG. 1C). Entering a search request may involve inputting on mobile device 102 one or more keywords into a search box on the computer program product graphical user interface. Keywords may include a type of POI, such as "bar" or "restaurant," or other descriptive terms, such as "tea" or "burrito." In an embodiment, a user may enter the name of a product or service in order to locate a POI that sells the searched-for product or provides the requested service. In 203 of FIG. 2, social network manager 112 confirms whether it recognizes the entered keywords, i.e. the keywords match keywords associated with one or more POI. If social network manager 112 recognizes the keywords, then in 207 of FIG. 2, the user receives one or more search results shown on a map display on the user's mobile device 102. The map display may show the location of one or more POI search results relative to the user's location, in addition to any trusted friends that may be in the vicinity. In addition, the user can access more information about a POI by selecting the POI on the map display.

In an embodiment, the social network manager 112 may not recognize the inputted keywords or may not locate any search results that match the inputted keywords. In this case, as shown in 205 of FIG. 2, social network manager 112 may suggest alternate keywords to the user. For example, the user may have entered a keyword with a typographical error, and in 205 of FIG. 2, social network manager 112 may suggest a corrected keyword. If the corrected keyword is acceptable to the user, then the user may input the corrected keyword into the search box in the computer program product on mobile device 102 and thereby initiate another search.

In 209 of FIG. 2, the user uses mobile device 102 to select one of the POI locations shown on the map display. Social network manager 112 receives this request for information about the selected POI from mobile device 102, and in 211 of FIG. 2, social network manager 112 provides the mobile device 102 with more information about the POI, such as an address, a phone number, a link to a website, other photographs or video about the POI, directions, etc.
In embodiment, information about the POI may include commentary or other editorial content about the POI provided by other members of within the defined service network 170, or may be provided by member outside of defined service network 170. In an embodiment, additional information about a POI from one or more content providers may also be provided to mobile device 102. For example, websites such as www.yelp.com and www.citysearch.com often store information about POI locations. Information from one or more of these websites can be aggregated and displayed on mobile device 102 in addition to the commentary from other members and non-members as described above. One will appreciate that variations are possible, so long as mobile device 102 is able to receive and display additional information about a POI near the user's location.

In an embodiment, information about a POI may include information about an event scheduled to occur at the POI. The user may be presented with an option to attend the event, add event information to a calendar application on his mobile device 102, invite other people to the event, see a list of potential attendees to the event, or see editorial content about the event provided by other people. Information about a POI may be displayed based upon the user's express preferences or may be based upon the user's previous behaviors, such as commenting or frequenting certain types of POI, or an established pattern of using incentives related to certain types of POI.

In an embodiment, information about a POI may include advertising content, a coupon or other incentives. This information may be provided to the user using techniques described in U.S. Patent App. No. 11/931,1 13, entitled LOCATION-BASED ADVERTISING MESSAGE SERVING FOR MOBILE COMMUNICATION DEVICES, filed October 31, 2007 and incorporated in full herein. One will appreciate that information about a POI may change depending upon the proximity of the user and the time of day that the user selects the POI from the map display on mobile device 102. For example, if the POI is a restaurant, certain incentives may only be provided to a user if the user selects the POI from the map display between the hours of 4:00 pm and 7:00 pm. For purposes of selling the opportunity to provide advertising content to POI owners, this allows the social network service provider the ability to valuate advertising based upon time, popularity (as determined by search results metrics) and location.

In an embodiment, POI locations near a user may be provided to mobile device 102 without requiring an initial search query. In other words, when a user launches the computer program product on his mobile device 102, the map display may automatically display POI
locations near the user depending upon the user's profile information or other user settings. For example, the user's profile information may list an interest in small-batch bourbons, Taiwanese cuisine or mixed martial arts. In this fashion, mobile device 102 may automatically display events related to small-batch bourbons, Taiwanese cuisine or mixed martial arts within the user's vicinity, without the user searching for these events. The user may set his mobile device 102 to automatically search for any events matching profile information, can set his mobile device 102 to perform automatic searches, or the computer program product running on the mobile device 102 can search and display results to match the user's profile or make suggestions to the user based on profile information. In an embodiment, any event involving a trusted friend of the user may appear on the user's map display, if the user is within a certain proximity to the event. In this fashion, mobile device 102 may be automatically updated with activities of the user's trusted friends. In an embodiment, the user may limit the types and amount of POI information, or may limit the time of day when POI information may be published on the user's map display, or may limit which trust friends' events may be published on the user's map display.

FIGS. 3-11 are exemplary screenshots of a computer program product's graphical user interface. A user who has installed the computer program product on his touchscreen-enabled mobile device 102 may interact with the computer program product using the graphical user interfaces so that the computer program product can perform the methods discussed above.

FIG. 3 is an exemplary screenshot of a map display on a mobile device 102, which is shown as 301 on the map display of FIG. 3. The map display shows a POI 303 located near mobile device 301. In FIG. 3, POI 303 is a restaurant called "Tofu House." Dialog box 305 shows some additional information about POI 303. In addition, notification 307 identifies that there is at least one event that may be of interest to the user of mobile device 102 which has not been read. One will appreciate that selecting POI 303, dialog box 305 or notification 307 may lead the user to a different graphical user interface that provides more information about the selected item.

FIG. 4 is an exemplary screenshot of a map display on a mobile device 102, which is shown as 401 on the map display of FIG. 4. The map display shows a POI 403 located near mobile device 401. In FIG. 4, POI 403 is an event. Dialog box 409 identifies that POI 403 is a meeting or "meet up" with three trusted friends of the user of mobile device 102. In addition, notification 407 identifies that there is at least one event that may be of interest to the user of mobile device 102 which has not been read. One will appreciate that selecting POI 403, dialog
box 405 or notification 407 may lead the user to a different graphical user interface that provides more information about the selected item.

FIG. 5 is an exemplary screenshot of a list display on mobile device 102. In an embodiment, the list display of FIG. 5 may appear after the user of mobile device 102 selects POI 303, dialog box 305 or notification 307 of FIG. 3, or POI 403, dialog box 405 or notification 407 of FIG. 4. In an embodiment, there may be a toggle button that switches the graphical user interface between a map display such as in FIG. 3 or FIG. 4, and the list display such as in FIG. 5.

In FIG. 5, the user of mobile device 102 is shown as item 511 in the list display. Various trusted friends 513 of the user of mobile device 102 may be listed below item 511. Each trusted friend 513 can send an invitation or provide some other message that will appear in the list display of FIG. 5, so that user of mobile device 102 can quickly check that status, proximity and other events pertaining to his trusted friends. Also shown in FIG. 5 is a list of events, such as meet up 509 or restaurant 505. In addition, the list display may show an available coupon or other incentive 517, which may be limited to the time that the user of mobile device 102 is located near the entity offering the incentive 517. Notification 507 identifies that there is at least one event that may be of interest to the user of mobile device 102 which has not been read. One will appreciate that selecting notification 507, trusted friend 513, meet up 509, restaurant 505, or incentive 517 may lead the user to a different graphical user interface that provides more information about the selected item.

FIG. 6 is an exemplary screenshot of a list display on mobile device 102. In an embodiment, the list display of FIG. 6 may appear after the user of mobile device 102 selects a toggle button that switches the graphical user interface between a map display such as in FIG. 3 or FIG. 4, and the list display such as in FIG. 6. The list display of FIG. 6 may also appear as the result of a search, such as is performed in FIG. 2. The first listing in the list display of FIG. 6 is POI 605, which may be positioned at the top of the display because it is the best matching search result, because it is closest in proximity to mobile device 102, or because an advertiser or other entity has paid for the opportunity to list POI 605 at the top of a list display. The topmost POI may display because it may match a setting in the user's profile.

For example, the user of mobile device 102 may have a preference for Korean food, and as a result, "Tofu House" automatically appears at the top of the list display of FIG. 6. In an embodiment, the social network manager 112 of FIG. 1 may keep a record of the locations that the user of mobile device 102 frequents, and may offer suggestions for display to the user.
based upon these locations. Other listings, such as POI 615 may be listed below POI 605. The user of mobile device 102 can use search box 619 to find other POI.

FIG. 7 is an exemplary screenshot of more detailed information about a POI. In an embodiment, the information screen may appear after the user of mobile device 102 selects a POI or dialog box from the map display. The information screen of FIG. 7 may list the average price, contact information and review information for a POI. In addition, the information screen of FIG. 7 may show commentary from a trusted friend of the user of mobile device 102.

FIG. 8 is an exemplary screenshot of more detailed information about a POI. In FIG. 8, the user of mobile device 102 may have an opportunity to add his own review 819 or commentary 821 about the displayed POI. In addition, the information screen may list other users who have added commentary about the displayed POI.

FIG. 9 is an exemplary screenshot of third party content that may appear on the graphical user interface of mobile device 102. Review 923 is an example of content from the yelp.com website, which may appear alongside content from other third party content providers when the user of mobile device 102 views additional information about a POI. In an embodiment, the user may also be able to add content to the third party content provider website using the invention. In addition to viewing third party content, the user of mobile device 102 may also view user commentary, as is shown in FIG. 10. In an embodiment, the user may also be able to add commentary that may be viewed by other members of the network service 170 of FIG. 1C.

As discussed previously, the invention may be used to build, sustain and support a social network. In order to build community ties between social network members, i.e. member of network service 170, members may wish to view the activities of other members.

FIG. 11 is an exemplary screenshot of a timeline of user activities 1121 that may be viewed from mobile device 102. Member users may update their activities directly on their respective devices, or these activities may be aggregated from and updated to other social network sites.

One will appreciate that in the description above and throughout, numerous specific details are set forth in order to provide a thorough understanding of the invention. It will be evident, however, to one of ordinary skill in the art, that the invention may be practiced without these specific details. In other instances, well-known structures and devices are shown in block diagram form to facilitate explanation. The description of the preferred embodiments is not intended to limit the scope of the claims appended hereto. Further, in the methods
disclosed herein, various steps are disclosed illustrating some of the functions of the invention. One will appreciate that these steps are merely exemplary and are not meant to be limiting in any way. Other steps and functions may be contemplated without departing from this disclosure or the scope of the invention.
CLAIMS

What is claimed is:

1. A method comprising:
   providing a server coupled to a first location-aware mobile communication device and a second location-aware mobile communication device over a cellular telephone network, the server storing a last known location of the second location-aware mobile communication device;
   transmitting, by the server, the last known location of the second location-aware mobile communication device to the first location-aware mobile communication device;
   displaying, on the first location-aware mobile communication device, a map of an area around the first location-aware mobile communication device, the map including the last known location of the second location-aware mobile communication device and at least one point of interest (POI); and
   displaying, on the first location-aware mobile communication device, information about the at least one POI.

2. The method of claim 1, wherein the first location-aware mobile communication device has a touchscreen.

3. The method of claim 1, wherein information about the at least one POI includes commentary about the POI from a third party provider.

4. The method of claim 1, wherein information about the at least one POI includes commentary from a user of the second location-aware mobile communication device.

5. The method of claim 1, wherein information about the at least one POI includes commentary from a member of a social network.

6. The method of claim 5, wherein the member of the social network is located at the at least one POI.

7. The method of claim 1, wherein information about the at least one POI includes event information.
8. The method of claim 1, wherein information about the at least one POI includes a picture of the least one POI.

9. The method of claim 1, wherein information about the at least one POI includes an advertising message from the POI.

10. The method of claim 1, wherein information about the at least one POI includes a coupon for use at the POI.

11. The method of claim 1, wherein information about the at least one POI is displayed depending upon a time of day.

12. The method of claim 1, wherein information about the at least one POI is displayed depending upon a previous known location of the first location-aware mobile communication device.

13. The method of claim 1, wherein information about the at least one POI is displayed depending upon settings provided by a user of the location-aware first mobile communication device.

14. The method of claim 1, further comprising the server transmitting a last known location of the first location-aware mobile communication device to a third party web server for publication on a web page for the first location-aware mobile communication device.

15. The method of claim 1, further comprising:
   displaying information about a user of the second location-aware mobile communication device when the user of the first location-aware mobile communication device selects the last known location of the second location-aware mobile communication device on the map.

16. The method of claim 15, wherein information about the user of the second location-aware mobile communication device includes at least one status message.
17. The method of claim 15, wherein information about the user of the second location-aware mobile communication device includes contact information for the user of the second location-aware mobile communication device.

18. The method of claim 15, wherein information about the user of the second location-aware mobile communication device includes a graphical representation of the user of the second location-aware mobile communication device.

19. A method comprising:
   providing a server coupled to a first location-aware mobile communication device over a cellular telephone network, the server storing a last known location of the first location-aware mobile communication device and storing information about at least one POI; and displaying, on the location-aware mobile communication device, a map of an area around the first location-aware mobile communication device, the map including information about the at least one POL

20. The method of claim 19, wherein the first location-aware mobile communication device has a touchscreen.

21. The method of claim 19, further comprising displaying, on the map, a last known location of a member of a social network.

22. The method of claim 19, wherein information about the at least one POI includes commentary about the POI from a third party provider.

23. The method of claim 19, wherein information about the at least one POI includes commentary from a member of a social network.

24. The method of claim 19, wherein information about the at least one POI includes event information.
25. The method of claim 19, wherein information about the at least one POI includes a picture of the least one POI.

26. The method of claim 19, wherein the event information includes an invitation to attend the event from the member of the social network.

27. The method of claim 19, wherein information about the at least one POI includes an advertising message from the POI.

28. The method of claim 19, wherein information about the at least one POI includes a coupon for use at the POI.

29. The method of claim 19, wherein information about the at least one POI is displayed depending upon a time of day.

30. The method of claim 19, wherein information about the at least one POI is displayed depending upon a previous known location of the first location-aware mobile communication device.

31. The method of claim 19, wherein information about the at least one POI is displayed depending upon settings provided by a user of the location-aware first mobile communication device.

32. The method of claim 19, further comprising the server transmitting the last known location of the first location-aware mobile communication device to a third party web server for publication on a web page for the first location-aware mobile communication device.

33. The method of claim 21, further comprising:
   displaying information about the member of the social network when a user of the first location-aware mobile communication device selects, on the map, the last known location of the member of the social network.
34. The method of claim 33, wherein information about the member of the social network includes at least one status message.

35. The method of claim 33, wherein information about the member of the social network includes the member's contact information.

36. The method of claim 33, wherein information about the member of the social network includes a graphical representation of the member.
FIG. 1C
Server Receives Search Request from Mobile Device

- 201

Recognize Search Request Keywords?

- 203

Yes

- 207

Display Search Results

- 209

Receive Request for Information About POI

- 211

Display Information About POI

- 205

Suggest Keywords for Input to Server

- 203

No

FIG. 2
Tofu House
Check this place out
It got great reviews
Me
Let's grab coffee
@ Cafe du Soleil

Stephane
Let's grab some dinner
@ Tofu House

Wendy
Let's see some live music
@ suggest a place

3 Friends Nearby
Meet Up with Jamie Neal,
Kelly Johnson & Dan Garcia

Tofu House
Check this place out
It got great reviews

Red Rock Cafe
Check this place out
Get 2 for 1 Coffee

Tommy
Let's grab coffee

Going On?
Places
People
Me
Mix

FIG. 5
Grain D'or

Lorem Ipsum dolor.
sit amet.
Consectetuer
Adipiscing elit, se.

(650) 254 89 59
graintdor@or.com
www.graindor.com

Meh 3 min ago

Going On ? Places People Me Mix

FIG. 7
Where is your mind?
Patrick said Men 3 min ago

Ann Williams said Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor...
1 hour ago

Kelly said Perfect! 5 hours ago

Ann Williams said Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt...
1 hour ago

1 Going On? Places People Me Mix

FIG. 11
A CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H04M 11/04 (2009.01)
USPC - 455/404 2
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)
IPC(8) - H04M 11/04 (2009 01)  
USPC - 455/404 2, 435 1, 457, 705/10, 14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
USPTO EAST System (US, USPG-PUB, EPO, DERWENT), PatBase, Google Patent

C DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No</th>
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<tr>
<td></td>
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<td>2 and 20</td>
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<tr>
<td>Y</td>
<td>US 2006/0047825 A1 (STEENSTRA et al) 02 March 2006 (02 03 2006) entire document</td>
<td>2 and 20</td>
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Further documents are listed in the continuation of Box C

"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
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Date of the actual completion of the international search
24 August 2009

Date of mailing of the international search report
01 SEP ZWY

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
Blame R Copenheaver
PCT Helpdesk, 571 272-4300
PCTOSP 571-272 7774

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