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Method and system for sharing and storing digital information in mobile devices

Abstract

A method and system for sharing digital information, including biographical information is described. A method for sharing biographical information on mobile telecommunication device that includes providing an application for sharing bio-cards on a mobile telecommunication device, receiving inputs including biographical information, one or more selected bio-card layouts and one or more bio-card graphics, creating one or more bio-cards based on the received inputs, and retrieving potential bio-card recipients. The mobile telecommunication device includes a processor and a memory and bio-cards are digital representations of biographical information about a user that may be displayed on the mobile telecommunication device. The potential bio-card recipients include mobile telecommunication devices. The method further includes displaying the created one or more bio-cards, receiving a selection of one or more recipients to receive a bio-card; receiving a selection of a bio-card to send to the selected one or more recipients; and transmitting the selected bio-card to the one or more selected recipients.

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Claims

1. A method for sharing biographical information on mobile telecommunication devices, comprisingproviding an application for sharing bio-cards on a mobile telecommunication device, wherein the mobile telecommunication device includes a processor and a memory and bio-cards are digital representations of biographical information about a user that may be displayed on the mobile telecommunication device;receiving inputs including biographical information, one or more selected bio-card layouts and one or more bio-card graphics;creating one or more bio-cards based on the received inputs utilizing the processor;retrieving potential bio-card recipients, wherein the potential bio-card recipients include mobile telecommunication devices;displaying the created one or more bio-cards;receiving a selection of one or more recipients to receive a bio-card;receiving a selection of a bio-card to send to the selected one or more recipients; andtransmitting the selected bio-card to the one or more selected recipients, wherein the transmitting the selected bio-card comprises:retrieving the biographical information, a card ID corresponding to the bio-card layout, a tag corresponding to the bio-card graphics, and a recipient ID; andsending a sender ID, the biographical information, card ID, tag and recipient ID, wherein the one or more selected recipients include stored bio-card layouts and bio-card graphics that are retrieved using the card ID and tag.

2. The method of claim 1 wherein the transmitting the selected bio-card sends the biographical information, card ID, tag and recipient ID over a telecommunication network.

3. The method of claim 2 wherein the transmitting the selected bio-card sends the biographical information, card ID, tag and recipient ID over a telecommunication network to a server.

4. The method of claim 3, wherein the transmitting the selected bio-card further sends user generated or user obtained information over the telecommunication network to the server, wherein the user generated and/or user obtained information include graphics, photos, videos and sound.

5. The method of claim 4, wherein the user generated and/or user obtained information is stored in the server.

6. The method of claim 3 further comprising:registering the application with the server;updating information corresponding to a sender on a server database based on the sender ID and the sent the biographical information, card ID, tag and recipient ID; andthe server forwarding the biographical information, card ID, tag and recipient ID over a telecommunication network to the recipient mobile telecommunication device.

7. The method of claim 1 further comprising the server synchronizing the created one or more bio-cards with a sender entry in a server database.

8. The method of claim 1 further comprising determining if the selected recipient has a current version of the application running.

9. The method of claim 8 wherein if the selected recipient does not have a current version of the application running, the transmitting the selected bio-card sends the biographical information in a text to the recipient.

10. The method of claim 1 wherein the bio-card includes a photograph of a user.

11. The method of claim 1 wherein the bio-card includes dynamically updating data that is continuously updated, the transmitting the selected bio-card includes sending a data field corresponding to the dynamically updating data.

12. The method of claim 11, wherein the dynamically updating data is stored on the server and the method further comprises the server sending the dynamically updating data to the one or more selected recipients.

13. The method of claim 12, wherein the dynamically updating data is multimedia content.

14. The method of claim 1 further comprising:a selected recipient receiving the sender ID, the biographical information, card ID and tag and recipient ID;the selected recipient retrieving the bio-card layout with the card ID and the bio-card graphics with the tag; andthe selected recipient populating the layout with the biographical information and the graphics.

15. The method of claim 1 wherein the retrieving potential bio-card recipients comprises the application connecting to other mobile telecommunication devices and determining whether the other mobile telecommunication devices are running the application.

16. The method of claim 1 wherein the transmitting the selected bio-card sends the biographical information, card ID, tag and recipient ID to the one or more selected recipients.

17. The method of claim 1 further comprising:receiving a gift selection for a selected recipient;registering the selected gift with a corresponding vendor;receiving a gift code from the corresponding vendor; andtransmitting a product ID corresponding to the gift and the gift code to the selected recipient.

18. The method of claim 17 further comprising:the selected recipient receiving the product ID and the gift code;retrieving the gift using the product ID; andredeeming the gift, wherein redeeming the gift includes transmitting the gift code to the vendor.

19. A computer readable medium containing instructions for sharing biographical information on mobile telecommunication devices, by:receiving inputs including biographical information, one or more selected bio-card layouts and one or more bio-card graphics, wherein bio-cards are digital representations of biographical information about a user that may be displayed on the mobile telecommunication device;creating one or more bio-cards based on the received inputs utilizing a processor;retrieving potential bio-card recipients, wherein the potential bio-card recipients include mobile telecommunication devices;displaying the created one or more bio-cards;receiving a selection of one or more recipients to receive a bio-card;receiving a selection of a bio-card to send to the selected one or more recipients; andtransmitting the selected bio-card to the one or more selected recipients, wherein the transmitting the selected bio-card comprises:retrieving the biographical information, a card ID corresponding to the bio-card layout, a tag corresponding to the bio-card graphics, and a recipient ID; andsending a sender ID, the biographical information, card ID, tag and recipient ID, wherein the one or more selected recipients include stored bio-card layouts and bio-card graphics that are retrieved using the card ID and tag.

20. A system for sharing biographical information on mobile telecommunication devices, comprising:a server;a database associated with the server; anda mobile telecommunications device, connected to the server via a telecommunications network, the mobile telecommunication device including a processor and a memory, the memory including instructions, executed by the processor, for sharing bio-cards,

wherein the bio-cards are digital representations of biographical information about a user that may be displayed on the mobile telecommunication device, the instructions including instructions for:receiving inputs including biographical information, one or more selected bio-card layouts and one or more bio-card graphics;creating one or more bio-cards based on the received inputs utilizing the processor;retrieving potential bio-card recipients, wherein the potential bio-card recipients include mobile telecommunication devices;displaying the created one or more bio-cards;receiving a selection of one or more recipients to receive a bio-card;receiving a selection of a bio-card to send to the selected one or more recipients; andtransmitting the selected bio-card to the one or more selected recipients, wherein the transmitting the selected bio-card comprises:retrieving the biographical information, a card ID corresponding to the bio-card layout, a tag corresponding to the bio-card graphics, and a recipient ID; andsending a sender ID, the biographical information, card ID, tag and recipient ID, wherein the one or more selected recipients include stored bio-card layouts and bio-card graphics that are retrieved using the card ID and tag.

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001]This application claims priority of U.S. Provisional Application Ser. No. 61/129,400, filed Jun. 24, 2008 which is hereby incorporated by reference in its entirety.

BACKGROUND

[0002]Present methods and mechanisms for passing contact information are slow and inefficient. They involve exchanging business cards or writing down such information. In today's world with the ubiquitous mobile phone and other mobile communication devices, manually passing contact information is archaic. Unfortunately, the existing methods for passing contact information or other digital information from mobile device to mobile device are lacking. For example, Bluetooth information passing is hardware based, requires Bluetooth to be running on both phones, and is currently plagued by a painfully inefficient, cumbersome and time-consuming "pairing" requirement. Likewise, infrared information passing, which preceded Bluetooth, is also hardware based, not supported by many current phones, and is plagued by poor reliability and direct line of sight issues (local only). Additionally, vCards, sent via MMS or e-mail, while software based, simply provide a textual file format that is not flexible or user friendly and that lacks advanced features and graphical interface. None of these methods have been widely adopted.

SUMMARY

[0003]Embodiments described herein provide numerous advantages over the prior art, including those described herein. These advantages may be provided by, for example, a method for sharing biographical information on mobile telecommunication devices. The method includes providing an application for sharing bio-cards on a mobile telecommunication device, receiving inputs including biographical information, one or more selected bio-card layouts and one or more bio-card graphics, creating one or more bio-cards based on the received inputs, and retrieving potential bio-card recipients. The mobile telecommunication device includes a processor and a memory and bio-cards are digital representations of biographical information about a user that may be displayed on the mobile telecommunication device. The potential bio-card recipients include mobile telecommunication devices. The method further includes displaying the created one or more bio-cards, receiving a selection of one or more recipients to receive a bio-card; receiving a selection of a bio-card to send to the selected one or more recipients; and

transmitting the selected bio-card to the one or more selected recipients. The transmitting the selected bio-card comprises retrieving the biographical information, a card ID corresponding to the bio-card layout, a tag corresponding to the bio-card graphics, and a recipient ID and sending a sender ID, the biographical information, card ID, tag and recipient ID. The one or more selected recipients include stored bio-card layouts and bio-card graphics that are retrieved using the card ID and tag.

[0004]These and other advantages may also be provided by a computer readable medium containing instructions for sharing biographical information on mobile telecommunication devices. The instructions include instructions for receiving inputs including biographical information, one or more selected bio-card layouts and one or more bio-card graphics. The bio-cards are digital representations of biographical information about a user that may be displayed on the mobile telecommunication device. The instructions further include instructions for creating one or more bio-cards based on the received inputs utilizing a processor, retrieving potential bio-card recipients, displaying the created one or more bio-cards, receiving a selection of one or more recipients to receive a bio-card; receiving a selection of a bio-card to send to the selected one or more recipients; and transmitting the selected bio-card to the one or more selected recipients. The potential bio-card recipients include mobile telecommunication devices and the transmitting the selected bio-card comprises retrieving the biographical information, a card ID corresponding to the bio-card layout, a tag corresponding to the bio-card graphics, and a recipient ID and sending a sender ID, the biographical information, card ID, tag and recipient ID. The one or more selected recipients include stored bio-card layouts and bio-card graphics that are retrieved using the card ID and tag.

[0005]These and other advantages may also be provided by a system for sharing biographical information on mobile telecommunication devices. The system includes a server, a database associated with the server, and a mobile telecommunications device, connected to the server via a telecommunications network, that includes a processor and a memory, the memory including instructions, executed by the processor, for sharing bio-cards. The bio-cards are digital representations of biographical information about a user that may be displayed on the mobile telecommunication device and the instructions including instructions for receiving inputs including biographical information, one or more selected bio-card layouts and one or more bio-card graphics, creating one or more bio-cards based on the received inputs utilizing the processor, retrieving potential bio-card recipients, displaying the created one or more bio-cards, receiving a selection of one or more recipients to receive a bio-card; receiving a selection of a bio-card to send to the selected one or more recipients; and transmitting the selected bio-card to the one or more selected recipients. The transmitting the selected bio-card comprises retrieving the biographical information, a card ID corresponding to the bio-card layout, a tag corresponding to the bio-card graphics, and a recipient ID and sending a sender ID, the biographical information, card ID, tag and recipient ID. The one or more selected recipients include stored bio-card layouts and bio-card graphics that are retrieved using the card ID and tag.

BRIEF DESCRIPTION OF THE FIGURES

[0006]The detailed description will refer to the following drawings, wherein like numerals refer to like elements, and wherein:

[0007]FIG. 1 is a drawing illustrating an embodiment of a graphical interface for sharing biographical information, or a Bio-card, provided by embodiments of a method and system for sharing and storing digital information in mobile devices;

[0008]FIG. 2 is a block diagram illustrating an embodiment of a system for sharing and storing digital information (e.g., bio-data) in mobile devices;

[0009]FIG. 3 is a drawing illustrating an embodiment of a graphical user interface for sharing biographical information provided by embodiments of a method and system for sharing and storing digital information in mobile devices;

[0010]FIG. 4 is a diagram illustrating screens of an embodiment of an application for sharing biographical information provided by embodiments of a method and system for sharing and storing digital information in mobile devices;

[0011]FIG. 5 is a diagram illustrating screens of an embodiment of an application for sharing biographical information provided by embodiments of a method and system for sharing and storing digital information in mobile devices;

[0012]FIG. 6 is a block diagram illustrating an embodiment of a system for sharing and storing digital information (e.g., bio-data) in mobile devices;

[0013]FIG. 7 is a flowchart illustrating an embodiment of a method for sharing and storing digital information (e.g., bio-data) in mobile devices;

[0014]FIG. 8 is a drawing an embodiment of a graphical interface for sharing biographical information, or a Bio-card, provided by embodiments of a method and system for sharing and storing digital information in mobile devices;

[0015]FIG. 9 is a flowchart illustrating an embodiment of a method for sharing electronic gifts provided by provided by embodiments of a method and system for sharing and storing digital information in mobile devices;

[0016]FIGS. 10A-10B are drawings illustrating embodiments of graphical user interfaces for sharing electronic gifts provided by provided by embodiments of a method and system for sharing and storing digital information in mobile devices; and

[0017]FIG. 11 is a flowchart illustrating an embodiment of a method of sending bio-data (e.g., Bio-cards) using embodiments of a method and system for sharing and storing digital information in mobile devices.

DETAILED DESCRIPTION

[0018]Described herein are a method and system for sharing and storing digital information in mobile devices. An embodiment of the method and system share and store contact data within the context of a "mobile device" to "mobile device" interaction ("M2M"). Mobile device as used herein is a mobile telecommunication device capable of transmitting and receiving data, including voice, text, multimedia and other data as described herein, from and to a telecommunications network. This embodiment sends and receives contact data using a unique graphical interface that offers significant advantages over the prior art. However, it is important to note that the method and system extend to virtually any type of information that can be represented digitally.

[0019]Embodiments of the system and method provide a unique, graphical interface to enable and effect an improved and simplified transmission of biographical information ("bio-data") (or other digital data) from one mobile device to another mobile device. This embodiment works on a cross-platform basis. In an implementation, this embodiment provides a M2M bio data exchange using a graphical, business card-like format. Other implementations may exchange data as a profile page, such as, e.g., a MySpace.TM. or Facebook.TM. profile page. Another embodiment enables digital "zoning" of space in

the graphical interface (e.g., such as on the digital business card or profile page) used to convey bio-data (or other digital data) into a combination of zones. In an embodiment, the zones include a static zone, in which the information rarely, if ever, changes, a slowly-changing zone, in which the information changes infrequently, and a dynamic zone, in which the information is constantly and dynamically updated to provide relevant, timely information. An implementation of this embodiment refers to the dynamic zone as "DynaData" and it may include dynamically served multimedia content such as videos, audio and slide-shows. Yet another embodiment utilizes the unique, graphical, bio-data-based interface to provide a graphics-rich, contact-based, dynamic, mobile digital marketplace in which people are instantly matched with products, services or virtually any digital asset, as described below. Such a digital marketplace enables users to, e.g., choose recipient(s), choose a product/service/digital file (e.g., a coupon or certificate, a purchase voucher, a photo, a video, resume, etc.) (the "gift"), send the gift instantly to the chosen recipient, who receives the gift instantly and may redeem the gift instantly to acquire the product or service. All of this may be done M2M.

[0020]Embodiments of the system and method described herein provide a highly interactive interface that includes rich graphics and design. The interface extends the familiar concept of a business card to the digital, mobile phone or mobile device platform. Embodiments utilize a simple, intuitive send and receive process and efficient data flow architecture, utilizing a client-centric approach. The system and method provide a server and client networking option.

[0021]With reference now to FIG. 1, shown is a screen shot of three examples of a graphical interface 100 for sharing digital information 102 M2M. The digital information here is biographical information 102, e.g., contact information. The graphical interface 100 here is a digital business card (a "Bio-Card"), although the graphical interface 100 may be configured as a profile page or other presentation of biographical, or other digital, information. The Bio-Card 100 shown allows users to present, share and store biographical data 102 in a fully graphical context, mimicking and enhancing familiar concept of the traditional business card. The biographical information 102 in each Bio-Card 100 may include one or more photographs 104 of the user to whom the Bio-Card 100 pertains.

[0022]Bio-Cards 100 are a distinct departure from plain vCard attachments or Text-Based Phone PIM approaches. Bio-Card 100 are customizable by the user. Using an application loaded on the user's mobile device (e.g., the "SnapDat" application), the system and method offer a wide array of background art, multimedia images, fonts, colors, styles, text effects and layouts (collectively, "graphics") 106 for Bio-Card 100. The application may be client software running on the mobile device. The application may interact with a system server in a client-server or other architecture. Embodiments described herein enable users to further customize their Bio-Card(s) 100, customizing the design and embedding larger data files. The data files may include, for example, resumes, photo-slide shows, work product examples, etc.

[0023]Embodiments of the system and method provide a client-centric approach for providing users an application that enables the creation, storing and sharing of graphical interfaces described herein such as Bio-Card 100 illustrated in FIG. 1. This client-centric approach enables users to do practically everything necessary for the sharing and storing of digital information, here biographical information, on and from their mobile device. Users can download and install the application and other software and updates, register, create, edit, send, share, and store, e.g., their Bio-Card(s) 100, using their mobile phone. With the application described herein, users can also receive and store Bio-Cards 100 that they receive from other users. In embodiments described herein, syncing to a computer or website is generally not required. Specifically, in embodiments described herein, the application will interact with the server to affect the transfer of a Bio-Card 100. However, in these embodiments the application is not a "syncing" application that merely updates from a web-site (such as, e.g., Linked-In.TM.) or CPU PIM (such as, e.g., MS Outlook). Rather, the application transfers new information from point A (a first

mobile phone or device) to point B (a second mobile phone or device) in a M2M fashion.

[0024]Moreover, an efficient data flow architecture enables the system and method to send and receive digital data (e.g., biographical data) quickly and securely. In embodiments described herein, only data fields (e.g., XML data fields), lookup tags and unique profile images are actually sent through the "pipe" (i.e., the communications path between mobile devices). In these embodiments, all the initials background art, etc., is stored locally on the mobile device upon installation of the application. When a Bio-Card 100 is "sent," instead of sending the card design graphics 106, the system and method simply send the tags for the design. The application on the recipient mobile device recognizes the graphics 106 from the tags and "re-creates" the graphical interface on the recipient mobile device. In other embodiments, Bio-Cards 100 or other data may be stored and also presented directly via the server structure. Once a Bio-Card 100 is created and pushed "up" to the server, only the lookup ID and other simple text fields (e.g., with the look-up tags) will need to be sent over the pipe to affect Bio-Card transfer. This further reduces data traffic on the pipe, increasing the speed of the data transfer.

[0025]Upon receipt of the Bio-Card 100, the application seamlessly adds or updates the biographical data contained on the Bio-Card 100 to the recipient's native mobile device contact database. No manual re-entry of the data is necessary. This offers a significant and substantial improvement over current contact information sharing.

[0026]Once a Bio-Card 100 is created, the system and method provide a simple, quick workflow for sending the Bio-Card 100 to another mobile device. In an embodiment, a user launches the application, selects a Bio-Card 100 (e.g., from a collection of Bio-Cards 100 prepared and profiled for different purposes--business, personal, etc.), enters a recipient ID (a "SnapID") and clicks Send. This simple, quick process is a drastic improvement over current manners of transmitting contact information. The application may be configured to launch when a corresponding icon is selected on the mobile device screen.

[0027]With reference now to FIG. 2, shown is a diagram illustrating an embodiment of system 20 for sharing and storing digital information, e.g., bio-data, in mobile devices. System 20 includes mobile devices 200, 200n, 200n+1 . . . , with application 206 running thereon. Mobile device 200 may be a variety of mobile devices such as an iPhone.TM., Blackberry.TM., or similarly capable mobile device. Mobile device 200 includes processor 204, memory 206, on which application 208 is loaded, display 210 and antenna 212 or other similar component for connecting to telecommunications networks 216. Application 208 includes instructions for performing methods and processes described herein. Memory 206 may be SIM card, built-in memory or other computer-readable storage medium on mobile device 200, as is understood to those of skill in the art. Processor 204 runs application 208, executing instructions in application 208 to perform methods and processes described herein. Mobile device 200 connects to other similar mobile devices 200n, 200n+1 . . . , and system server 220 via telecommunications networks 216. Telecommunications network 216 may include Internet or otherwise provide connection to the Internet. Server 220 may include database for storing Bio-Card information, data for supporting application 208 and other data otherwise associated with system and method for sharing and storing digital information, as described herein.

[0028]In an embodiment, application 200 defaults to a Bio-Card selection screen upon launch of application 200. With reference now to FIG. 3, shown is a screen shot of an exemplary Bio-Card selection screen 300 provided by embodiments of the system and method described herein. Bio-Card selection screen 300 displays a user's profiled Bio-Cards 302. In embodiments, Bio-Card selection screen 300 is home screen of application 200. On Bio-Card selection screen 300, the user can select a Bio-Card 302 (e.g., by touching displayed card using touch screen interface), enter a recipient's unique identifier within the system, which may be known as a SnapID and click Send to quickly transmit the

selected Bio-Card 302 to a recipient's mobile device. Likewise, from Bio-Card selection screen 300, a user can select and edit a Bio-Card 302.

[0029]Bio-Card selection screen 300 may also include sections or "buttons" that maybe selected to access other screens and functionality of application 200. For example, a Bio-Card (e.g., named "My SnapCards" or similarly named) button 304 may be used to access Bio-Card selection screen 300. A "SnapPort" or similarly named button 306 may also be used to access the Bio-Card selection screen 300. The SnapPort is designed to receive Bio-Cards (i.e., SnapCards) that have been sent from other users. The SnapPort acts as a staging area where the user can save or delete incoming BioCards. If saved, they are permanently stored on the user's mobile device. A directory (e.g., "Snap Directory") button may be used to access a view or directory screen that provides a directory listing or other view of a user's stored Bio-Card contacts (i.e., Bio-Cards of other users that user has stored on mobile device). Other buttons may be provided on Bio-Card selection screen 300 or other screens of application 200.

[0030]In an embodiment, application 200 may automatically sense the recipient users with which the user may want to share biographical data. The system and method may accomplish the sensing through "always-on" networking technology. In other words, a mobile device with application 200 loaded may sense other mobile devices with application 200 loaded. This may be accomplished by application 200, e.g., utilizing "always-on" networking functionality of the mobile device on which it runs. For example, if the mobile device is an iPhone 2.0, the OS function Bonjour.TM. provides a server-less, always-on client networking functionality. Other mobile devices, such as Blackberry, may have different always-on technology. In any case, the application leverages this always-on technology. For example, using bonjour, the iPhone will find other iPhones on the same WiFi network via bonjour. Application 200 may connect with the "found" iPhones via bonjour and presents the found iPhones as "candidate recipients" to the application user. Other always-on networking technologies would be utilized by the application in the same or in a similar manner. Application 200 may then populate a send screen (described below), or other screen, with the list of the connected application-enabled mobile device users. The list may include photos of the users. The user may then select a Bio-Card and a user or users from the list to send the Bio-Card. In this example, the method may include the following steps: launch application, select Bio-Card and select found iPhone corresponding to the person with whom to exchange information. If the person's mobile device is not shown, user would toggle to SnapID method described below.

[0031]With reference now to FIG. 4, shown is a screen map illustrating screens of application 400 of an embodiment of the system and method. The application screen map illustrates screens, processes and elements of application 400 architecture. The map illustrates a setup screen 402 that application 400 may display on the user's mobile device when application 400 is first installed. The setup screen 402 assists the user to set-up their SnapID, prompts the user to enter basic information (e.g., user's bio-data), creates an initial Bio-Card based on the user's inputs and may display a brief tutorial. The setup screen 402 is typically only displayed one time when application 400 is installed. However, setup screen 402 may be re-displayed, for example, if user wants to edit setup selection, or if application 400 update is loaded.

[0032]In an embodiment, a home screen 404 is displayed whenever the application is launched. The home screen 404 may be the Bio-Card selection screen 300 shown in FIG. 3. Typically, home screen 404 invites user to select a Bio-Card. A create screen 406 may be accessed from the home screen 402 when the user selects a Bio-Card and clicks on or otherwise selects add or edit options on the home screen 402 or other screen. The create screen 406 is used to create or edit Bio-Cards. The user may select to choose data from the user's bio-data entered or imported from the mobile devices' native address book on the setup screen, apply a card design (e.g., selecting graphics for the Bio-Card) and name and save the Bio-Card. The create screen 406 may include tabs corresponding to each of these functions, providing a different sub-screen under each tab. A view 408 displays a list or directory view of the Bio-Cards that the user has received from other users. View screen 408 may be displayed when

user selects directory button 308 shown in FIG. 3. If the user selects an individual card to view on the view screen 408, the view screen 408 will display the selected Bio-Card.

[0033]With continuing reference to FIG. 4, a send screen 410 may be displayed when the user selects a Bio-Card for sending. In the embodiment shown, the send screen 410 is a dynamic pop-up screen or window that enables the user to quickly and easily send Bio-Cards. Alternatively, the send screen 410 may appear as a separate screen, as part of the home screen 404, or be otherwise visually presented. Application 400 automatically detects recipient users that have a version of application 400 that enables a Bio-Card to be "Snapped", as described herein. If the recipient user has such a version of application 400 running, the send screen 410 allows the user to "Snap" a Bio-Card to the recipient. In the embodiment illustrated, Snapping sends a Bio-Card directly to the recipient's mobile device 415 simply by selecting the user as described above. When the user Snaps a Bio-Card to the recipient user, the application passes the Bio-Card and the user's ID (e.g., a SnapID) directly to the recipient's mobile device 415, e.g., as described herein. Application 400 instance running on the recipient's mobile device 415 may add the Bio-Card to the recipient's directory of Bio-Cards. If the recipient does not have the appropriate version of application 400 running, then the send screen pop-up will not be displayed. The user may then choose to send the Bio-Card by entering an ID, (e.g., a SnapID). If the recipient does not have any version of application 400 loaded on their mobile device 415, the user may send biographical information by entering a text or e-mail address. Application 400 will send a text or e-mail message with the biographical information. In an embodiment, application 400 sends the biographical information in a vCard file format when the recipient is not running application 400. In the event an intended recipient is not running application 400, the sender can still use application 400 to transmit an e-mail or text message that is automatically embedded with a vCard attachment representing only that data that is contained on the Bio-Card version that the sender selects. Such an e-mail or text message may also include link to enable recipient to download and install application 400. In this way, the user can still use the system and method to instantly transmit contact information regardless of whether the recipient has application 400 running or not.

[0034]With continuing reference to FIG. 4, the map also shows server 420. The server 420 may store information regarding users that have application 400 loaded on their mobile device 415. The server 420 may enable a user-triggered update process. In the "server-less" send method, where user A transmitted a Bio-Card to user B directly using some variety of direct client to client networking (e.g., bonjour), the server 420 may employ a process whereby the server 420 routinely "polls" clients (the application running on mobile devices) to check for Bio-Cards not routed via the server. In another embodiment, the clients routinely push updates to the server 420 instead of being polled. In the server-less send method shown in FIG. 4, the server 420 is notified via some method that a Bio-Card has been transmitted and stored without the server's 420 knowledge or involvement. After notification, the server 420 may then, in turn, make a record of that Bio-Card so that the server 420 database (not shown) is in sync with whatever Bio-Cards a particular user holds on application-enabled mobile device. This serves to keep the integrity of the data on server 420 whole and will allow a user a dependable "refresh" should they lose or upgrade their mobile device and need to pull down all their collected Bio-Cards using their unique ID (e.g., using a SnapID and a password).

[0035]With reference now to FIG. 5, shown is another screen map illustrating screens of application 500 of an embodiment of the system and method. In the embodiment shown, the user may snap Bio-Cards to other application users from the send screen 510 by entering the recipient's ID (e.g., SnapID). In an embodiment, the user enters the recipients ID (e.g., SnapID) and selects send and, in response, application 500 sends the sender ID (e.g., the user's SnapID), the receiver ID (e.g., recipients SnapID), data fields and tags (XML data fields), a photo of the user (profile picture) and ID number for the user's BioCard (Card ID) to a system web and database server 520 (the process shown here may also be performed in a direct M2M implementation). It is noted that the data sent may omit some of the data

listed here, may include different data or may include additional data. For example, in an embodiment in which the user generates or otherwise obtains graphics, photos, videos, sound, etc. for a completely unique Bio-Card layout and background, not using layouts, templates or graphics provided by the application, the user's unique graphics, etc., or a link (e.g., a URL) thereto, may also be stored in server 520 and be sent via server 520. In the embodiment shown, the web server 520 looks up routing information, in its database, for the recipient using the recipient's SnapID. The web server 520 may also maintain a table structure in the relational database of the user's biographical information, photos and his received and/or sent Bio-Cards. Accordingly, instead of sending photo and biographical information, user application 500 instance may send tags corresponding to these which server 520 will use to retrieve photo and biographical information from database and forward these to recipient. Likewise, when the user sends a Bio-Card, the web-server 520 may create an association in the table structure for the user (and/or the recipient) using the user's SnapID. If the user ever loses his mobile device 515, the user may load the application on his new mobile device and upload the Bio-Cards stored there for the user. In an embodiment, the server 520 stores the Bio-Card associated with the recipient's SnapID only if the recipient chooses to save the Bio-Card. The recipient may choose to save the received Bio-Card, delete the received Bio-Card, and/or save the received Bio-Card and Snap the user back.

[0036]The data fields and tags (e.g., XML or other format data fields) sent by the user's application 500 instance provide the user's selected biographical information and correspond to the graphics of the user Bio-Card. Rather then send the graphics themselves, the system and method includes tags corresponding to the graphics. The server 520 receives and forwards the data fields and tags (e.g., XML and other) to the recipient's mobile device 515. Likewise, the server 520 forwards the other data sent by application 500 running on user's mobile device, including card ID and user's photo (or retrieves and sends this data as described above).

[0037]The recipient's application 500 instance recreates the user's Bio-Card, loading the graphics identified by the tags (or downloading from other location if user-obtained content). In an embodiment, the graphics are stored by application 500 on the mobile device 515. As a result, in most instances the graphics are not transmitted over the pipe; instead, only the tags are sent. Similarly, instead of transmitting a layout, the sent card ID identifies a layout for the Bio-Card. Application 500 may have a number of pre-defined layouts, stored on the application-enabled mobile device 515, which the system may allow the user to select from. Application 500 on the recipient's mobile device 515 retrieves the pre-defined layout and graphics, identified by the card ID and tags, populates the identified layout with the sent biographical information, the graphics and the profile picture. As noted above, users may generate their own Bio-Card background and layout. In such instances, the user-generated or otherwise obtained content, or links thereto, will be sent and received by recipient's mobile device 515 instead of tags referencing graphics. If a link is sent, the recipient's mobile device 515 will access link and retrieved linked content. Application 500 may provide recipient with option to not retrieve user-obtained content.

[0038]With reference now to FIG. 6, shown is an illustration of an exemplary architecture of system 600. Shown are two mobile devices 615 on which the application is loaded and running. The mobile devices 615 are connected to a network (not shown), e.g., mobile telecommunication network and the Internet, and through the network to the system web server and database. The mobile devices 615 shown here are iPhones.TM.. System 600 herein may work with iPhones or any other mobile device, preferably mobile devices with similar capabilities such as a BlackBerry.TM. device. As shown and discussed herein, server 620 serves and receives data fields and tags (e.g., XML strings and data) corresponding to the biographical or other digital information and the graphics of the card, SnapIDs, CardIDs and profile pictures. The web server 622 accesses the database(s) 624 to lookup information and store data as described above. The database(s) 624 may also provide logic for dynamic updating of user Bio-Card content described herein (e.g., polling of user's Bio-Card data and received Bio-Card data described above). In one embodiment, the database 624 is managed by a relational database management system

(RDBMS)

[0039]With reference now to FIG. 7, shown is a flowchart of an embodiment of method 700 for sharing and storing digital information. Method 700 is illustrative and by no means exhaustive of the steps performed by systems and methods described herein. A user downloads and installs the application on their mobile device, block 702. The user may access a website or application store ("app store") to obtain the application. Once installed, the application registers with a system server, block 704. The server maintains a record of the user's received Bio-Cards so that the user can recover from loss of data, etc. The user uses the application to create a Bio-Card or Bio-Cards, block 706. For example, the user may select a card layout (identified by a unique card ID) and graphics for the Bio-Card. The user may select which biographical data is included in the Bio-Card. The user may also select a photograph for the Bio-Card, or the photograph may have been included in the set-up biographical information input by a user. The user may have different Bio-Cards for different purposes, as described herein. For example the user may select a more professional layout, photograph and/or graphics and only professional biographical information for a business-related Bio-Card, while using more personal information, less professional layouts, photographs and/or graphics for a social Bio-Card. The application stores created Bio-Cards on the user's mobile device. For example, the application may save the card ID, tags corresponding to the graphics and data fields with the selected biographical information on the user's mobile device.

[0040]If the user wants to share biographical information (or other information), the application may display potential recipients (e.g., via the always-on technology described above), block 708. The display may simply be a list and/or photos of the potential recipients, e.g., using the view screen described with reference to FIGS. 4 and 5 above.

[0041]The application displays the user's Bio-Cards (or other information to be sent), block 710, e.g., using the home screen described with reference to FIGS. 4 and 5 above. The user uses the application to select recipient(s) and the Bio-Card(s) to send, block 712. If the application displays potential recipients, the user may simply select a recipient(s) from the displayed potential recipients. Alternatively, the recipient may be selected by the user entering the recipients ID (e.g., a SnapID). The application sends the Bio-Card(s) to the recipient's mobile device (e.g., the user selects send option), block 714. The application may send the Bio-Card by transmitting various data directly to the recipient's mobile device or via a server, as described herein. The data may include the user's selected bio-data data fields, identifiers (e.g., card ID) and tags indicating the layout and graphics of the Bio-Card, and a link(s) to dynamically changing content (DynaData). If the recipient accepts Bio-Card the application on recipient's mobile device may receive the Bio-Card, display and store the Bio-Card, block 716. The recipient's application instance may display Bio-Card by retrieving the layout and graphics, using the card ID and tags, and populating with user's bio-data. It is noted that the user may choose not to store received Bio-Cards. The biographical information from the Bio-Card may be stored in the user's mobile device contacts, block 718. If recipient, or other user, transmits a Bio-Card back to user, user's application instance may repeat the preceding steps. At some point, either through polling or the application pushing the information, the server's lists of the user's received and saved Bio-Cards is updated, block 720. The server may also update user's Bio-Cards if stored by server. For example, the application may send the card IDs, tags (corresponding to graphics), data fields with selected biographical information and photographs for the user's Bio-Cards to the server.

[0042]As mentioned above, the system and method may digitally zone the Bio-Card. The digital zoning allocates Bio-Card "real estate", including space specifically for dynamically pushed content ("DynaData elements"). The digital zones may include a static zone, in which the information rarely if ever changes, a slowly-changing zone, in which the information changes infrequently, and a dynamic zone, in which the information is constantly and dynamically updated to provide relevant, timely

information. An implementation of this embodiment refers to the dynamic zone as "DynaData" and it may include dynamically served multimedia content such videos, audio and slide-shows.

[0043]The dynamically served and updated content may include marketing messages, product launches, coupons, etc. For example, if a user is working for a retail business, his Bio-Cards may include a dynamic zone containing the business's current marketing message. When creating a Bio-Card, the user may define a dynamic zone on the Bio-Card and link multimedia content to the dynamic zone. The multimedia content may be stored or referenced (e.g., a URL) in the relational database table. The content may be updated by loading new content in the database, changing the reference in the database or by changing the content pointed to by the reference in the database. Whenever someone views the user's Bio-Card with the DynaData, the application may direct the server to access the relational database to retrieve the current DynaData (e.g., multimedia content) and push the DynaData (e.g., multimedia content) to the viewing mobile device. Alternatively, the application may retrieve the DynaData using a URL provided with the Bio-Card information (e.g., in the data fields).

[0044]With reference now to FIG. 8, shown is an exemplary Bio-Card 800 incorporating the digital zoning feature. The Bio-Card 800 shown includes a static zone 802 for data that rarely changes, such as company name, logo and tagline. Also shown is a slowly changing zone 804 for data that periodically changes include title, division, location, phone number etc. The dynamic zone 806 includes dynamically changing and updated data, DynaData, which can be created on demand, e.g., to coincide with a company's current marketing efforts (e.g., a new product launch). As described above, DynaData may be stored in system server database and referenced in a data field sent to recipient when Bio-Card is sent. Alternatively, DynaData may be stored at another server or other location and referenced in a link provided in a data field. The DynaData stored on the server is constantly updated to keep it up-to-date. In this manner, the user does not have to worry about updating the dynamic data field on the user's Bio-Card, since the server will contain the updated DynaData. When recipient receives Bio-Card, application on recipient mobile device may retrieve DynaData from system server or from other location using reference in data field.

[0045]As mentioned above, an embodiment of the system and method utilizes the unique, graphical, biographical information based interface to provide a graphics-rich, contact-based, dynamic, mobile digital marketplace. The mobile digital marketplace instantly matches people with products, services or virtually any digital asset, as described below. Such a digital marketplace enables users to, e.g., choose recipient(s), a product/service/digital file (e.g., a coupon or certificate, a purchase voucher, a photo, resume, etc.), send instantly to the recipient, who receives it instantly and may redeem it instantly to acquire the product or service. Embodiments may allow a user to GROUP recipients into natural groupings (colleagues, reports, friends, etc.) so that the user may select multiple recipients at once to share a digital product/service/file. All of this may be done M2M.

[0046]With reference to FIG. 9, shown is an exemplary flowchart of method 900 of sending gifts from mobile device to mobile device utilizing embodiments of system and method described herein for sharing and storing digital information in mobile devices. A user with the application installed on their mobile device may select a recipient(s) (e.g., on the view screen), block 902. The user may then access a product or service selection screen, e.g., a gift selection screen provided by the application or a web page accessed through the user's mobile device. The user chooses a product or service (the "gift" or "Snap Goody"), block 904. The gift may be any product or service, or a digital voucher therefore, that the user wishes to give to the recipient. Alternatively, the gift may be a digital coupon or gift certificate for a certain amount that may be used towards the product or service or at a particular vendor (e.g., service provider or retail establishment) for any good or service offered. When the user selects the gift, the user's selection may be registered with the appropriate vendor or, e.g., a clearing-house that enables recipient to redeem the gift, block 906. The registration may associate a particular code or ID (a gift

code) with the gift that may be used by a vendor to verify and redeem the gift. The retail establishment may be "brick and mortar" or online.

[0047]After selecting the gift and the recipient (or recipients), the user may send the gift to the recipient, block 908. The gift may be sent in the same manner as described above for sending Bio-Cards. For example, a gift file corresponding to and describing the gift may be included in a data field described above. Alternatively, the application may have pre-determined gift templates (e.g., a Starbucks.TM. gift certificate), including the gift layout and graphics, that may be referenced by a product ID and/or tags. In this example, the application sends a gift by sending a sender ID, recipient ID, a product ID and data fields with the gift specifics (e.g., amount of the gift certificate if not specified by product ID and a gift code), in a manner similar to that described above for sending card IDs and tags for Bio-Cards. If the recipient has the application installed on their mobile device, the recipient may instantly receive, block 910, and redeem the gift, block 912. The recipient's application may receive the gift by opening the gift file or retrieving the gift template with the product ID (and populating the gift template with the gift specifics if necessary). The recipient may redeem the gift by presenting the gift to a vendor. The recipient may present the gift, e.g., by sending the received gift file or transmitting the populated gift template or simply the gift specifics to the vendor. The gift may be received by the vendor in a M2M manner or via system server. If the recipient does not have the application installed, the recipient may receive a text or e-mail message on their mobile device. The message may include a link to enable them to download and install the application.

[0048]The gifts may be instantly sent to any recipient using the system and method. Consumers may send gifts as gifts to friends and family. Businesses may send gifts as a marketing tool or as away to reward loyal customers or employees. The gifting method described above is far more efficient and convenient then today's way of giving gifts. Today, a user would have to go to a store, buy a gift card and mail or hand-deliver the gift card. Alternatively, a user could go to a website, enter the user's information (to register), enter the recipients e-mail or address, select the gift, e-mail or send a link for the gift. Then the recipient would have to open the message, open the link, print out the gift, remember to bring the gift and go present the printout at the store.

[0049]With reference now to FIGS. 10A-10B, the system and method herein provide a much simpler and quicker process. Using the Bio-Cards and their information, the user may quickly transmit, (e.g., "Snap") a recipient a gift. As shown in FIG. 10A, an exemplary view screen 1000, the user may select a recipient(s) from a displayed list of the user's stored Bio-Cards 1002. As shown in FIG. 10B, an exemplary gift selection screen 1010, the user may select the gift(s) 1012 to send to the selected recipient(s). Since no one typically leaves home without their mobile device, the recipient will generally always instantly receive their gift 1012 and be able to redeem their gift 1012 immediately. If recipients share their birthday, anniversary, etc. information in their Bio-Cards, the application may be set-up to remember these key dates and remind the user when they occur. The reminders may include suggested gifts or links to vendors (e.g., targeted to the recipient based on their biographical information or because of fees paid by the vendors to have their products or services suggested.

[0050]In an embodiment, each vendor is assigned a unique vendor code or ID. Likewise, each product or service may have a unique product ID assigned to it. For example, a Starbucks $10 item or gift certificate may each have their own product ID. Graphics corresponding to the vendor may be stored locally on the mobile device so that the graphics do not have to be transmitted through the pipe. When a user sends a gift, the application may send a sender ID (e.g., SnapID), recipient ID (e.g., SnapID), a vendor ID and a product ID. In an embodiment, the system server processes payment via a third-party credit card clearing house, or through a vendor's own payment processing system (e.g., iTunes) and confirms the purchase. In an embodiment, the gift purchase price may include a percentage for the system owner to process the order. The remaining balance may be delivered to the vendor.

[0051]After confirming the purchase, the server may receive a unique, validated gift code from the vendor. The gift code is preferably associated with the gift. The server provides the vendor with the recipient information so that the recipient may redeem the gift. Once everything is validated as described herein, the server transmits the required data, such as, but not limited to, the gift code, vendor ID, product ID, sender ID (e.g., SnapID), compliance fields, SSL, etc., to the recipient. The gift may be represented by XML data fields that include text and references to graphic information that will be displayed by recipient's mobile device as described above for Bio-Cards.

[0052]The recipient may redeem the gift by verbally communicating the gift code from the gift displayed on their mobile device, having the gift include a display of system-readable code, such as a semacode or a bar code that will be read by the vendor's system, via transmission of the gift to the vendor's own instance of the application, which may be integrated with the vendor's point-of-sale system (e.g., running on registers and other checkout devices), or via a directly redeemable link to vendor's online stores (e.g., iTunes) in which recipient simply enters or to which recipient transmit the gift code. As with the Bio-Cards, the system and method herein provide a simple and easy to use select person, select gift and send mechanism for sending digital gifts.

[0053]In another embodiment, the method and system described herein may also provide software-integrated mobile advertising. In an embodiment, the software-integrated mobile advertising provides a new way to advertise or communicate a brand that is not random or obtrusive. The embodiment described herein offers contextual branding opportunities that tightly integrate and leverage the natural "processing" pauses and user interface functions within the application, or other mobile device applications.

[0054]Client/server or web applications often have pronounced and generally "user-tolerated" pauses while content is uploaded or downloaded from a server, CPU calculations, etc. This timing is more pronounced in the mobile experience due to less through-put on wireless networks. Typically a graphic such as a growing status bar or spinning hourglass is presented to indicate to the user that a process is taking place. The embodiments described herein use this dead time advantageously--offering a branded experience integrated directly into a functional visual element of the application (e.g., status bar or spinning hourglass), consequently minimizing the obtrusiveness of the overall ad experience.

Example 1

[0055]During the natural time pause involved in receiving a "served" up Bio-Card, the application displays a spinning logo as opposed to the generic hourglass. For example, the spinning logo may be, e.g., the Nike Swoosh or the Starbucks logo.

Example 2

[0056]During the time involved in transmitting data, the application displays a branded process as opposed to the generic growing status bar. For example, the application may display a glass vertically filling up with Coca-Cola or a runner sprinting across a horizontal track for Nike.

[0057]Basic Methodology: the ads would either be resident and installed during the initial download install of the application. Alternatively, the system and method would retain the ability to serve down branded ads transparently to the user and store them locally on the mobile device.

[0058]For each "session" that a user enters the application, the application will select and display the appropriate set of "branded" user interface elements (spinners, status bars, placement ads, etc.). The

group of branded elements may continue to be presented throughout the time that session is active. For each unique session, the branded elements would correspond to, e.g., one vendor. Upon launching a new session, the application would cycle to the next set of branded elements for another vendor, e.g., the Coca Cola Spinning Logo (to replace the hourglass) and the filling glass animation (to replace the growing status bar).

[0059]The system and method may also use the space within the view screen, or other screen where Bio-Cards are received in the application, to allow advertisers to present more expansive banner-like advertising that correspond with their "branded" integrated functional elements. These larger ads will, e.g., only be displayed while the user has to wait the few seconds anyway to receive a card.

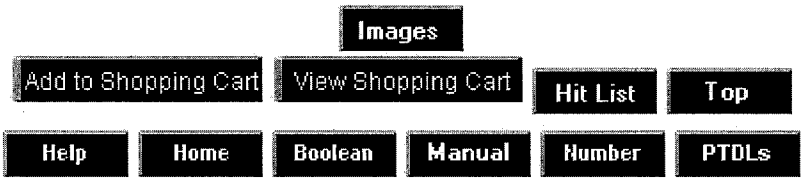
[0060]Ideally, each vendor will have and display their own ID (e.g., SnapID) within the context of the ad--where they can invite the user to "Snap" the company their card in exchange for something of value--say, a giveaway or discount code, etc. The system and method may also provide a "delayed" clickable event within an advertisement, such that when a user clicks on an advertisement, the browser within the mobile device will transport the user to that website only AFTER the user finishes his/her session within the application.

[0061]With reference now to FIG. 11, shown is an embodiment of method 1100 of sending a Bio-Card using embodiments of the system and method for sharing and storing information in mobile devices. In method 1100, user's mobile device has application installed and running. Application detects potential recipients, block 1102. User selects a recipient or multiple recipients, block 1104. Application enables a user to select more than one recipient at a time. This may be particularly useful for a business user targeting multiple potential customers at one time. User selects a Bio-Card, or other digital information, to send, block 1106. Bio-Card is zoned, and includes static data, slowly-changing data and DynaData. In the embodiment shown, user wants to entice recipients to accept user's Bio-Card, provide recipients' Bio-Card and/or to do business with user. Accordingly, user also selects a gift to send, block 1108. Selection of gift causes application to register gift and obtain gift code, block 1110.

[0062]In response to user instructions, application sends Bio-Card and gift. In embodiment shown, application transmits sender ID, recipient ID(s), data fields containing bio-data, gift code and product ID (corresponding to gift), and link to DynaData, card ID, and tags for graphics or graphics file/link for user-obtained graphics, block 1112. If sent via server, the server receives the sent data, retrieves necessary data from database, block 1114, and forwards received and retrieved data, if any, to recipient mobile device, block 1116. Server may retrieve 1114, e.g., recipients' mobile device numbers by looking up using recipient IDs; Server may also retrieve 1114 DynaData and user obtained graphics. Recipient's application receives the data, block 1118. If recipient accepts Bio-Card, recipient's application displays Bio-Card, block 1120, retrieving layout and graphics and populating with bio-data, including DynaData (e.g., received from server or directly obtained by recipient's application. Recipient's application stores bio-data, card ID and necessary tags for later retrieval and display, block 1122. Indeed, recipient may skip display 1120 and simply store Bio-Card 1122. Recipient's application may also display gift, block 1124, retrieving layout and graphics using product ID and redeem gift, block 1126, sending gift code to vendor. Alternatively, recipient's application may store gift for later redemption, not shown, saving product ID and gift code. User and/or recipient Bio-Card information, both sent and received Bio-Cards, may be updated and synchronized with system server, block 1128. This may include automatic polling by server and/or automatic or user-initiated pushing of necessary information to server by applications.

[0063]The terms and description user herein are set forth by way of illustration and are not meant as limitations. Those skilled in the art will recognize that many variations are possible within the spirit and scope of the embodiments described herein and defined in the following claims, and their equivalents, in which all terms are to be understood in their broadest possible sense unless otherwise indicated.

* * * * *


Images
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Apparatus, System and Method for an Icon Driven Tile Bar in a Graphical User Interface

Abstract

A tile bar for use in association with a graphical user interface associated with at least one operating system is disclosed. The tile bar includes a plurality of tiles indicative of one or more of an application, a file, a window, a data, and an outcome, an identifying tile among the plurality of tiles, wherein the identifying tile is uniquely indicative of at least one of a user preference and user information of a user logged in to the graphical user interface, and wherein the identifying tile is adjacent to at least one tile of the plurality of tiles, and a scroll for presenting ones of the plurality of tiles not immediately viewable to the user. The tile bar further includes each of said plurality of tiles comprises at least one of rotating about an axis, focused by a magnifying cursor, increased vividness, and blurring upon placement of a cursor provided by the graphical user interface at a predetermined proximation to each tile.

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Claims

1. A tile bar for use in association with a graphical user interface associated with at least one operating system, comprising: a plurality of tiles indicative of one or more of an application, a file, a window, a data, and an outcome; an identifying tile among said plurality of tiles, wherein said identifying tile is uniquely indicative of at least one of a user preference and user information of a user logged in to the graphical user interface, and wherein said identifying tile is adjacent to at least one tile of said plurality of tiles; and a scroll for presenting ones of said plurality of tiles not immediately viewable to the user; wherein each of said plurality of tiles comprises at least one of rotating about an axis, focused by a magnifying cursor, increased vividness, and blurring upon placement of a cursor provided by the graphical user interface at a predetermined proximation to each tile.

2. The tile bar of claim 1, further comprising a single application layer discrete from the graphical user interface, wherein said single application layer comprises said plurality of tiles and said scroll.

3. The tile bar of claim 1, further comprising a single application layer discrete from the operating system, wherein said single application layer comprises said plurality of tiles and said scroll.

4. The tile bar of claim 3, wherein said plurality of tiles and said scroll comprises a secondary operating system.

5. The tile bar of claim 1, wherein said plurality of tiles is indicative of at least one application, and wherein the at least one application comprises a non-native application to the operating system.

6. The tile bar of claim 1, wherein said plurality of tiles comprises a fan presentation.

7. The tile bar of claim 1, wherein each tile of said plurality of tiles comprises an icon.

8. The tile bar of claim 7, wherein said identifying tile comprises an avatar.

9. The tile bar of claim 1, wherein said scroll comprises an actuatable plus/minus indicator.

10. The tile bar of claim 1, wherein the predetermined proximation comprises co-location.

11. The tile bar of claim 1, wherein the predetermined proximation comprises adjacency.

12. The tile bar of claim 1, wherein at least one of said plurality of tiles comprises an icon.

13. The tile bar of claim 12, wherein said icon is selected by the operating system.

14. The tile bar of claim 12, wherein said icon is selected at least in part by a user.

15. The tile bar of claim 1, where the tile bar is presented upon bootup of said at least one operating system.

16. The tile bar of claim 1, wherein said plurality of tiles includes at least one file system object.

17. The tile bar of claim 1, wherein a cursor of the graphical user interface interacts with at least one of said plurality of tiles to produce at least one activated tile.

18. The tile bar of claim 17, wherein said at least one activated tile comprises a thumbnail.

19. The tile bar of claim 17, wherein said at least one activated tile comprises a miniature presentation of

the one or more application, file, window, data, and outcome that said one of said plurality of tiles indicates.

20. The tile bar of claim 1, wherein said identifying tile is suitable to enable targeted advertising.

21. A method of providing a graphical user interface associated with at least one operating system, said method comprising: identifying a plurality of tiles, each of said plurality indicative of one or more of an application, file, window, data, and outcome; creating an identifying tile from among said identified plurality of tiles, wherein said identifying tile is uniquely indicative of at least one of user preference and user information of a user logged in to the graphical user interface; displaying at least one of said identified plurality of tiles in the graphical user interface; enabling scrolling of said displayed at least one of said identified plurality of tiles at least when one of said displayed at least one of said identified plurality of tiles is not immediately viewable to a user; and enhancing said displaying responsive to placement of a cursor provided by the graphical user interface based on a predetermined proximation to said displayed at least one of said identified plurality of tiles.

22. The method of claim 21, wherein said enhancing comprises at least one of rotating about an axis, focused by a magnifying cursor, increased vividness, and blurring.

23. The method of claim 21, wherein said identified plurality of tiles comprises a fan presentation.

24. The method of claim 21, wherein said identified plurality of tiles comprises at least one icon.

25. The method of claim 21, wherein said enabling comprises an actuatable plus/minus indicator.

26. The method of claim 21, wherein said created identifying tile is suitable to enable targeted advertising.

27. A tile bar comprising: a plurality of tiles including at least one identifying tile, wherein said identifying tile is uniquely indicative of at least one of a user preference and user information of a user, wherein each of said plurality of tiles comprises at least one of rotating about an axis, focused by a magnifying cursor, increased vividness, and blurring upon placement of a cursor at a predetermined proximation to each of said plurality.

Description

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of Provisional Application Ser. No. 61/210,936, entitled "Apparatus, System And Method For An Icon Driven Tile Bar In A Graphical User Interface" filed Mar. 24, 2009, in the names of inventors Robb Fujioka and Daryl Okimoto, which application is hereby incorporated by reference as if set forth in its entirety herein.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates generally to a graphical user interface (GUI) for a computing system, and, more particularly, the present invention relates to an apparatus, system and method for making available applications, including at least one foreign application, to at least one native operating system associated with the GUI.

[0004] 2. Description of the Background

[0005] A graphical user interface (GUI) is a well-understood and long established mechanism whereby a user gains access to computing data, commands, applications, information, network protocols, outcomes, files, and the like. In typical embodiments, an operating system (OS) is provided in a computing system, in order to interact with the underlying hardware of the computing system and to thereby enable operation of the aforementioned data, commands, applications, information, network protocols, outcomes, and the like. Such an OS is typically provided with a GUI to enable the user to most efficiently make use of the offerings of the OS.

[0006] Currently, many OS-GUIs emulate a "desktop", wherein multiple applications, data, information, protocols, and outcomes, such as documents, pictures, and audio, files, and the like, are visually presented to the user in an identifiable and recognizable manner, such as through the use of graphical identifiers called "icons." As such, the desktop is the main display screen of a typical OS-GUI. Simply put, one or more icons is provided in an organized fashion on the screen, preferably with icons broken down into multiple, and sometimes exploding, "windows" for improved organization on the open "desktop," wherein each window may also be represented by an icon which may explode or otherwise activate, and wherein each icon indicates to the user, typically graphically, what item (or items) is represented by that icon. Icons are typically selectable using a keystroke or a mouse to activate a cursor, for example.

[0007] In certain OS-GUIs, icons may be selectively provided along only a portion of the screen, such as in order to make preferred or frequently used icons easier to find and/or execute. This is herein referred to as a "the bar," and it may simplify use of the GUI, such as wherein multiple files or applications, typically present in separate windows, are needed to perform a task, and wherein the icons representing all such multiple files or applications may be placed in one convenient place for access, namely the tile bar. In some GUIs, such icons may be uniquely selected by each user for placement into this tile bar, such as to allow a preferred user experience upon use of the GUI. However, even in such embodiments, the tile bar is not truly personalized, at least because, although the user may select the tiles for that user's tile bar, the information accessed by each icon placed on the tile is the same for each user. Additionally, the addition of icons to the tile bar may eventually cause the tile bar to be difficult to read or to become cluttered.

[0008] Further, programmatically, the selection of an icon using a cursor typically requires a "launch," wherein the selected icon is "exploded," as discussed above, into the selected application, file, new window, or the like. This is typically the case whether an icon is selected from the desktop or from the tile bar. A "launch" generally takes unwanted time, in part because processing must be performed in order to "launch" the icon into the item to which it is to be exploded, and such a launch necessitates execution of computing code associated with the application, file or new window.

[0009] Thus, a need exists for a tile bar that alleviates issues with regard to launch of icons, personalization of the bar, and identification of icons on the tile bar proximate to a cursor.

BRIEF DESCRIPTION OF THE FIGURES

[0010] Understanding of the present invention will be facilitated by consideration of the following detailed description of the embodiments of the present invention taken in conjunction with the accompanying drawings, in which like numerals refer to like parts and in which:

[0011] FIG. 1 is an illustration of an aspect of the present invention;

[0012] FIG. 2 is an illustration of an aspect of the present invention;

[0013] FIG. 3 is an illustration of an aspect of the present invention;

[0014] FIG. 4 is an illustration of an aspect of the present invention;

[0015] FIG. 5 is an illustration of an aspect of the present invention;

[0016] FIG. 6 is an illustration of an aspect of the present invention;

[0017] FIG. 7 is an illustration of an aspect of the present invention;

[0018] FIG. 8 is an illustration of an aspect of the present invention;

[0019] FIG. 9 is an illustration of an aspect of the present invention;

[0020] FIG. 10 is an illustration of an aspect of the present invention;

[0021] FIG. 11 is an illustration of an aspect of the present invention;

[0022] FIG. 12 is an illustration of an aspect of the present invention;

[0023] FIG. 13 is an illustration of an aspect of the present invention;

[0024] FIG. 14 is an illustration of an aspect of the present invention;

[0025] FIGS. 15A-D are illustrations of aspects of the present invention;

[0026] FIG. 16 is an illustration of an aspect of the present invention;

[0027] FIG. 17 is an illustration of an aspect of the present invention;

[0028] FIG. 18 is an illustration of an aspect of the present invention; and

[0029] FIG. 19 is an illustration of an aspect of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0030] It is to be understood that the figures and descriptions of the present invention have been simplified to illustrate elements that are relevant for a clear understanding of the present invention, while eliminating, for the purposes of clarity, many other elements found in typical computing apparatuses, systems and methods. Those of ordinary skill in the art will recognize that other elements are desirable and/or required in order to implement the present invention. However, because such elements are well known in the art, and because they do not facilitate a better understanding of the present invention, a discussion of such elements is not provided herein.

[0031] FIG. 1 illustrates a processor for performing computing functions. The processor may have associated therewith a hard disc or similar magnetic and/or mass storage device, at least one memory device, such as a ROM and a RAM, and a plurality of input/outputs, such as a disc, CD, DVD, or like drive input/output, a keyboard input, a display input/output and one or more display drivers, and a mouse input. Also, externally associated with the inputs/outputs, and thus communicating with the processor, may be a display device, a keyboard or the like, and a mouse or the like. The mouse, which as used herein includes any type of computer mouse as well as any input/output device capable of conveying user movements and/or commands to an input/output, may allow the user to effectuate movement of a cursor, or like element, within a GUI in an OS, which movement may be reflected on the display device.

[0032] FIG. 2 illustrates such a GUI in an exemplary embodiment of the present invention. A number of

icons are shown on the desktop of the GUI, and numerous icons are additionally resident on the tile bar shown in association with the desktop. The tile bar may include a number of tiles, and may include a scroll mechanism to move further tiles into view, such as arrow buttons, plus/minus buttons, sets and subsets, menu driven or otherwise or the like, to move new icons into view from up or down, or left or right, dependent upon the location of the tile bar in relation to the desktop. For example, the tile bar, as illustrated, is at the bottom portion of the display, with plus/minus buttons at the right and left of the tile bar to allow a user to scroll to the right or left to view additional icons in the tile bar.

[0033] The icons in the tile bar may be selected by the operating system, and/or may be selected, in whole or in part, by the user. For example, the tile bar may include icons placed in the tile bar by the user, and/or may include icons representative of applications currently active, certain of which active-application icons may be placed onto the tile bar automatically by the OS, and removed by the OS when not in use. The user may select those icons for inclusion on the tile bar that are most frequently used, or that are of the greatest importance to the user, for example. To the extent a user may make changes, additions, or deletions to the icons in the tile bar, such changes may be made, for example, by a "drag and drop" methodology, whereby a user may select an icon, desired for inclusion on the tile bar or desired for removal from the tile bar, and may drag and drop the icon to or from a window or the desktop.

[0034] As discussed, the icons on the tile bar may represent, for example, applications, windows, documents, tasks, utilities, files, links (such as a uniform resource locator, or URL, such as for use with http), data, user preferences, shortcuts (such as to desktop or OS applications), user identification, minimized elements, audio and/or video, and the like, as illustrated, for example, in FIGS. 3 and 4. The icons may be linked to the items represented, such as to enable launch of the item from the tile bar, such as by shortcut linking or the like. Further, the tile bar may be presented upon bootup, although, in preferred embodiments, the presentation of the tile bar does not negatively affect boot time. Further, updates to the tile bar may load with each bootup, or may be received via a networked connection, in real time, during use of the GUI.

[0035] Additionally, for example, placement of the cursor over an icon in the tile bar may provide for a previewing, or monitoring, feature for those items represented by the icon, such as by a miniaturized presentation of the item correspondent to the icon when the cursor is placed over the icon, such as is shown in FIG. 5. Additionally and alternatively, the miniaturized presentation may be made, such as in an arrowed thought bubble, for example, of the item correspondent to the location of the cursor, while a smaller preview of icons proximate to the icon over which the cursor is placed may also be provided, such as a text bubble or informational bubble indicative of the item correspondent to an icon. The present invention may additionally provide such previews of, for example, linked locations or remote applications, due, in part, to the presence of the present invention in the single application layer, and/or in a parallel environment, as discussed with regard to certain exemplary embodiments referenced hereinbelow. Additionally and alternatively, certain applications, links and the like may launch in the preview window upon a simple cursor rollover, such as without need of "clicking" to activate the desired functionality.

[0036] Such previews may additionally include content previews. For example, as illustrated in FIGS. 6-8, to the extent, for example, a folder icon is placed on the tile bar, a preview upon cursor placement may show the content of the folder related to the icon, and/or may show thumbnail, or similar previews, of the content, or of the content of the content indicative icons within the preview. Similarly, a preview may include "favorites," such as a link, application, remote application, search, or search engine icon presenting, upon cursor placement, a listing or thumbnail preview, of favorites correspondent to the link, application, remote application, or the search or search engine. Similarly, in an exemplary embodiment, a mini-application window, such as to launch an application or preview an application, may be evident above selected icons. For example, when the cursor is placed proximate to an icon, such a mini-application window may open, as discussed hereinabove.

[0037] The tile bar may be implemented in any number of embodiments in accordance with the present

invention. For example, the embodiment most typically known to those skilled in the art for the tile bar is a single horizontal row of icons, but the tile bar may also be a vertical row, or, for example, a box, rectangle, or the like, of multiple rows, presented either vertically or horizontally. Further, although a single row is most typical, contrary to the prior art each icon may not be placed into a row (or rows) on the same scale. For example, those icons placed on the bar by the user may be larger, or smaller, in scale than those placed by the OS. Similarly, those icons correspondent to items most frequently used by the user may be larger than other icons on the tile bar. Further, for example, certain icons may not be, or may not only be, of different scale, but additionally may pulse, glow, be backlit, or experience variations in coloration or color vividness, based on frequency of use, user-elected importance, type of item associated with the icon (be it file, application, document, data, folder, window, link, etc.), or like factors.

[0038] Additionally, of course, those skilled in the art will appreciate that the tile bar of the present invention may also provide an indication of use, or non-use, of certain items, such as by making changes in the appearance of the corresponding icons, or the background of those corresponding icons, and/or by providing indicators above, below, or otherwise in conjunction with, each icon correspondent to an element actively in use. Likewise, changes in status in items corresponding to the icons in the tile bar may be similarly indicated, such as wherein a number of new emails is superimposed over an email application icon in the tile bar, or a last edit date is superimposed over a word processing document icon in the tile bar. Such status indicators may be present at all times for certain icons in the tile bar, or may be presented only when the cursor moves over the icon, for example.

[0039] As a user moves the cursor across the tile bar, effects may be generated to alert the user as to which icon or icons the user is proximate to. For example, the icon over which the cursor is placed in a tile bar may enlarge, along with the immediately adjacent icons, or the icon over which the cursor is placed may fade in while adjacent icons fade out. In the present invention, the cursor indicator may change when placed over the tile bar, such as the cursor graphically becoming, for example, a magnifying glass, whereby icons are magnified in the center of the magnifying glass graphic when the magnifying glass cursor is placed thereover.

[0040] Alternatively, while the icon over which the cursor is present may enlarge, and, additionally or alternatively the immediately adjacent icons may shrink. Alternatively, the color of the icon over which the cursor is placed may become more vivid, and additionally or alternatively the adjacent icons may become less vivid in color, or may turn grey in color, for example. Alternatively, adjacent icons may become blurry. Alternatively, adjacent icons may become "active," such as by beginning to spin, or rotate, around on a center axis or center point, for example. In such an embodiment, icons farther from the icon over which the cursor is placed may spin faster, or slower, than immediately adjacent icons. Alternatively, the icon over which the cursor is placed may increase in size, such that it overlaps or substantially obscures the adjacent icons.

[0041] Further, icons on the dock may auto-adjust, such as by reducing space between icons or by making the icons thinner, such as by horizontal width, as new icons are added or removed, or both, for example. Likewise, the size of the tile bar may adjust, such as when icons are added or removed, as shown in FIG. 9. Further, for example, icons may experience a "fan effect" to enable accommodation of additional icons. In such an embodiment, the tile bar may provide that the icons vary in horizontal width from the top to bottom portion of the tile bar, and, in fact, the tile bar may, for example, become progressively more raised along its center to provide the fan effect as more icons are added, such as is illustrated in FIG. 10.

[0042] Alternatively, as will be appreciated by those skilled in the art, the tile bar may be implemented using file system objects rather than merely icons. Also in an alternative embodiment, the tile bar may be implemented to represent applications native to the subject OS, or applications foreign, or non-native, to the OS. Such embodiments may be understood with reference to a simplified explanation of the seven established layers in the Open Systems Interconnection ("OSI") model.

[0043] In the OSI telecommunication model, the seven layers are divided into two groups. The upper four layers are used to pass messages from or to a user. The lower three layers (up to the network layer) are used for messages passing through the host computer. More specifically, layer 7 is the application layer, at which communication partners are identified, quality of service is identified, user authentication and privacy occurs, and any constraints on data syntax are identified. Layer 7 does not typically include the application itself. Layer 6 is the presentation (syntax) layer, and is usually part of an operating system. Layer 6 converts incoming and outgoing data from one presentation format to another, such as converting a text stream into a popup window populated with the newly arrived text. Layer 5, the session layer, sets up, coordinates, and terminates conversations, exchanges, and dialogs. Layer 4 is the transport layer, which manages the end-to-end control for complete data transfer, and for error-checking. Layer 3, the network layer, routes and forwards data. Layer 2, the data-link layer, provides synchronization for the physical level, transmission protocol and management. Layer 1 is the physical layer, which conveys the bit stream through the network at the electrical and mechanical level using hardware.

[0044] As discussed, OS functions are typically performed in Layer 6. As such, in typical tile bars, the functionality is provided in Layer 6, with certain elements in Layer 7. However, this causes the use of "native" OS applications, that is, those applications that communicate most readily with the OS, in a typical tile bar. Further, at minimum, interaction by the tile bar occurs most readily with applications, and items represented by icons, that are most compatible with, and thus, typically natively developed for, within, or by developers associated with, the OS. In typical solutions for acceptance of foreign, or non-native, applications into a tile bar, a "wrapper application," i.e. a translation or normalization application to normalize the foreign applications for use with the OS, is provided.

[0045] However, although the present invention may be implemented within, or in association with, a particular OS, the present invention may also be implemented in a "single application layer," that is, the layer above the application layer, which is the layer in which discrete applications reside. Thus, the tile bar may be provided in a layer above the typical OS layer, but nonetheless within the same operating environment. Thereby, the present invention may simplistically be interoperable with both native and non-native applications and items represented by icons, in part because, as a non-native element resident in the single application layer, the tile bar of the present invention is, itself, already normalizing to obtain interoperability with the OS. Further, an additional advantage of the non-native status of the tile bar of the instant invention is that it may offer functionality not typically available in a tile bar provided within an OS, such as by making itself available as a third party application to third party developers, by making non-bundled digital content visible in the layer with the OS, by making available opportunities not presently available to OS providers due to bundling limitations, as well as by making available advertising opportunities.

[0046] For example, in native or non-native embodiments of the present invention, an advertisement system may be provided. For example, because the tile bar of the present invention may include, as an element, or may be based upon, a personal identification unit, the present invention may allow for the presentation of targeted advertising. Such a personal identification unit may include, for example, an avatar, or more specifically an icon, such as an icon representing an avatar, which icon or avatar may have associated therewith a myriad of personal information, such as name, status, age, profession, interests, personal widgets, and the like, as well as a myriad of log-in and/or site-associated information, such as log-ins, site preferences, memberships, contacts, files, and the like, such as is illustrated in FIG. 11. This information related to the user may be different with respect to the tile bar dependent upon which user is logged into the OS at any given time. Further, for example, this personalization may allow for portability of the tile bar, and/or of a personal profile related to the tile bar of the present invention, such as by, for example, a network download to any computer on which that user resides. Such portability may be provided via drag and drop, and/or widgetization, and/or development as a resident of the single application layer, and/or via other methodologies as will be apparent to those skilled in the art, for example.

[0047] Thus, for example, an icon, avatar or similar uniquely user-identifiable representation may be

associated with each user of, for example, a shared computer, and the built-in identification of the tile bar may switch as the logged-in user of the computer switches, as illustrated in FIG. 12. Thereby, for example, icons in the tile bar may provide unique, shortcut links to accounts of the respective logged-in user, such as on social networks, auction sites, purchasing sites, and/or informational sites, such as is illustrated in FIG. 13. Further, unique "apps," such as from an "***app store***" may be selected by each user for inclusion on the respective user's tile bar. Thereby, for example, the present invention may provide access to an ***app store*** in which third party developers may provide apps for users of the tile bar via an open API for the tile bar. Aspects of such an ***app store*** embodiment are illustrated in FIGS. 14 and 15A-D. Similarly, apps may be pushed, or suggested, based on an individual user's use or preferences, which may be individual to each user with regard to the tile bar as discussed hereinthroughout.

[0048] In an additional example, search capabilities may be made available from the tile bar, and thus may be made available in accordance uniquely with user-related information. For example, a search tool may be widgetized and associated with the tool bar. Whether or not the search tool is placed in the tile bar and/or associated with the user-related information, in embodiments wherein the tile bar is non-native, and hence third-party, to the OS, it is highly likely that any typical OS bundling issues may be avoided. Thus, in this and other exemplary embodiments, the tile bar of the present invention may publish directly to the OS, and yet avoid bundling issues.

[0049] The presence of user-related information may allow, for example, for the presence and/or launch of embedded advertising, content discovery based upon content consumption and usage for the individual user, or similar recommended content, in, from, or in association with, the tile bar, as illustrated in FIG. 16. Similarly, a recommendation engine may be included in, from, or in association with, the tile bar, wherein the recommendation engine provides recommendations based on the user-related information. In exemplary embodiments, a user preference for classic cars may allow for a launch from the tile bar, such as in a banner, an arrowed "thought box," or the like, of an advertisement related to an auto-parts store specializing in classic car parts. Further, for example, the tile bar may use eBay preference and log-in information to alert the user of the presence of a desired, classic used car, and/or in a desired price range, and, to the extent the user clicks, for example, an eBay "thought box" recommending purchase of the car, the user may be taken directly to eBay, and logged in, based on the user-related information in the tile bar, to the auction relating to the recommended car.

[0050] Likewise, shortcuts, applications, links, or the like may be suggested based on an individual user's usage as monitored, tracked, and/or stored by the tile bar. Alternatively, upgrades to the computing environment may be recommended, or pushed. Additionally, cloud computing services may be suggested. Other computing elements of interest to the user, such as widgets or content, may likewise be suggested or pushed. Content discovery and recommendation, such as that based on consumption and usage, may occur as illustrated in the exemplary embodiment of FIGS. 17-18.

[0051] In other words, placement of advertising, and/or recommendations, may occur in a manner similar to a "Trojan horse." A Trojan horse is understood in the art to be a malevolent instance masquerading as a benevolent instance, typically entering a user's computing environment, for example, in apparently benevolent form, and often with the user's permission, only to later undertake malevolent action. The term comes from the Trojan War, in which the Greeks gave a peace offering in the form of a giant wooden horse to the Trojans, and, after the Trojans took the horse inside the walls of Troy, Greek soldiers exited from the hollow belly of the horse to allow their fellow Greek soldiers into Troy. Although conceptually similar, the advertising associated with the tile bar of the present invention is in no way malevolent, but rather may be embedded within the tile bar in order to enable the provision of helpful information based uniquely on user-related information. As such, the tile bar itself may be a Trojan horse in that it may popup on boot of the OS, and link the user into e-commerce with an experience uniquely tailored to the individual user based on that user's user-related information. Alternatively and additionally, the embedded elements may relate to, may relate to the automated launch of, or may relate to advertising for services related to, for example, storage or backup.

[0052] Additionally, many of the advantages of the present invention may be realized if, for example, the tile bar is presented not only in a layer distinct from the OS, but also as a unique OS-type application in its own right, but with equal and simultaneous visibility via the GUI to the user of the main OS. For example, in computing, a hypervisor, which is sometimes referred to as a virtual machine monitor, is a virtualization platform that allows multiple operating systems to run on a host computer at the same time. For example, a "guest" operating system may run at a second level, or layer, above the computing hardware.

[0053] For example, referring now to FIG. 19, there is shown a block diagram illustrating diagrammatically the relationship between the BIOS, a hypervisor according to an aspect of the present invention, an OS, and a second OS-type element presented by one or more operating environment spaces instantiated by the hypervisor. As is generally understood in the pertinent art, BIOS stands for Basic Input/Output System. The hypervisor or like computing element may thus sit above the BIOS, and enable the operation of multiple OS's, and/or the coordination of multiple OS-type applications, or application, actions, and may instruct the BIOS to grant simultaneous hardware access, such as to the display. Of course, in the present invention, the second OS-type element may be a tile bar in accordance with the discussion hereinthroughout, and is most preferably presented graphically simultaneously with the GUI of the main-OS in order to provide a transparent user experience. Further, through the hypervisor, or a like computing element, it is necessary that the tile bar have access and insight into the applications in communication with the main OS, particularly in embodiments in which applications, files, folders, documents, data, and the like native to the main OS are to be available in the tile bar of the present invention.

[0054] Those of ordinary skill in the art may recognize that many modifications and variations of the present invention may be implemented without departing from the spirit or scope of the invention. Thus, it is intended that the present invention covers the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

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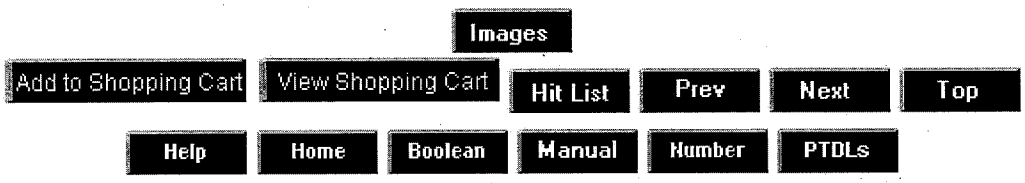

US PATENT & TRADEMARK OFFICE
PATENT APPLICATION FULL TEXT AND IMAGE DATABASE

United States Patent Application *20110045816*
Kind Code **A1**
Wang; Winston ; et al. **February 24, 2011**

SHARED BOOK READING

Abstract

Techniques for sharing book reading experiences between users of different telecommunications devices are described herein.

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Claims

1. A method comprising: displaying an electronic book on a parent telecommunications device; accepting navigational inputs from the parent to navigate the electronic book while the parent is reading the electronic book aloud; transmitting the navigational inputs and the reading of the electronic book to a child telecommunications device; displaying the electronic book on the child telecommunications device; and playing the reading of the electronic book on the child telecommunications device while synchronously navigating the electronic book on the child telecommunications device in accordance with the navigational inputs.

2. A method as recited in claim 1, wherein the transmitting is performed as the parent is reading the electronic book aloud.

3. A method as recited in claim 1, wherein the transmitting is performed after the parent has read the electronic book aloud.

4. A method as recited in claim 1, wherein the transmitting comprises establishing a voice call between the parent telecommunications device and the child telecommunications device and transmitting the reading of the electronic book over the voice call as the parent is reading the electronic book aloud.

5. A method as recited in claim 1, wherein the transmitting comprises: establishing a voice call between the parent telecommunications device and the child telecommunications device; establishing data channel between the parent telecommunications device and the child telecommunications device; transmitting the reading of the electronic book over the voice call as the parent is reading the electronic book aloud; and communicating the navigational inputs over the data channel to the child telecommunications device as the parent is reading the electronic book aloud.

6. A method as recited in claim 1, further comprising: transmitting the navigational inputs and the reading of the electronic book to a 3.sup.rd party's telecommunications device while transmitting the navigational inputs and the reading of the electronic book to the child telecommunications device.

7. A method as recited in claim 1, further comprising: transmitting the navigational inputs and the reading of the electronic book to a 3.sup.rd party's telecommunications device while transmitting the navigational inputs and the reading of the electronic book to the child telecommunications device; and playing the reading of the electronic book on the 3.sup.rd party's telecommunications device while synchronously navigating the electronic book on the 3.sup.rd party's telecommunications device in accordance with the navigational inputs.

8. A method as recited in claim 1, further comprising: transmitting the navigational inputs and the reading of the electronic book to a 3.sup.rd party's telecommunications device after transmitting the navigational inputs and the reading of the electronic book to the child telecommunications device.

9. A method as recited in claim 1, wherein the transmitting comprises: establishing a multi-party voice call between the parent telecommunications device, the child telecommunications device, and a 3.sup.rd party's telecommunications device; transmitting the reading of the electronic book over the multi-party voice call as the parent is reading the electronic book aloud.

10. A method as recited in claim 1, wherein the transmitting comprises: establishing a multi-party voice call between the parent telecommunications device, the child telecommunications device, and a 3.sup.rd party's telecommunications device; transmitting the reading of the electronic book over the multi-party voice call as the parent is reading the electronic book aloud; and transmitting the navigational inputs to

the 3.sup.rd party's telecommunications device as the parent is reading the electronic book aloud.

11. A method as recited in claim 1, further comprising recording the navigational inputs and the reading of the electronic book for later transmitting.

12. A method as recited in claim 1, further comprising: recording the navigational inputs and the reading of the electronic book; subsequently playing the recorded reading of the electronic book while synchronously navigating the electronic book in accordance with the recorded navigational inputs.

13. A method comprising: displaying an electronic book on a child telecommunications device during a voice call between the child telecommunications device and a parent telecommunications device; and receiving navigation signals from the parent telecommunications device during the voice call to navigate the electronic book on the child telecommunications device while the parent reads the electronic book to the child by voice over the voice call.

14. A method as recited in claim 13, further comprising executing an electronic book viewer application on the child telecommunications device during the voice call to display the electronic book and to navigate the electronic book in response to receiving the book navigation signals from the parent telecommunications device.

15. A method as recited in claim 13, further comprising recording the voice call and the navigational signals for later synchronized playback.

16. A method as recited in claim 13, further comprising recording the voice call and the navigational signals for later transmission and synchronized playback on the child telecommunications device.

17. A child telecommunications device, comprising: wireless communications components capable of simultaneous voice and data communications with a parent telecommunications device; a visual display; a viewer module configured to display an electronic book on the visual display during voice communication with the parent telecommunications device; and the viewer module being further configured to respond to navigational inputs from the parent telecommunications device during the voice communication to navigate the displayed electronic book while the parent reads the electronic book to the child by voice.

18. A child telecommunications device as recited in claim 17, wherein the electronic book has interactive elements, the viewer module being further configured to associate parent utterances recorded at the parent telecommunications device with the interactive features and to play those utterances in response to interactions by the child with the interactive elements of the interactive book.

19. A child telecommunications device as recited in claim 17, further comprising a recording module configured to record the parent reading the electronic book to the child and to simultaneously record the navigational inputs from the parent telecommunications device for later synchronized playback.

20. A parent telecommunications device, comprising: wireless communications components capable of simultaneous voice and data communications with a child telecommunications device; a visual display; a viewer module configured to display an electronic book on the visual display during voice communication with the child telecommunications device; the viewer module being further configured to receive navigational inputs from the parent during the voice communication to navigate the electronic book on the parent telecommunications device and the child telecommunications device while the parent reads the electronic book to the child by voice.

21. A parent telecommunications device as recited in claim 20, wherein the electronic book has interactive elements, the viewer module being further configured to associate parent utterances with the interactive features and to provide those utterances to the child device for playback in response to interaction with the interactive elements at the child device.

22. A parent telecommunications device as recited in claim 20, further comprising a recording module configured to record the parent reading the electronic book to the child and to simultaneously record the navigational inputs for later synchronized playback.

23. One or more computer-readable media containing instructions that are executable by a processor to perform actions comprising: displaying an electronic book; recording a parent reading of the displayed electronic book aloud; recording navigational inputs from the parent during the reading of the electronic book; providing the recorded reading and navigational inputs for synchronized rendering along with the electronic book on a child telecommunications device.

24. One or more computer-readable media as recited in claim 23, the actions further comprising: establishing a voice call with the child telecommunications device; providing the recorded reading over the voice call while the parent reads the displayed electronic book aloud.

25. One or more computer-readable media as recited in claim 23, wherein providing the recorded reading and navigational inputs is performed while the parent reads the displayed electronic book aloud.

26. One or more computer-readable media as recited in claim 23, wherein providing the recorded reading and navigational inputs is performed after the parent has read the displayed electronic book aloud.

27. One or more computer-readable media as recited in claim 23, the actions further comprising storing the recorded reading and navigational inputs, wherein providing the recorded reading and navigational inputs is performed after the parent has read the displayed electronic book aloud.

28. One or more computer-readable media as recited in claim 23, wherein the electronic book has interactive elements, the actions further comprising associating utterances of the parent with the interactive elements and providing those utterances to the child device for playback in response to interaction with the interactive elements at the child device.

29. One or more computer-readable media containing instructions that are executable by a processor to perform actions comprising: displaying an electronic book; playing a parent reading of the displayed electronic book; synchronously navigating the electronic book in accordance with navigational inputs from the parent while playing the parent reading of the displayed electronic book.

30. One or more computer-readable media as recited in claim 29, the actions further comprising: establishing a voice call with the parent telecommunications device; and receiving the parent reading over the voice call while the parent reads the displayed electronic book aloud.

31. One or more computer-readable media as recited in claim 29, the actions further comprising: receiving the navigational inputs while the parent reads the displayed electronic book aloud to the child.

32. One or more computer-readable media as recited in claim 29, wherein the electronic book has interactive elements, the actions further comprising: receiving parent utterances; associating the received parent utterances with the interactive elements for playing in response to interactions by the child with the interactive elements of the interactive book.

33. One or more computer-readable media as recited in claim 29, the actions further comprising: recording the parent reading the electronic book to the child; recording the navigational inputs from the parent telecommunications device for later synchronized playback with the reading.

34. A method comprising: displaying an interactive book on a parent telecommunications device; recording utterances of the parent corresponding to interactive elements of the interactive book; delivering the interactive book and recorded utterances to a child telecommunications device; displaying the interactive book on the child telecommunications device; and playing the utterances of the parent on the child telecommunications device in response to interactions with the interactive elements of the interactive book by the child.

35. A method as recited in claim 34, wherein the utterances include sound effects corresponding to interactive elements of the interactive book.

36. A method as recited in claim 34, wherein the utterances include phrases corresponding to interactive elements of the interactive book.

37. A method as recited in claim 34, wherein the utterances include pronunciations of words represented by the interactive book.

Description

PRIORITY CLAIMS

[0001] This application is a continuation-in-part of U.S. patent application Ser. No. 12/544,404 filed on Aug. 20, 2009 and entitled Shareable Applications on Telecommunications Devices.

BACKGROUND

[0002] In the last few years telecommunications devices such as cellular phones, landline phones and IP-based phones have become more and more capable, offering an increasing array of functions. Once limited to simple point-to-point voice communications, telecommunications devices have evolved into so-called "smart phones" that offer many different modes of telecommunication, such as voice, video, text messaging, instant messaging, email, and other modes of communication. Furthermore, modern smart phones have capabilities approaching those of more traditional desktop computers, including the ability to load and run third party applications. Applications are available for business use, as well as for personal use, education, and entertainment.

[0003] Many people view their telecommunications devices as critical to daily life: necessary for coordinating both business and personal activities. Among many families, cell phones, in particular, are becoming a primary means of communication, and more and more children have their own mobile telecommunications devices. This allows parents to keep in touch with their children despite the hectic schedules of both parents and children.

[0004] Telecommunications devices now consist of a myriad of form factors, such as traditional landline phones, cordless phones, cellular phones, smart phones, PDA phones, desktop and portable computers, media players, home telecommunications hubs, or the like (hereinafter "telecommunications devices"), which have become a ubiquitous part of modern life. Originally, most of these telecommunications

devices just provided two-way voice communication between a first person at a first location using a first telecommunications device and a second person at a second location using a second telecommunications device, so that the first person and the second person were able to carry on a conversation. For example, a voice communication or call normally involved real-time, duplex, synchronous voice communications, in which all participants hear the other participants in real time, all participants can simultaneously speak, and all participants are actively engaged and respond directly and immediately to each other without significant interruption.

[0005] More recently, telecommunications devices are frequently capable of both voice and data communications, using various modes of such communications. In addition to person-to-person communications, many modern telecommunications devices are capable of other types of data communications through access to the Internet and other databases. For example, many telecommunications devices have built-in web browsers for Internet navigation.

[0006] Furthermore, many network service providers or telecommunications device manufacturers now provide a website or "store" from which users may purchase various applications (i.e., an "app store") to add various capabilities to their telecommunications devices. These network service providers or manufacturers also enable third parties to create third party applications that can be downloaded and used on the telecommunications devices. For example, an app store might make available for download a large number of applications written by third parties, in addition to applications provided by the network service provider or by the telecommunications device manufacturer. The third party applications and service provider/manufacturer applications might typically be marketed for a specified download fee, and may be purchased from the app store through the Internet or over the network service provider's own network. By picking and choosing which applications to download to a particular telecommunications device, the telecommunications device owner can decide which corresponding capabilities the particular telecommunications device will be endowed with. Further, word-of-mouth or viral marketing can contribute greatly to the sales success of particular applications. For example, a particular user might show an application on her telecommunications device to her friends, who will then purchase the application for use on their own telecommunications devices. In some cases, the application might be transferred to the telecommunications devices for a free trial and the users are then given an option to purchase the application.

[0007] Some applications are able to function while a user of a telecommunications device is carrying on a conversation on the telecommunications device. For example, a user may have a headset or speakerphone feature enabled so that the user is able to view the display of the telecommunications device while talking on the telecommunications device. Thus, the user is then able to view a user interface presented by an application while carrying on a conversation. For instance, during a voice call, the user of the telecommunications device may initiate a personal information manager (PIM) application on the telecommunications device for accessing a phone number of a third party to read the third party's phone number to the person on the other end the call. Thus, while telecommunications devices currently provide a multitude of features, the ever-increasing popularity of telecommunications devices makes it desirable to develop new types of uses, applications and features.

SUMMARY

[0008] This document describes a technology to share book reading experiences between users of different telecommunication devices. A user's reading experiences include his or her reading of a displayed electronic book and his or her navigational inputs on the telecommunication device. The technology associates the reading with the navigational inputs, and either transmits such voice and data to a recipient's telecommunication device in real time or records such voice and data for later transmission. The technology enables the recipient to navigate the electronic book and listen to the

readings in accordance with the received navigational inputs.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The detailed description is set forth with reference to the accompanying figures. In the figures, the left-most digit(s) of a reference number identifies the figure in which the reference number first appears. The use of the same reference numbers in different figures indicates similar or identical items or features.

[0010] FIG. 1 illustrates an exemplary environment system 100 that facilitates voice and other modes of communication between a parent device and child device, used by a parent and a child, respectively.

[0011] FIG. 2 illustrates steps or actions carried out by both parent device and child device in a general scenario of synchronously reading and navigating an e-book on both a parent device and a child device.

[0012] FIG. 3 illustrates an exemplary method of recording navigational inputs and reading of an e-book for later playback.

[0013] FIG. 4 further illustrates an exemplary method of recording sound effects when e-book is an interactive book.

[0014] FIG. 5 illustrates an exemplary method of establishing a voice communication channel and a data communication channel for transmitting an e-book reading and associated navigational inputs from a parent device to child device.

[0015] FIG. 6 illustrates an exemplary method in which a parent device transmits an e-book reading and associated navigational inputs to both a child device and third party device.

[0016] FIG. 7 illustrates a schematic view of an exemplary implementation of a communication system between two telecommunications devices.

[0017] FIG. 8A illustrates an exemplary configuration of an implementation of a telecommunications device.

[0018] FIG. 8B illustrates an exemplary logical configuration of an implementation of a telecommunications device.

[0019] FIG. 9 illustrates an exemplary configuration of a server computing device.

[0020] FIG. 10 illustrates a flow chart representing an exemplary implementation of a process carried out in conjunction with execution of a unilateral shareable application on a telecommunications device.

[0021] FIG. 11 illustrates an exemplary implementation of a unilateral shareable application.

[0022] FIG. 12 illustrates another exemplary implementation of a unilateral shareable application.

[0023] FIG. 13 illustrates another exemplary implementation of a unilateral shareable application.

[0024] FIG. 14 illustrates another exemplary implementation of a unilateral shareable application.

[0025] FIG. 15 illustrates a flow chart representing an exemplary process carried out in conjunction with

execution of implementations of bilateral shareable applications.

[0026] FIG. 16A illustrates an exemplary implementation of a bilateral shareable application.

[0027] FIG. 16B illustrates an exemplary implementation of establishing a connection for a shareable application.

[0028] FIG. 16C illustrates another exemplary implementation of establishing a connection for a shareable application.

[0029] FIG. 16D illustrates another exemplary implementation of establishing a connection for a shareable application.

[0030] FIG. 17 illustrates another exemplary implementation of a bilateral shareable application.

[0031] FIG. 18 illustrates another exemplary implementation of a bilateral shareable application.

[0032] FIG. 19 illustrates another exemplary implementation of a bilateral shareable application.

[0033] FIG. 20 illustrates another exemplary implementation of a bilateral shareable application.

[0034] FIG. 21 illustrates a flow chart representing an exemplary process carried out in conjunction with execution of additional implementations of bilateral shareable applications.

[0035] FIG. 22 illustrates an exemplary implementation of the additional implementations of bilateral shareable applications.

[0036] FIG. 23 illustrates another exemplary implementation of the additional implementations of bilateral shareable applications.

[0037] FIG. 24 illustrates an exemplary suite of shareable applications according to some implementations.

DETAILED DESCRIPTION

Overview

[0038] Some implementations disclosed herein provide a shared book reading experience, in which an electronic book is displayed concurrently on a parent telecommunications device and a child telecommunications device during a voice call between the parent telecommunications device and the child telecommunications device. As the parent reads the electronic book to the child aloud over the voice call, the parent also navigates or otherwise interacts with the electronic book. Navigational inputs received from the parent are transmitted to the child telecommunications device, and the child telecommunications device navigates the electronic book in accordance with the received navigational input.

Exemplary Communication Environment

[0039] FIG. 1 illustrates an exemplary system 100 that facilitates voice and other modes of communication between a parent telecommunications device 102 and child telecommunications device 104, used by a parent 106 and a child 108, respectively. Although the terms "parent device" and "child

device" are used herein, a "parent device" is any type of device that can have, either directly or via an alternate interface (such as a desktop or Web interface), a primary or supervisory relationship with the "child device," regardless of whether the specific users of the "parent device" and "child device" have a parent-child relationship.

[0040] In the illustrated environment, parent device 102 can be a normal or specially configured telecommunications device. In one embodiment, child device 104 may be a specialized smart phone or other device, designed especially for young children. For example, it might have large keys, bright colors, and be ruggedized to withstand the rough treatment it might receive by children. Furthermore, the operating system and user interface of the child device might be customized for young children through simplification and graphical designs that are more appealing and understandable to children.

[0041] In one embodiment, child device 104 might be a tablet-like device having dimensions similar to those of an 81/2.times.11 inch sheet of paper. Rather than keys, such a device might have a touch-sensitive display surface to accept user input.

[0042] In the described example, system 100 includes a cellular telecommunications infrastructure or network 110 that is accessed by wireless communications devices such as portable telephone handsets, smart phones, PDA phones, pagers, portable computers, and various other types of portable devices having wireless communications capabilities. Network 110 may be any other type of telecommunications system, such as a landline telecommunications system, an IP-based telecommunications system, or a converged telecommunications system (such as an Unlicensed Mobile Access or UMA system).

[0043] Originally intended to implement voice communications, cellular networks and other wireless communications systems now support many different types of communications, such as video, instant messaging, email, text messaging (e.g., Short Message Service or SMS messaging), multimedia messaging (e.g., Multimedia Message Service or MMS messaging), etc. Systems such as network 110 may also provide access to the Internet. Modern telecommunication devices have advanced capabilities that allow them to utilize the wide range of resources and activities available through the Internet.

[0044] Network 110 utilizes various technologies and protocols for implementing different modes of communications with and between telecommunications devices. Network 110 supports voice communications as well as data communications. Telecommunications devices utilizing network 110 can conduct various types of communications with other telecommunications devices supported by network 110, as well as with devices and resources connected to other private and/or public networks.

[0045] Numerous carriers maintain large communications networks as examples of network 110. T-Mobile, as one example, is a large mobile network operator that maintains a world-wide wireless communications infrastructure. Other operators maintain independent mobile networks, and there is a degree of cooperation and interoperability between networks. Generally, users of one mobile network can call and communicate with users of different fixed, IP-based, mobile and converged networks. In addition, users can communicate with each other through various Internet communication techniques, made possible by the connection of the various mobile networks to the Internet.

[0046] For discussion, parent device 102 and child device 104 are illustrated as being similar or identical devices. Parent device 102 has a touch-sensitive display panel 112, one or more buttons 114, a microphone 116, and a speaker 118. Similarly, child device 104 has a touch-sensitive display panel 122, one or more buttons 124, a microphone 126, and a speaker 128. The illustrated devices are merely examples of different types of devices that might be used in conjunction with the techniques described herein.

[0047] Parent device 102 and child device 104 can communicate with each other by placing a voice call from one device to the other. This is illustrated in FIG. 1 as a voice communications channel 130, also referred to as a voice call 130. In most cases, this is a bi-directional communications channel that uses available cellular technologies. VOIP (voice over IP) techniques or other protocols and technologies may also be utilized to establish voice communications channel 130.

[0048] Parent device 102 and child device 104 can also communicate data, including non-voice data, through a data communications channel or path 132. Data communications through channel 132 may utilize IP or other Internet protocols, or may utilize any other formats and protocols.

[0049] In the embodiment illustrated by FIG. 1, both parent device 102 and child device 104 are capable of executing electronic book (e-book) reader applications 134 and 136, respectively. E-book reader applications 134 and 136 can be built into devices 102 and 104, or can be discrete applications that have been installed on devices 102 and 104 by the device users or owners after purchasing the devices.

[0050] E-book reader applications 134 and 136 may comprise copies of a single application program, capable of performing slightly differently in either a master role when installed on parent device 102 or a slave role when installed on child device 104. Alternatively, application 134 may be an application that acts only as a master, while application 136 may be a different application that acts only as a slave. For purposes of discussion, they will be discussed as two different applications, referred to respectively as parent application 134 and child application 136.

[0051] Parent application 134 and child application 136 have similar core functionality, comprising the ability to display and navigate an e-book 138. Navigation can be performed by the user by appropriate controls, such as buttons 114 and 124, or by touch-sensitive controls placed on display panels 112 and 122.

[0052] More specifically, parent application 134 may include or comprise a viewer module that can be configured to display e-book 138 on display panel 112 during voice communication with child device 104. Similarly, child device 104 may include or comprise a viewer module that can be configured to display e-book 138 on display panel 122 during voice communication with parent device 102.

[0053] E-books used in conjunction with the techniques discussed herein may be simple textual works, or may be more complex works such as interactive e-books. Interactive e-books have interactive elements such as audio, video, games, links, dynamic navigation, etc., which are activated in response to certain user inputs, including navigational inputs.

[0054] In addition to core functionality for displaying and navigating an e-book, parent device 102 can function as a master device for controlling navigation on child device 104. Similarly, child device 104 can function as a slave device, accepting navigational signals from parent device 102. This additional functionality can be implemented by parent and child applications 134 and 136, or as native capabilities of one or both of parent and child devices 102 and 104.

[0055] In order for parent 106 to read e-book 138 to child 108, either the parent or the child can initiate voice call 130. Either before or during voice call 130, parent 106 can launch or initiate parent application 134 and interact with parent application 134 to display a particular e-book 138 on display surface 112 of parent device 102. Parent application 134 establishes data communications 132 with child device 104 and/or with child application 136 that is executing on child device 104. In some implementations, child device 104 might be responsive to data communications from parent device 102 to launch or open child application 136. In other implementations, child 108 might launch child

application 136 by selecting an icon displayed on display panel 122, or by interacting in some other way with child device 104. Once launched, child application 136 is responsive to communications requests from parent application 134 to establish data communications channel 132 over network 110.

[0056] As parent 106 views e-book 138 on display panel 112 of parent device 102, the parent also reads e-book 138 aloud over voice call 130 to child 108. Concurrently, parent device 102 receives navigational inputs 140 from parent 106 and allows navigation through e-book 138 in response to those navigational inputs provided by the parent. In addition, parent application 134 captures or records navigational inputs 140 and transmits them to child device 104 and child application 136. Child application 136 receives navigational inputs 140 and responds to them as if they had been received locally, from a local user such child 108.

[0057] At the same time, the audio reading of the e-book, represented in FIG. 1 by symbol 142, is received and captured by parent device 102 and transmitted to child device 104 over voice call 130. Child device 104 receives audio reading 142 and plays it through its speaker 128.

[0058] Thus, e-book 138 is displayed concurrently on parent telecommunications device 102 and child device 104 during voice call 130 between the two devices. As the parent reads e-book 138 to the child aloud over voice call 130, the parent also navigates or otherwise interacts with the e-book. Navigational inputs 140 received from the parent are implemented or acted upon at parent device 102, and also transmitted to child device 104. In response to receiving navigational inputs 140 from parent device 102, child device 104 navigates the e-book 138 in accordance with the received navigational inputs 140.

[0059] Navigational control of e-book 138 can be exclusively by the parent, or can be shared with the child. In other words, child device 104 might respond solely to navigational inputs 140 received from parent device 102, or might be alternatively configured to also respond to local navigational inputs made by child 108 touching or pressing navigational controls on child device 104. In some embodiments, the ability for the child to navigate can controlled by the parent. For example, parent device 102 may offer configuration options or settings, allowing parent 106 to either enable or disable navigational control from child device 104. Alternatively, the user interface of parent application 134 might include an easily accessible soft-button or other control allowing parent 106 to enable or disable child navigation at any time while reading.

[0060] In addition to transmitting navigational inputs 140 and audio reading 142 to child device 104 as parent 106 is reading aloud, either of the two devices can be configured to record the navigational inputs 140 and audio reading 142 for later playback.

[0061] Navigational inputs 140 and audio reading 142 can be stored on either device in a format that associates them with a particular e-book, and that time-stamps navigational inputs 140 in relation to audio reading 142 so that during playback navigational inputs 140 can be timed correctly in relation to audio reading 142. Furthermore, the recorded navigational inputs 140 and audio reading 142 can be stored on either of the two telecommunications devices, on a different telecommunications device, or by some other network accessible entity such as a content or service provider. FIG. 1 shows, for example, a content provider 144 from which numerous e-books 146 can be obtained by devices 102 and 104, and which can be configured to store a recorded shared reading 148 associated with a particular e-book. Shared reading 148 comprises an audio recording of audio reading 142 and associated time-stamped navigational inputs 140.

[0062] In accordance with some embodiments, different network-connected devices, including telecommunications devices such as parent device 102 and child device 104, can access e-books and shared readings 148 from content provider 144, and play them back at any later time. As an example, a

particular session between a parent and child can be recorded and stored as a shared reading 148, and provided to another relative such as a grandparent or other third party for later playback on a device not shown in FIG. 1. Shared readings might also be archived for scrapbooking, blogging, or other purposes. The third-party device might be a telecommunications device or any other network-connected device. Shared reading 148 could also be transferred to a physical medium such as a CD-ROM or DVD and physically provided to a third party for later rendering.

[0063] In some scenarios, the audio of shared readings 148 might include audio from both parent device 102 and child device 104. The reading experience will often be interactive, and child 108 may read portions of e-book 138 aloud, or might comment on or discuss e-book 138 with parent 106. During real-time sessions, both sides of this audio interaction can be captured and recorded to form part of a shared reading 148.

[0064] Similarly, the navigational inputs of shared readings 148 might include navigational inputs made by child 108 on child device 104.

[0065] In another scenario, parent 106 might create shared reading 148 in a single-party session, without interacting with child device 104. In this scenario, parent 106 opens parent application 134 to display an e-book and initiate a reading. Parent 106 reads e-book 138 while simultaneously navigating e-book 138. Navigational inputs 140 and reading 142 are recorded and saved locally or at content provider 144. At some later time, child device 104 retrieves shared reading 148 and synchronously renders both navigational inputs 140 and reading 142 at child device 104.

[0066] FIGS. 2-5 illustrate exemplary processes corresponding to the concepts and techniques described above. Note that although the processes are shown as individual steps in a particular order, the steps may or may not be segregated this way in any particular embodiment, and may be performed in different orders or sequences. Furthermore, responsibilities between different devices and entities may be allocated differently in various implementations.

[0067] FIG. 2 illustrates steps or actions carried out by both parent device 102 and child device 104 in a general usage scenario of synchronously reading and navigating e-book 138 on both parent device 102 and child device 104. At parent device 102, an action 202 comprises displaying e-book 138 on display panel 112 of parent device 102. An action 204 comprises accepting navigational inputs from parent 106 to navigate e-book 138 while parent 106 is reading e-book 138 aloud. An action 206 comprises transmitting navigational inputs 140 and reading 142 of e-book 138 from parent device 102 to child device 104.

[0068] At child device 104, an action 208 comprises receiving navigational inputs 140 and reading 142 of e-book 138 from parent device 102. An action 210 comprises displaying e-book 138 on display panel 122 of child device 104. E-book 138 may be stored locally on child device 104, or may be streamed or downloaded from some other source such as content provider 144. Alternatively, e-book 138 may be retrieved or streamed from parent device 102.

[0069] An action 212 comprises playing reading 142 of e-book 138 on child device 104 while synchronously navigating e-book 138 on child device 104 in accordance with navigational inputs 140.

[0070] It is not necessary to transmit navigational inputs 140 or reading 142 of e-book 138 in real-time at action 206. In one scenario, action 206 is indeed performed as parent 106 is reading the e-book aloud. In this scenario, child device 104 can be configured to display e-book 138 on child device 104 during voice call 130, and receive navigational signals such as navigational inputs 142 from parent device 102 during voice call 130 to navigate e-book 138 on child device 104 while parent 106 reads the e-book

aloud. Child device 104 can be further configured to execute child application 136 during voice call 130 to display e-book 138 and to navigate e-book 138 in response to receiving e-book navigation signals from parent device 102.

[0071] In another scenario, action 206 is performed after parent 106 has read the e-book aloud. This can be implemented by recording navigational inputs 140, reading 142 of e-book 138, or both at parent device 102 as they occur. Alternatively, child device 104 can be configured to record voice call 130 and navigational inputs 142 for later synchronized playback on child device 104.

[0072] FIG. 3 illustrates an exemplary method of creating a shared e-book reading 148 for later playback. This method can be implemented on child device 102, parent device 104, or by some other system or device. An action 302 comprises recording navigational inputs 140 and reading 142. Navigational inputs 140 and readings 142 can be stored separately or associated and configured as a single object or file structure.

[0073] An action 304 comprises time-stamping navigational inputs 140 in relation to reading 142 so that during playback navigational inputs 140 can be timed correctly in relation to reading 142.

[0074] An action 306 comprises storing navigational inputs 140 and reading 142. The storage location can be at parent device 102, child device 104, or content provider 144.

[0075] There are many methods that child 108 can use to retrieve recorded navigational inputs 140 and reading 142. In one scenario, parent device 102 can transmit navigational inputs 140 and reading 142 to client device 104 at a scheduled time. In another scenario, child device 104 can request to retrieve recorded navigational inputs 140 and reading 142 from the storage locations on demand. In yet another scenario, shared reading 148 can be stored at content provider 144, which can be configured to be accessible by the public or limited to a number of users or devices, such as child 108 or child device 104. This can be implemented by setting up passwords for permitted users such as child 108 to log in to content provider 144 to retrieve shared reading 148. Alternatively, access to shared reading 148 can be conditioned upon verifying that the requesting device has a particular International Mobile Equipment Identity (IMEI).

[0076] FIG. 4 illustrates another way in which a parent or other person can participate in shared reading of an e-book. In this example, e-book 138 is an interactive e-book or other content having customizable sounds or sound effects. Rather than, or in addition to, reading e-book 138, parent application 112 can be configured to accept sounds, sound effects, and/or other utterances from parent 106 to associate with interactive elements of e-book 138. These sounds or utterances are associated with e-book 138, such as in shared reading 148, and played back in conjunction with the interactive elements on child device 104.

[0077] An action 402 comprises displaying an interactive book on parent device 102. An action 404 comprises recording utterances of parent 106 corresponding to interactive elements of the interactive book. An action 406 comprises delivering the interactive book and recorded utterances to child device 104. An action 408 comprises displaying the interactive book on child device 104. An action 410 comprises playing the utterances of parent 106 on child device 104 in response to interactions with the interactive elements of the interactive book by child 108. The utterances of parent 106 can include sound effects corresponding to interactive elements of the interactive book. The utterances of parent 106 can also include phrases corresponding to interactive elements of the interactive book. The utterances of parent 106 can also include representations of words represented by the interactive book.

[0078] FIG. 5 additional details regarding the interactions between child device 102 and parent device

104 during a real-time reading of a shared e-book. An action 502 comprises establishing voice call 130 between parent device 102 and child device 104. An action 504 comprises establishing data communication channel 132 between parent device 102 and child device 104. Note that these actions can be performed or initiated by either of the involved devices.

[0079] An action 506 comprises communicating reading 142 of e-book 138 from parent device 102 to child device 104 over as the parent reads the e-book. More specifically, this includes transmitting reading 142 of e-book 138 over voice call 130 from parent device 102, and receiving reading 142 by child device 104.

[0080] An action 508 comprises communicating navigational inputs 140 from parent device 102 to child device 104 as the parent reads the e-book. More specifically, this includes transmitting navigational inputs 140 over data communication channel 132 to child device 104, and receiving navigational inputs 140 by child device 104.

[0081] In addition to transmitting navigational inputs 140 and reading 142 of e-book 138 or shared reading 148 to child device 104, parent device 102 can also transmit them to a third party device. The third party device can be a device similar to parent device 102 or child device 104, and might belong to another relative such as a grandparent.

[0082] FIG. 6 illustrates an exemplary method in which a reading and associated navigational inputs are provided for playback by a third party while also reading with a child. At parent device 102, an action 602 comprises displaying e-book 138 on display panel 112. An action 604 comprises receiving navigational inputs 140 and reading 142 from the user of parent device 102. An action 606 comprises simultaneously establishing a multi-party voice call and data connection between parent device 102, child device 104, and a third-party device 608. An action 610 comprises transmitting navigational inputs 140 and reading 142 to both child device 104 and a third-party device 608.

[0083] At client device 104, an action 612 comprises receiving navigational inputs 140 and reading 142 from parent device 102. An action 614 comprises displaying e-book 138 on display panel 122. An action 616 comprises audibly playing reading 142 while at the same time navigating e-book 138 in accordance with the received navigational inputs 140.

[0084] At third-party device 608, an action 618 comprises receiving navigational inputs 140 and reading 142 from parent device 102. An action 620 comprises displaying e-book 138 on third-party device 608. An action 622 comprises audibly playing reading 142 while at the same time navigating e-book 138 on device 608 in accordance with the received navigational inputs 140.

[0085] Although the preceding discussion refers to reading 142 as a discrete object, note that reading 142 in many scenarios is simply a voice conversation between parent device 102, child device 104, and possibly a third-party device 606.

[0086] As described previously, it is not necessary to transmit navigational inputs 140 or reading 142 of e-book 138 to third party device 502 in real-time in all embodiments. In one scenario, shared reading 144 is provided to recipient devices as parent 106 is reading e-book 138 aloud. In other scenarios, however, shared reading 144 is delivered and or consumed at a later time.

[0087] FIGS. 7-24 illustrate a general environment in which the concepts and techniques described above may be implemented. In particular, the following discussion relates to application sharing between two or more telecommunications devices. Application sharing such as this can be used to synchronously read and navigate an e-book on a parent device and a child device as discussed above.

More specifically, parent application 134 and child application 136 may be implemented as a "shareable application," as set forth in the following discussion. The discussion below also provides additional details and techniques that can be used in conjunction with the system shown in FIG. 1.

[0088] FIG. 7 illustrates an exemplary implementation of a communication system 700, which includes a first telecommunications device 702 communicating with a communication network 704 through, in this example, a wireless link 706. A second telecommunications device 708 communicates with the communication network 704 via a second wireless link 710. As discussed more fully herein, it will be understood by one of skill in the art that although wireless links 706, 710 are typical of wireless or cellular telecommunications, any type of wired or wireless connection, such as wired or wireless communications associated with traditional landline networks and IP-based networks, or any combination of these, provide suitable implementations. For cellular-based embodiments, at least a portion of the communication network 704 may enable communication by a plurality of telecommunications devices, including the telecommunications devices 702, 708, via networks utilizing any type of cellular-radio-based communication protocols such as GSM (Global System for Telecommunications), UMTS (Universal Mobile Telecommunication system), CDMA (Code Division Multiple Access), D-AMPS (Digital Advanced Mobile Telecommunications device System), TDMA (Time Division Multiple Access), iDEN (Integrated Digital Enhanced Network), GPRS (General Packet Radio Service), EDGE (Enhanced Data rates for GSM Evolution), WCDMA (Wideband Code Division Multiple Access), and their variants. The communication network 704 may also enable or permit communication between or with the plurality of telecommunications devices via a peer-to-peer or ad hoc system utilizing appropriate communication protocols such as Bluetooth.RTM., IEEE 802.11, IEEE 802.16, and the like. Further, while implementations are often illustrated herein as being between two telecommunications devices, it should be understood that three or more telecommunications devices can communicate simultaneously, and that the implementations herein can be applied to three or more telecommunications devices as well.

[0089] The communication network 704 may include a variety of components for proper operation and communication with the telecommunications devices 702, 708. For example, for the communications network and infrastructure illustrated in FIG. 1, the communication network 704 includes wireless communication capabilities for connecting a plurality of base stations 712 (which may include traditional cellular base stations, femtocells, picocells, and other access points) and one or more server computing devices 714, such as network service provider (NSP) servers, Internet service provider servers, home network servers, enterprise servers, or other server computing devices for controlling communications on the communication network 704. The server computing device(s) 714 may be part of a data center, server farm, computing cluster, storage area network, or other architecture for receiving, processing and transmitting communications and application threads and processes, as well as for storing content to be shared between telecommunications devices 702, 708. A variety of additional components may be coupled between and/or to the plurality of base stations 712 and the server computing device(s) 714 and other communication network components, but these additional components are not illustrated in this implementation for clarity of explanation.

[0090] The communication system 700 and communication network 704 may also include wire-based networks (e.g., telephone, cable) and other wireless networks (e.g., cellular, satellite, etc.). The communication system 700 and communication network 704 may use any number of protocols and configurations to enable a plurality of telecommunications devices to access other devices and resources. The communication system 700 and communication network 704 may include several types of circuit-switched telephone networks, such as a Public Switched Telephone Network (PSTN) 716 and packet-switched networks. Thus, communication network 704 is able to communicate with landline telephones via the PSTN 716, and may further include a plurality of wireless communication networks maintained by a plurality of different wireless network service providers.

[0091] Furthermore, communication network 704 may also include or be in communication with the Internet 718. For example, at least some server computing devices 714 can be able to communicate with the Internet 718. Thus, in some implementations or situations, the telecommunications devices 702, 708 can access the Internet 718 through cellular radio communications via server computing devices 714, such as via EVDO (Evolution-Data Optimized) communications or other technologies. In other implementations or situations, telecommunications devices 702, 708 can access the Internet 718 directly, such as via a wireless access point using Wi-Fi, WiMax, or the like.

[0092] In the implementation illustrated in FIG. 7, a user 720 of the first telecommunications device 702 may place a voice call to a user 722 of second telecommunications device 708, or vice versa, through communication network 704 for having a voice conversation between the user 720 and the user 722. Additionally, user 720 may elect to send a data signal, such as a text message or picture message to the user 722, or vice versa, via communication network 704. Also, the users 720, 722 may connect telecommunications devices 702, 708, respectively to the Internet 718, such as via cellular communications or wireless access points, such as for sending emails, instant messaging, or the like.

[0093] At least one of the telecommunications devices 702, 708 includes one or more shareable applications 724. For example, suppose the user 720 calls the user 722. The voice call is routed from the first telecommunications device 702 to the second telecommunications device 708 via the communication network 704 to create a voice communication channel. During this conversation, suppose the user 720 wants to share some information, process, or interactive experience with the second user 722. For example, the first user might want to show some pictures of a recent vacation or a slide show of an upcoming business meeting. During the call, some implementations of the shareable applications 724 allow the users to share the experience of viewing the pictures or slides while being able to discuss them at the same time over the voice channel. Further, the shareable application 724 may monitor or interact with the conversation to provide additional functions and features to enhance the users' experience while viewing the pictures or slides.

[0094] Further, server computing device(s) 714 on the communication network can also include one or more shareable application modules 730 that can, in some implementations, interact with, cooperate with, or facilitate the sharable applications on the telecommunications devices. The shareable application modules 730 may be provided in addition to or instead of shareable applications 724 on the telecommunications devices. For example, shareable content 732 may be stored on the communication network, such as at a storage array, data center, server farm, or the like. The shareable content may include the photographs or slides that the first user 720 wants to share with the second user 722. Thus, rather than having to store the content on the telecommunications device 702 and transmit the content to the other telecommunications device 708, the server computing device can retrieve the shareable content 732 and transmit the shareable content to each of the telecommunications devices during the voice conversation. In some examples, the shareable content may be transmitted by downloading the content to the receiving device (i.e., a copy is stored at the receiving device), while in other examples, the content may be served or streamed in a transitory manner (i.e., the content may be available to the receiving device for read-only access, but cannot be stored on the receiving device).

[0095] In some implementations, as described further below, shareable applications monitor a voice communication channel and perform a function in response to detecting a specified hook or predetermined condition in the voice conversation. Further, in some implementations, shareable applications include applications executing on a plurality of telecommunications devices that enable sharing of data among corresponding applications on the telecommunications devices while the users of the telecommunications devices carry on a voice conversation with each other. In addition, in some implementations, the server computing device(s) include counterpart shareable application modules that

carry out functions that facilitate the shareable applications on one or more telecommunications devices. Additionally, some implementations include shareable applications executing on a plurality of telecommunications devices that enable sharing of data among corresponding applications on the telecommunications devices while the users carry on a voice conversation with each other and the shareable applications also monitor the voice communication for performing one or more functions in response to a specified hook or predetermined condition in the voice conversation.

Exemplary Telecommunications Device Architecture

[0096] FIG. 8A illustrates an exemplary configuration of a telecommunications device 800 suitable for executing the shareable applications implemented herein. Telecommunications device 800 is an example of a telecommunications device that may correspond to either of telecommunications devices 702, 708, or other telecommunications devices discussed herein. Telecommunications device 800 has one or more processors 810, a memory 812, a display 814, and a keypad 816. Memory 812 generally includes both volatile memory and non-volatile memory (e.g., RAM, ROM, Flash Memory, miniature hard drive, memory card, or the like). Telecommunications device 800 includes an operating system (OS) 818, which is resident in memory 812 and which is executed by processor 810. Keypad 816 may be a push button numeric dialing pad (such as on a typical telecommunications device), a multi-key keyboard (such as a conventional QWERTY keyboard), or one or more other types of keys or buttons, and may also include a joystick-like controller and/or designated navigation buttons, or the like. Display 814 may be a liquid crystal display, or any other type of display commonly used in telecommunications devices. For example, display 814 may be a touch-sensitive touch screen, and can then also act as an input device or keypad, such as for providing a soft-key keyboard, navigation buttons, or the like. A peripheral device port 820 may be included and may be of the type to accept additional memory cards, game cards, modem cards, or other types of peripheral devices.

[0097] One or more shareable application programs 822, as discussed above, and as described further below, are loaded into memory 812 and are run by or in conjunction with operating system (OS) 818. Further, one or more other application programs 824 may also be included in memory 812. Examples of other application programs 824 include conventional application programs, such as game programs, navigation programs, installation wizard programs, email programs, scheduling programs, PIM (personal information management) programs, word processing programs, spreadsheet programs, Internet web browser programs, and so forth. Telecommunications device 800 also includes other data storage 826 within memory 812. Other data storage 826 may be used to store information that is retained when the telecommunications device 800 is powered down. For example, applications 822 may use and store persistent information in the other data storage 826, such as messages used by an e-mail application, contact information used by a personal information manager, documents used by a word processing program, device driver programs, and the like.

[0098] Additionally, in some implementations, telecommunications device 800 may include a SIM (subscriber identity module) card 828, which is a removable memory card used to identify a user of the telecommunications device 800 to the network service provider. One or more of the shareable applications 822 may additionally or alternatively be stored in SIM card 828, such that the one or more shareable applications 822 become available to the telecommunications device 800 when the SIM card 828 is installed in the telecommunications device 800. In this manner a user's shareable applications can be easily moved between telecommunications devices as the SIM card 828 is moved between those devices, such as when a user purchases a new telecommunications device, replaces a broken device, or the like.

[0099] Telecommunications device 800 also includes a power supply 830, which may be implemented as one or more batteries. The power supply 830 might further include an external power source, such as

an AC adapter or a powered docking cradle for supplementing or recharging the batteries.

[0100] Telecommunications device 800 also includes an audio interface 832 that is coupled to a built-in speaker 834 and microphone 836. The audio interface 832 is used to provide audible signals to and receive audible signals from the user of telecommunications device 800. For example, the speaker 834 provides audible output and microphone 836 receives audible input, such as to facilitate a voice conversation. Telecommunications device 800 may include a speakerphone feature to enable telecommunications device 800 to be held away from the user's head during use, thereby facilitating simultaneous viewing of display 814. Audio interface 832 is also in communication with a headphone jack 838 to permit a wired headset including earphones and a microphone to be plugged in to telecommunications device 800 in some implementations to operate in place of built-in speaker 834 and microphone 836.

[0101] Telecommunications device 800 also includes, in wireless embodiments, a radio transceiver and interface 840 that performs the function of transmitting and receiving radio frequency communications via an antenna 842. The radio interface 840 facilitates wireless connectivity between the telecommunications device 800 and various cell towers, base stations and/or access points. Transmissions to and from the radio interface 840 are conducted under control of the operating system 818. For example, communications received by the radio interface 840 may be disseminated to application programs 822 via the operating system 818, and vice versa.

[0102] Telecommunications device 800 also may include a personal area network (PAN) interface 844, such as Bluetooth.RTM., that performs a function of transmitting and receiving short-range radio communications. For example, a wireless headset 846 may be connected for communication with telecommunications device 800 via Bluetooth.RTM. interface 844 for providing an earphone and microphone to be used in place of built in speaker 834 and microphone 836. Further, (PAN) interface 844 may be used for other functions, as is known in the art, such as communicating directly with nearby devices that are also Bluetooth.RTM. enabled.

[0103] Telecommunications device 800 also may include a wireless LAN (WiFi) interface 848 that performs the function of transmitting and receiving wireless communications using the IEEE 802.11 and/or 802.16 standards. For example, telecommunications device 800 can use WiFi interface 848 to communicate directly with a nearby wireless access point such as for accessing the Internet directly without having to perform the access through the network service provider's network.

[0104] Telecommunications device 800 also may include a camera 850 for taking video and still photographs using telecommunications device 800. Telecommunications device 800 also may be outfitted with a global positioning system (GPS) transponder 852 for endowing telecommunications device 800 with various GPS capabilities such as navigation, mapping, or the like. Further, telecommunications device 800 may include a motion sensor 854, such as an accelerometer for determining position, attitude and/or movement of telecommunications device 800, such as for adjusting display orientation, or the like. In addition, while various components, features, and functions of a telecommunications device 800 have been described in the implementation illustrated in FIG. 8A, it should be understood that numerous other configurations, components, features, and the like may be incorporated into telecommunications devices described herein, and that the implementations herein are not limited to any particular configuration for telecommunications devices.

Exemplary Telecommunications Device Logical Configuration

[0105] FIG. 8B illustrates an exemplary logical configuration of an implementation of telecommunications device 800 capable of running a variety of different types of applications, including

the shareable applications implemented herein. Telecommunications device 800 may correspond to any of telecommunications devices 702, 708, or other telecommunications devices discussed herein. In this example, telecommunications device 800 includes hardware 860 which, as described above with reference to telecommunications device 800 of FIG. 8A, may include a wireless radio transceiver, a suitably programmed processor, and a memory that stores executable code executed by the processor for carrying out the operations described herein. In some implementations, the processor may be implemented as one or more processing devices, discrete logic, or any suitable combination of hardware, software, or firmware for executing the operating system, application program interfaces (APIs), modules, applications, and other software components described.

[0106] Telecommunications device 800 includes a plurality of program modules which in this example include an operating system 862, a Java virtual machine 864, a plurality of common APIs and libraries 866, and a plurality of application specific APIs 868-1 . . . 868-N. The Java virtual machine is one example of an implementation for providing and executing the common APIs/libraries 866 on the OS 862, and it should be understood that the disclosure herein is not limited to this implementation. In this example, at least some of the common APIs/libraries 866 are used to interface with hardware components or processes of telecommunications device 800, and are generally shared in common by all the applications that run on the telecommunications device. The common APIs/libraries 866 may include for example, a telephony API (TAPI) 870, a telecommunications device management API (DMAPI) 872, a multimedia API (MMAPI) 874, an Internet Protocol API (IPAPI) 876, a peripheral API (PAPI) 878, or any other suitable shared APIs 880. A security layer 882 on telecommunications device manages application authorization and access to the operating system 862 and hardware 860 of telecommunications device 800.

[0107] Common APIs and libraries are shared among various applications, and have at least two characteristics, namely an interface and an object, for providing services. The interface is the specification of the API's public methods. The object implements the interface and provides the functionality described in the interface. In some implementations, invoking a method on a common API is done in the context of the caller, such as via a thread or stack. A common API may return a value to the requesting caller by depositing the value directly on the caller's stack. Examples of services provided by common APIs include messaging, security, digital rights management (DRM), device management, persistence, synchronization and power management. In addition, a library is a set of services contained in an object that can either be statically linked or dynamically loaded into executable code. Library services may invoke other library services or services contained in daemons, which are external to the library and may also run in a different process context.

[0108] Various applications are able to execute on telecommunications device 800. The applications are typically user-initiated executable code whose lifecycle (start, stop, suspend, pause, resume) may be managed by the user, by the OS 862, or by another application. In some cases, the applications may present a user interface 884 which may overlay or augment a user interface presented by the OS 862, and/or in some cases the applications may use or provide services.

[0109] In the illustrated example, the applications include one or more native applications 886, one more conventional applications 888-1 . . . 888-N, and one or more shareable applications 890. The one or more shareable applications 890 are designed to operate on the telecommunications device 800 during a simultaneous voice conversation, and are described in additional detail below. Shareable applications 890 use a shareable application API 892 and/or other middleware, which enables the shareable application 890 to interact with the operating system 862, the telecommunications device hardware 860, and the common APIs/libraries 866. For example, it is desirable for the shareable applications 890 to run off a shareable application API 892 or other middleware that renders development of shareable applications 890 uniform across multiple types of telecommunications devices. Thus, the shareable

application API 892 may be developed specifically for a certain model or brand of telecommunications device, while the corresponding shareable application 890 is designed to function on numerous different types of telecommunications devices. Native applications 886 are applications that are able to interact directly with the operating system 862 and do not generally require access to the common APIs/libraries 866 or JAVA virtual machine 864. Some or all of conventional applications may be third party applications, such as might be downloaded from an apps store for execution on telecommunications device 800. These conventional applications 888-1 . . . 888-N may each include a corresponding application-specific API 868-1 . . . 868-N that enables the application 888 to interact with the hardware and other services available on telecommunications device 800. Each of the functional blocks, as illustrated in FIG. 8B, communicate with one another through conventional communication links represented by the arrows, such as through suitable API method calls or any other suitable techniques.

Server Computing Device

[0110] FIG. 9 illustrates an exemplary logical and hardware configuration of a server computing device 900 Implementations of server computing device 900 may correspond to the one or more server computing devices 714, such as NSP servers, or other servers or computing devices used to implement and facilitate the use of the shareable applications herein over a network, or the like. In the illustrated example, server computing device 900 includes one or more processors 902, a memory 904, and one or more communication interfaces 906. The processor(s) 902 can be a single processing unit or a number of processing units, all of which could include multiple computing units in a single computer or multiple separate computers. The processor(s) 902 may be implemented as one or more microprocessors, microcomputers, microcontrollers, digital signal processors, central processing units, state machines, logic circuitries, and/or any devices that manipulate signals based on operational instructions. Among other capabilities, the processor(s) 902 can be configured to load and execute computer-readable instructions stored in the memory 904 or other computer-readable storage media.

[0111] The memory 904 can include any computer-readable storage media known in the art including, for example, volatile memory (e.g., RAM) and/or non-volatile memory (e.g., flash, etc.), mass storage devices, such as hard disk drives, solid state drives, removable media, including external and removable drives, or the like. The memory 904 stores processor-executable program instructions or code that can be executed by the processor(s) 902 for carrying out the services, methods and functions described herein.

[0112] The communication interface(s) 906 facilitate communication between the server computing device 900 and telecommunications devices 702, 708, 800. For example, the communication interface(s) 906 may include one or more ports for connecting to a number of telecommunication devices. The communication interface(s) 906 can facilitate communications within a wide variety of networks and protocol types, including wireless networks (e.g., cellular, satellite, WLAN, etc.) and wired networks (e.g., LAN, cable, etc.).

[0113] Memory 904 includes a plurality of program modules 908 stored therein and executable by processor(s) 902 for carrying out implementations herein. Program modules 908 include shareable application modules 910 that include one or more shareable applications 912, a shareable application management module 914 for determining which shareable application to use and for controlling use of those application, and triggering logic 916, that determines when a shareable application on a telecommunications device needs to be facilitated, interacted with, or the like. Program modules 908 also include a communication module for enabling the server computing device to communicate with telecommunications devices and other computing devices, and other program modules, such as an operating system, drivers, and the like. Server computing device 900 also includes various types of data 922, such as subscriber information 924 and device information 926, and service provider information

928. Additionally, server computing device 900 may also store shareable content 928 onboard, but in other implementations, as illustrated in FIG. 7, this content may be stored in a separate mass storage array or other storage facility. Further, server computing device may include a billing module 930 that can charge users for network activities, such as storing shareable content 732, 928 on the server computing device 900, transmission or streaming of the content to a telecommunications device, executing processor-intensive applications, or the like. In addition, billing module can also track and charge for sales and downloading of shareable applications. For example, shareable application management module 914 may provide an application store for sale and download of shareable applications to the telecommunications devices. Billing module 930 can track these sales and bill appropriately. Further in some implementations, shareable application management module 914 may include digital right management features for controlling access to sharable content 732, 928 that is subject to digital rights management (e.g., music, images, video, etc. that is subject to copyright protection). Other variations will also be apparent to those of skill in the art, and thus, implementations disclosed herein are not limited to the particular example illustrated.

Shareable Applications

[0114] As discussed above, shareable applications according to implementations herein may be included on at least one telecommunications device that is party to a voice communication involving a plurality of telecommunications devices. In some implementations, the shareable application runs in the background on the telecommunications device and becomes active only upon detecting a particular predetermined condition in the voice communication channel. Further, in some implementations, the shareable application may include multiple instances on multiple telecommunications devices that interact with each other, and that may be activated on a first telecommunications device and also on a second telecommunications device to which the first telecommunications device is connected by a voice communication channel. Accordingly, in some implementations, the shareable applications are unilateral and only need to be activated on a single telecommunications device, while in other implementations the shareable applications are bilateral and need to be activated on two or more telecommunications devices that are party to a voice communication.

Unilateral Shareable Applications

[0115] FIG. 10 illustrates an exemplary process 1000 carried out in conjunction with execution of a unilateral shareable application on a first telecommunications device, such as any of telecommunications devices 702, 708, 800 described above, or other telecommunications devices described herein.

[0116] At block 1002, a sharable application is initiated on a telecommunications device. For example, the shareable application may be activated upon start up of the telecommunications device or can be selected by a user of the telecommunications device to become active at some point. In some implementations, the shareable application may start up or become active automatically, such as when the telecommunications device initiates an outgoing call, or receives an incoming call, or in response to some other trigger event. For example, an API, such as shareable application API 892, may be installed on the telecommunications device and configured to automatically start the shareable application when an incoming or outgoing voice call is detected. In other implementations, the user may decide to activate the shareable application after the voice communication has been established.

[0117] At block 1004, a voice communication channel is established between a plurality of telecommunications devices for enabling voice communications to be carried out between the telecommunications devices. For example, each of the telecommunications devices may initiate an outgoing call, or receive an incoming call. In a particular example, a voice telecommunication is established, in GSM embodiments, when a telecommunications device user dials a phone number of

another party. The call is received at a switch or Mobile Switching Center (MSC) serving the receiving telecommunications device. The MSC, based upon the received dialed phone number, polls a subscriber registry or Home Location Register (HLR) to determine, among other things, whether the called party's telecommunications device is registered on the telecommunications network and where the device is located. The MSC then signals the receiving user's telecommunications device to alert it that an incoming voice communication is available for acceptance. This signaling initiates a ringtone sequence in the receiving telecommunications device and, if the user accepts the incoming call, a signal is dispatched from the receiving telecommunications device back to the MSC to connect the communication to the initiating telecommunications device. In other implementations, the voice communication may be established using Circuited Switched (CS) voice over Internet Protocol (IP), similar to Unlicensed Mobile Access (UMA), or IP Multimedia Subsystem (IMS) that can include Session Initiation Protocol (SIP), as is discussed further below with reference to FIGS. 16B-16C. Additionally, as discussed above, shareable applications may already be active on the telecommunications device, may automatically start up or become active on the telecommunications device as a result of receiving a call or initiating a call, or may become active sometime after the call is established in response to some triggering event. Accordingly, block 1004 may take place before, after, or concurrently with block 1002.

[0118] At block 1006, in some implementations, the shareable application monitors the voice communication between the telecommunications devices. For example, the shareable application monitors a conversation carried on by the users of the telecommunications devices. In some implementations, the shareable application may run in the background and only become apparent when a predetermined condition or hook is detected. In other implementations, the shareable application might present a user interface to the user of the telecommunications device for providing additional features and functions, such as for enabling the user to control the function of the shareable application in response to detecting a predetermined condition in the voice communication channel. However, it should be noted that in other implementations, the shareable application does not have to monitor the conversation. Instead, other triggers or inputs, or actions by the user can cause the shareable application to carryout desired functions.

[0119] At block 1008, during the conversation, in some implementations, the shareable application may detect a predetermined condition in the voice communication. For example, the sharable application might detect a predetermined trigger or hook in the conversation or other aspect of the voice communication channel. In some implementations, for example, the shareable application might detect, such as via voice recognition functionality, a particular keyword or phrase spoken by one of the participants to the conversation, might detect a laugh, cough, sigh, or other noise made by one of the participants, or the like, and recognize this detected condition in the conversation as a trigger or hook specified as a predetermined condition for causing the shareable application to carry out a predetermined function. In other implementations, the shareable application may receive a different type of input from the user or detect a different type of triggering event. For example, the user might press a button on a user interface to cause the shareable application to carry out some function.

[0120] At block 1010, as a result of detecting the hook or predetermined condition in the conversation, or receiving an input or other detected trigger or action of the user, the shareable application carries out the predetermined function. For example, in some implementations, the shareable application might overlay a sound effect or a jingle on the conversation, cause an image, such as an emoticon or advertisement, or other data to be received or displayed by the first telecommunications device or transmitted to the second telecommunications device, or carry out some other function, as discussed further below. After the shareable application has carried out the predetermined function, the process may return to block 1006, and the shareable application continues to monitor the conversation or waits for additional user inputs or other trigger events for performing additional such functions until the voice

communication is terminated.

[0121] FIG. 11 illustrates an exemplary implementation of a unilateral shareable application. In this implementation, a voice communication session is established between a first user using a first telecommunications device 1102, and a second user using a second telecommunications device 1104. For example, the first user may call the second user, or vice versa, over a communications network as discussed above with reference to FIG. 7, so that a voice communication channel 1106 is established between the first telecommunications device 1102 and the second telecommunications device 1104.

[0122] For discussion purposes, suppose the first telecommunications device 1102 has a unilateral shareable application 1108 loaded in memory and executing on a processor of the telecommunications device 1102 (e.g., see FIG. 16A). Shareable application 1108 may include a user interface 1110 to give the user control over the functions of the shareable application 1108. In the illustrated implementation, the shareable application 1108 monitors the voice communication channel 1106 between the first telecommunications device 1102 and the second telecommunications device 1104. When the shareable application 1108 detects a particular sound, keyword, phrase, noise, or the like, as previously specified by the user of the telecommunications device 1102 or by a preset in the shareable application 1108 itself, the shareable application 1108 performs a predetermined function in response. For example, the shareable application 1108 may overlay a sound effect 1112 on the voice communication channel 1106 in response to detecting something in the voice conversation. The sound effect may be practically anything, including, for example, a line from a movie, an unusual or celebrity laugh, a musical clip, a jingle, an advertisement, or the like. For instance, during the conversation, either user might laugh, which is detected by application 1108 as a specified hook to cause application 1108 to overlay a predetermined sound effect 1112 (e.g., a laugh track) on the conversation. Accordingly, application 1108 can detect the predetermined condition either from the first user's voice communication received through the microphone of the first telecommunications device 1102 or from the second user's voice communication received at the first telecommunications device through the voice communication channel 1106 from the second telecommunications device 1104. As another example, the trigger event may be a non-voice-related event, such as the initial connection of the call to the second telecommunications device 1104. For example, when the second telecommunications device 1104 answers the call, the shareable application 1108 detects that the call has been connected, and sends a welcome or hello message or sound effect. Thus, in these examples, shareable application 1108 automatically augments the call and/or conversation with sound effects or other sound input without any additional action required of either user of either of the telecommunications devices 1102, 1104.

[0123] In some implementations, the shareable application 1108 may carry out a function solely on the first telecommunications device 1102. In this case, the sound effect 1112 might only be audible to the first user of the first telecommunications device 1102. In other implementations, the shareable application may send data to, or retrieve from, the other device. In such cases, the sound effect 1112 might be audible only to the second user of the second telecommunications device 1104, or audible to both users. In yet other implementations, the shareable application may interact directly with the voice communication channel so that the sound effect is heard on the voice channel by both users as a shared effect generated by the first telecommunications device 1102.

[0124] Furthermore, in other implementations, the server computing device(s) 714 on the communications network 704 may provide the functionality of detecting triggers in the conversation and adding sound effects to the conversation, or the like. For example, when the shareable application 1108 becomes active on the telecommunications device 1102, the shareable application can notify a counterpart application on the server computing device to become active and carryout the monitoring and sound effect integration functions. Other variations will also be apparent in view of the disclosure herein.

[0125] FIG. 12 illustrates another exemplary implementation of a unilateral shareable application. In this implementation, a voice communication session is established over the channel 1106 between a first user using the first telecommunications device 1102 and a second user using the second telecommunications device 1104, as discussed above in the previous implementation. A shareable application 1208 is loaded and executing on first telecommunications device 1102. This implementation of the shareable application 1208 provides a user interface 1210 that includes a mood meter or "happy" meter 1212. Application 1208 monitors the conversation between the first user and the second user for determining the attitude of the first user and the second user towards each other based on an analysis of the tone of the conversation, and reflects the results of this analysis on the meter 1212 such as by displaying a bar or other type of indicator as the meter 1212, and coloring in a portion of meter 1212 towards either a love position, hate position, or neutral position in the middle. In some implementations, application 1208 may include artificial intelligence to analyze the tone and inflection of the first user and the second user during the conversation for determining the attitudes of the users towards each other, and automatically update the meter 1212 accordingly. Furthermore, in other implementations, the server computing device(s) 714 on the communications network 704 may provide the functionality of analyzing the mood of the conversation and providing an indication of the mood to the telecommunications device. For example, when the shareable application 1208 becomes active on the telecommunications device 1102, the shareable application can notify a counterpart application on the server computing device to become active and carryout the monitoring and mood measuring functions. The mood measurements can be transmitted to the telecommunications device using a Session Initiation Protocol (SIP) message, or the like, as is discussed further below with reference to FIGS. 16B-16D.

[0126] FIG. 13 illustrates another exemplary implementation of a unilateral shareable application. In this implementation, a voice communication session is established over the voice communication channel 1106 between a first user using the first telecommunications device 1102 and a second user using the second telecommunications device 1104, as discussed above in the previous implementations. A shareable application 1308 is loaded and executing on first telecommunications device 1102. In this implementation, shareable application 1308 monitors the conversation between the first user and the second user, and automatically transmits predetermined data to telecommunications device 1104 upon detecting a hook, trigger or other predetermined condition in the conversation, such as a keyword, laugh, or other sound. For example, shareable application 1308 may include a user interface 1310 that displays one or more pieces of data 1312 such as icons, emoticons, photographs, or other suitable data. When the predetermined condition in the conversation is detected by the shareable application 1308, the shareable application 1308 identifies a predetermined piece of data 1312 that corresponds to the detected predetermined condition, and then sends the corresponding piece of data 1312 to the second telecommunications device 1104 as a data communication 1314. In some implementations, data communication 1314 may be in the form of a text message (e.g., SMS), picture message (e.g., MMS), instant message (IM) or other suitable data communication format. As a particular example, one of the users may laugh, and application 1308 detects the laugh and in response, sends an image of a smiley face emoticon to the second telecommunications device 1104 as a data communication 1104. Furthermore, in other implementations, the server computing device(s) 714 on the communications network 704 may provide the functionality of detecting triggers in the conversation and sending the data pieces 1312 in the data communication 1314. For example, when the shareable application 1308 becomes active on the telecommunications device 1102, the shareable application can notify a counterpart application on the server computing device 714 to become active and carryout the monitoring and data sending functions. Other variations will also be apparent in view of the disclosure herein.

[0127] In some additional implementations, a variety of user-selectable sounds and visuals may be initiated and shared between telecommunications devices 1102, 1104 via user initiation. For instance, if

the user of telecommunications device 1102 wishes to respond to a comment made by the other user with a smiling emoticon, such as emoticon 1110, the user may initiate a process by which emoticon 1110 appears on the second telecommunications device 1104. In some implementations, emoticon 1110 consists of an image file resident on telecommunications device 1102, which may be transmitted to telecommunications device 1104 in the form of an MMS message, SIP message, or the like. The message would include, in one or more data fields accompanying the emoticon image, a predefined alphanumeric trigger which, upon receipt by telecommunications device 1104, would initiate the immediate presentation of emoticon 1110 on a display. In this manner may any type of multimedia content capable of transmission via MMS or SIP can be transmitted and presented on telecommunications device 1104.

[0128] Additionally, in some bilateral implementations, as described further below, presentable content, such as but not limited to emoticon images, may reside in the memory of each of telecommunications devices 1102, 1104. If the user of telecommunications device 1102 wishes to "send" an emoticon image to the user of telecommunications device 1104, the shareable application, upon receiving an input from the user can automatically initiate transmission of a SMS, MMS or SIP message to telecommunications device 1104, which message would incorporate a trigger, such as an alphanumeric trigger in one or more fields of such message. Upon receiving the message, the shareable application resident on the second telecommunications device 1104 would identify and recognize the trigger, associate the trigger with a particular emoticon image, and immediately present the particular emoticon image on the display of second telecommunications device 1104. By storing emoticons and other multimedia content in the memory of each of telecommunications device 1102, 1104, and triggering display of such content via messaging triggers rather than passing the actual image file, a telecommunications carrier can minimize network data traffic.

[0129] FIG. 14 illustrates another exemplary implementation of a unilateral shareable application. In this implementation, a shareable application 1408 is loaded and executing on first telecommunications device 1102 to monitor the conversation between the first user and the second user, and automatically translates the conversation, or portions thereof, from one language to another. For instance, application 1408 may include a user interface 1410 that displays the language being spoken and the language into which the spoken language is to be translated. In some implementations, for example, if the user of the first telecommunications device 1102 is placing a call to the user of the second telecommunications device 1104 knowing that the user of the second telecommunications device speaks Spanish, while the first user speaks English, the user of the first telecommunications device 1102 may implement shareable application 1408 to translate outgoing communications from English to Spanish and translate incoming communications from Spanish to English. This may be carried out, for example, using voice recognition technology to recognize the incoming words in Spanish, perform the translation to English, and then use computer-generated speech to produce the translated English words in an audible format, with the outgoing communications being translated in a reverse manner. Further in some implementations, in addition to or instead of producing computer-generated speech, the translated words may be displayed in user interface 1410.

[0130] In addition, as discussed above, a server computing device(s) 714 on the network may facilitate the implementation of the translation application. For example, in order to take advantage of the greater processing power and memory of server computing device(s) 714, the voice recognition and translation can be carried out by a counterpart translation application 1412 executing on one or more of server computing devices 714. This would enable the translation to be carried out in much closer to real time than would be possible with a conventional telecommunications device having conventional processing power. Thus, when the shareable translation application 1408 becomes active on telecommunications device 1102, the translation application 1408 notifies the counterpart translation application 1412 on the server computing device(s) 714 to become active and carry out the actual voice recognition, translation

and speech generation functions.

[0131] Further, in other implementations, the translation application 1408 may be a bilateral application in which each telecommunications device 1102, 1104 has an instance of the application active. For example, some parts of the application, such as computer speech generation may take place at each telecommunications device, while the voice recognition and translation portions may take place at the server computing device(s) 714. Other variations will also be apparent to those of skill in the art in light of the disclosure herein.

[0132] In other implementations, shareable application 1408 and/or counterpart translation application 1412 runs in the background, and, for example, when one or more non-English-language words are detected during a conversation between the first user of the first communication device 1102 and the second user of the second telecommunications device 1104, application 1408 or 1412 may automatically produce a computer-generated speech and/or written translation of the one or more non-English-language words into English, or whatever language the first user specifies.

[0133] While several exemplary implementations of unilateral shareable applications have been described above, it will be apparent to those of skill in the art that many other implementations are possible in view of the disclosure set forth herein, and that the implementations herein are not limited to the particular examples described. Additionally, while the unilateral applications have been described in the environment of a voice communication between a first telecommunications device and the second telecommunications device, it will be appreciated that some of the applications described herein can also be applied in other communication environments, such as a telecommunications device with a voice over IP device, a landline telecommunications device, or the like, in place of the second telecommunications device. Additionally, in some implementations, more than one shareable application can be executing on the telecommunications device, such as for monitoring the voice communications and/or performing desired functions.

Implementations of Bilateral Shareable Applications

[0134] FIG. 15 illustrates a flow chart representing an exemplary implementation of a process 1500 carried out in conjunction with execution of implementations of bilateral shareable applications on telecommunications devices. Parent and child applications 134 and 136 of FIG. 1 can be implemented as bilateral shareable applications.

[0135] At block 1502, a voice communication channel is established between two or more telecommunications devices for enabling voice communications to be carried out between the telecommunications devices. For example, one of the telecommunications devices may initiate an outgoing call, or receive an incoming call.

[0136] At block 1504, the shareable application is activated on two or more of the telecommunications devices that are connected by the voice communication channel. For example, each user might already have the shareable application installed on his or her telecommunications device. In other implementations, one of the users might encourage the other user(s) to install the application on their respective devices, so that the users are able to interact with each other via the shareable application. In yet other implementations, the application on one or both telecommunications devices may open automatically in response to a call being connected or other trigger event. For example, the application on one telecommunications device may run in the background and automatically recognize the phone number of the other telecommunications device as being a telecommunications device with which the shareable application has interacted in the past. The shareable application can automatically become active and initiate opening a data channel with the other telecommunications device, which may cause a

shareable application on the other telecommunications device to also become active. Other variations will also be apparent to those of skill in the art in light of the disclosure herein. In any event, if the users decide that they would like to activate a shareable application, the first user activates an instance of the shareable application on the first user's telecommunications device and the second user activates a separate instance of the shareable application on the second user's telecommunications device while the voice communication channel remains open so that the users may continue to converse. In some implementations, the shareable application on each telecommunications device automatically establishes a data communication channel with the sharable application on the other telecommunications device that is party to the voice communication channel. However, in some other implementations, the users may elect not to have this interconnection between the applications, or the applications may not need an established data channel connection to operate.

[0137] At block 1506, the shareable application active on one of the devices receives an input. For example, the first user may make an input to a user interface of the first shareable application on the first telecommunications device, or the second user may make an input to the user interface of the second shareable application on the second telecommunications device.

[0138] At block 1508, the shareable application on the telecommunications device that receives the input carries out a corresponding function on the telecommunications device.

[0139] At block 1510, in some implementations, the shareable application on the telecommunications device that receives the input transmits data to the shareable application on the other telecommunications device. For instance, the shareable application that received the input might transmit instructions for instructing the shareable application on the other telecommunications device to also carry out a function. Then, for example, the shareable application on the other telecommunications device receives the instructions from the shareable application on the telecommunications device that received the user input, and carries out the corresponding function on the other telecommunications device in accordance with the instructions received from shareable application on the telecommunications device that received the user input.

[0140] Furthermore, in some implementations, the shareable applications may be more closely linked to each other via the data communication channel. For example, in some implementations, one of the shareable applications on one of the telecommunications devices may be a master application while the other shareable application on the other device may be controlled as a slave application, such that the user of the master telecommunications device controls the applications on both telecommunications devices. This may be useful, for example, in the some implementations, such as where a parent using the master telecommunications device is reading an e-book to a child using the slave telecommunications device. Other examples in which such master-slave shareable applications are useful include an application for presenting slides, such as during a conference call or the like.

[0141] Further, in some applications in which the master-slave relationship is implemented, a toggle might be included for switching the role of master and slave between the telecommunications devices. For example, the user interface of each telecommunications device may include a switch or button displayed on the user interface, for switching one of the telecommunications devices from the master role to the slave role and vice versa. Additionally, in some implementations, the roles might be switched after a predetermined time, or upon the occurrence of a particular user input. For example, during a game, the role might be switched each time a player makes a move or chooses an option.

[0142] Additionally, in some implementations, the bilateral shareable applications produce a common visual display that is the same on each telecommunications device, while in other implementations, the bilateral shareable applications have no common space or shared environment. For example, as

discussed above, if the user of the first telecommunications device wishes to "send" an emoticon image to the user of the second telecommunications device, whether this image is actually sent, or whether just an instruction to load a particular emoticon image is sent, this can be carried out using single instance messages, and thus, no shared or common environment is necessary. However, in other bilateral shareable applications, a common or shared space is created, such as for enabling the users to both view the same photograph simultaneously on each telecommunications device, or the like. In some implementations, each user is able to manipulate the common environment, while in other implementations, such as the master-slave implementations described above, only one of the users is able to manipulate the common environment at any one time. Other variations will also be apparent in light of the disclosure herein.

[0143] FIG. 16A illustrates an exemplary implementation of bilateral shareable applications. In the illustrated implementation, a voice communication session is established between two or more telecommunications devices, such as a first user using a first telecommunications device 1602, and a second user using a second telecommunications device 1604. For example, the first user may call the second user or vice versa, over a communications network as discussed above with reference to FIG. 7, so that a voice communication channel 1606 is established between the first telecommunications device 1602 and the second telecommunications device 1604. First telecommunications device 1602 may have a first bilateral shareable application 1608 loaded in memory and executing on the first telecommunications device, such as by being executed by one or more processors of the first telecommunications device, as discussed above with reference to FIGS. 8A-8B. Similarly, a second telecommunications device 1604 may have a second bilateral shareable application 1610 loaded in memory and executing on the second telecommunications device, such as by being executed by one or more processors of the second telecommunications device, as discussed above with reference to FIGS. 8A-8B. First application 1608 may include a first user interface 1614 to give the first user control over the functions of the first application 1608. Similarly, second application 1610 may include a second user interface 1616 to give the second user control over the functions of the second application 1610.

[0144] In the illustrated implementation, during the voice communication between the first user and the second user, the users decide to activate the application 1608, 1610 on their respective telecommunications devices 1602, 1604. In other implementations, as discussed above, the shareable application on one or both telecommunications devices may open automatically in response to a call being placed, received, connected or some other trigger event. In some implementations, after the application on each telecommunications device 1602, 1604 has been activated, the users may continue their conversation while each uses the application on their respective telecommunications device 1602, 1604, thereby sharing the experience of using the applications together while also conversing over the voice communication channel 1606. Additionally, in some implementations, as described above, a single instance message 1612 may be sent from one of the telecommunications devices 1602, 1604 to the other telecommunications device, such as in the example described above for causing an emoticon image to load on the other telecommunications device. As described above, the single instance message could be an SMS message, a MMS message, SIP message, or the like.

[0145] In some implementations, however, additional functions are obtained when a data communication channel 1618 is established between the shareable applications 1608, 1610 to facilitate more constant exchange of data. Thus, in these implementations, when the shareable applications 1608, 1610 have been activated, each shareable application may automatically locate and connect to the corresponding shareable application on the other telecommunications device connected by the voice communication channel 1606, thereby establishing the data communication channel 1618 between the first telecommunications device 1602 and the second telecommunications device 1604. Data communication channel 1618 may be established in a variety of different ways with no additional input or action required from the first or second user of telecommunications devices 1602, 1604. For example,

each application 1608, 1610 on telecommunications devices 1602, 1604, respectively, may establish a connection with the Internet such as through the network service provider via the radio transceiver interface, or through a Wi-Fi or other connection, if available. Then, each telecommunications device may determine its own IP address, and either transmit this address to the other telecommunications device or request the network service provider to transmit the IP address to the other telecommunications device or obtain the IP address from the other telecommunications device. For example, in one implementation, the IP addresses may be exchanged over the voice communication channel itself using key tones or other communication techniques. In another implementation, the application can request the network service provider servers provide the respective IP addresses of each telecommunications device 1602, 1604 to the other telecommunications device. This process is simplified when both telecommunications devices are using the same wireless network. However, when first telecommunications device 1602 is on a first wireless network and second telecommunications device 1604 is on a second wireless network, the exchange of IP addresses may still be accomplished by using an IP multimedia system operated by each respective wireless network. Once the data communication channel 1618 has been established by the exchange of IP addresses the applications 1608, 1610 are able to interact with each other and exchange data with each other for carrying out a multiplicity of functions and operations, some examples of which are provided below.

[0146] FIGS. 16B-16D set forth several additional exemplary processes for enabling data communication between two or more telecommunications devices 1602, 1604, such as for single instance messaging or for opening a data channel for exchange of data, instructions, or the like. For example, Session Initiation Protocol (SIP), as defined by the Internet Engineering Task Force (IETF) Network Working Group, can be used for exchanging data and/or establishing several types of connections between two or more telecommunications devices. SIP is a signaling protocol that is typically used for enabling multimedia communication sessions, such as voice and video calls over Internet Protocol (IP). SIP is part of the IP Multimedia Subsystem (IMS) established as a framework for enabling access to multimedia and voice applications from wireless and wired line devices. The SIP protocol can be used for creating multiparty sessions consisting of one or several communication or data streams.

[0147] In the implementation illustrated in FIG. 16B, after the voice communication channel 1606 is established between the telecommunications devices 1602, 1604, SIP can be used to establish Real-time Transport Protocol (RTP) communication between the two or more telecommunications devices. It should be noted that SIP/IMS registration is performed prior to this message exchange, as defined in RFC 3261 by the IETF and as refined by 3GPP (3rd Generation Partnership Project) as part of IMS. In the simplified message exchange illustrated, a SIP INVITE message is sent from one of the telecommunications devices 1602 to the other telecommunications device 1604 via the communications network 704. In response, the second telecommunications device 1604 sends a SIP 100 Trying message 1622, a SIP 180 Ringing message 1624, and then a SIP 200 OK message 1626 when the connection is established. The first telecommunications device 1602 sends back a SIP ACK message 1628 to acknowledge the session establishment. Once the SIP session is established, the telecommunications devices 1602, 1604 can exchange a variety of data via RTP 1630. For example, audio files, video, images, instructions, or other data may be exchanged using RTP.

[0148] FIG. 16C illustrates an alternative implementation in which independent messages can be sent using SIP without actually having to establish a session between the two or more telecommunications devices 1602, 1604. This implementation may be referred to as a "pager mode", and makes use of one or more server computing devices 1636, 1638, which may correspond to server computing device(s) 714 discussed above, and which may be NSP servers, or the like. The first telecommunications device 1602 sends a message as a SIP message 1640. The SIP message is received by a first server computing device 1636 as the controller server and the first server computing device sends back a SIP 202 accepted

message 1642 as an acknowledgment to the first telecommunications device 1602. The first server computing device passes the message as a SIP message 1644 to a second server computing device 1638 as the participating server in communication with the second telecommunications device 1604. The second server computing device 1638 passes the message as SIP message 1646 to the second telecommunications device 1604. Since a call is in progress between the two telecommunications devices, the message is not deferred. The second telecommunications device 1604 sends back a SIP 200 OK message 1648 to the second server computing device 1638 to acknowledge the receipt of the message, and the second server computing device 1638 passes the acknowledgment as SIP 200 OK message 1650 to the first server computing device 1636. The first server computing device 1636 may optionally send a SIP delivery notification message 1652 to the first telecommunications device 1602. The message received by the second telecommunications device 1604 may be used for various different uses in shareable applications, such as providing instructions from a shareable application on one telecommunications device to a shareable application on a second telecommunications device.

[0149] FIG. 16D illustrates another implementation in which SIP is used to set up a Message Session Relay Protocol (MSRP) session. MSRP is conventionally used for transmitting instant messages. However, in implementations herein, shareable applications can use MSRP to transmit data including arbitrarily large and independent instant messages that can be used to transfer large files, such as media files. A SIP INVITE message 1660 is sent from the first telecommunications device 1602 to the second telecommunications device 1604. The second telecommunications device 1604 responds with a SIP 200 OK message 1662. The first telecommunications device 1602 responds with a SIP ACK message 1664 to acknowledge that the session is established. The first telecommunications device 1602 sends an MSRP SEND message 1666 that includes the data desired to be transferred to the second telecommunications device 1604. The second telecommunications device 1604 sends back an MSRP 200 OK message 1668 to acknowledge receipt of the message. Once the message has been transferred from the sender to the receiver, the MSRP session is closed. Accordingly, the foregoing sets forth several examples of implementations for exchanging data between telecommunications devices during an ongoing voice communication. Further, while exemplary implementations have been described for enabling data communication during an ongoing voice communication, other implementations are also possible, and the disclosure is not limited to the specific examples described herein.

[0150] FIG. 17 illustrates an example of an implementation of a bilateral shareable application which enables a first user and the second user to simultaneously view and/or listen to media 1702, such as such as photographs, music, videos, or the like, while carrying on a voice conversation. For example, once the data communication channel 1618 is established between the first media shareable application 1708 and the second media shareable application 1710, one of the applications 1708, 1710 may transmit one or more media files, such as a photograph to the other application so that both users are able to view the same photograph simultaneously while discussing the photograph over the voice communication channel 1606. As illustrated in FIG. 17, media 1702, such as a photograph, video, cover art, or the like, is displayed on a user interface 1712, 1714, respectively, of both the first telecommunications device 1602 and the second telecommunications device 1604.

[0151] Furthermore, the shareable applications 1708, 1710 may interact with a corresponding shareable application module 1716 on the server computing device(s) 714. For example, when media shareable applications 1708, 1710 become active on the telecommunications devices 1602, 1604, respectively, media share application 1716 on server computing device(s) 714 may manage and coordinate the transmission of shareable content to each of the telecommunications devices 1602, 1604. For instance, if the first user of first telecommunications device 1602 wants to share media, such as photographs, music, videos or the like with the user of second telecommunications device 1604, the first user can store the media in storage accessible and/or managed by the server computing device(s) 714. Thus, an online website, or other storage site may be used to store the shareable content. Then, when sharing the content,

the shareable content 732 can be downloaded, served, streamed, or otherwise transmitted to each of the first and second telecommunications devices in a coordinated manner so that each user receives the shareable content at the same or substantially the same time. In this manner, the owner of the content does not have to use storage space on his or her telecommunications device for storing the content. Further, if the content is subject to digital rights management (DRM), the DRM provisions can also be enforced by the server computing device(s) 714.

[0152] As a specific example, in the case of photographs, the first user of the first telecommunications device may store a series of photographs online in shareable content 732. During a telephone conversation, the first user of first telecommunications device 1602 wants to share these photographs with the user of second telecommunications device 1604. The users each start up the media share shareable application 1708, 1710 on their respective telecommunications devices (or the media share applications may be started automatically). The media share application 1716 on the server computing device interacts with the applications 1708, 1710 on the telecommunications device, for transmitting and displaying the photographs sequentially on the respective user interfaces 1712, 1714. In some implementations, each user at each telecommunications device 1602, 1604 controls the user interface to determine when to move on to the next photograph. However, in other implementations of shareable application 1708, 1710, a master-slave relationship may be desirable between the shareable applications 1708, 1710. For example, the shareable application on the telecommunications device of the owner of the photographs (or from which the photographs are being transferred in the non-network storage implementation) may control the operation of the shareable application on the other telecommunications device that is receiving the photographs. Thus, the user of telecommunications device that owns the photographs, or that transfers photographs to the other telecommunications device can also control when each photograph is transferred or viewed so that each photograph may be discussed in turn. Furthermore, the photographs may be transferred one at a time, as they are discussed, or all the photographs may be transferred at once, and the applications 1708, 1710 are then used to control when each of the photographs are displayed. Other variations will also be apparent to those of skill in the art in light of the disclosure herein.

[0153] As another example, instead of photographs, images of slides for a presentation might be transferred from one telecommunications device to the other, or from shareable content 732. Thus, the user of one of the telecommunications devices 1602, 1604 is able to conduct a presentation of slides, or other images, to the user of the other telecommunications device 1602, 1604, while simultaneously describing the slides using the voice communication channel 1606. Similar to the photographs, the slides may be transferred as they are discussed, or may be transferred all at once and the applications 1708, 1710 can be coordinated to control the timing of the presentation of each slide 1702, such as via a master-salve relationship.

[0154] In yet another example, the shareable media content might be a movie or music track, or other media type that requires payment in order to view or hear. Thus, the server computing device(s) 714 could also charge the users, bill the users, and/or receive payment from the users of the first and/or second telecommunications devices 1602, 1604 for delivering the media content to the telecommunications devices 1602, 1604, respectively. The server computing device(s) 714 may also manage the digital rights for the media content, as discussed above. Further, in some implementations, the server computing device(s) 714 can handle backend conversion of the media content prior to downloading the content to the telecommunications devices, such as conversion of the media content to small-form-factor-compatible format, compression or decompression of the content, or other format compatible with a particular telecommunications device. Additionally, while the illustrated implementation shows the use of an established data communication channel, in other implementations, single instance messages, as described above, may be used in place of the established data communication channel 1618.

[0155] FIG. 18 illustrates another example of an implementation of a bilateral shareable application. In this implementation, one or both of the telecommunications devices 1602, 1604 are equipped with a touchscreen and stylus for entering freehand inputs, and shareable applications 1808, 1810 may include whiteboarding capabilities. For example, the first telecommunications device 1602 includes a first whiteboarding user interface 1812 and first stylus 1814, and the second telecommunications device 1604 includes a second whiteboarding user interface 1816 and second stylus 1818. Further, in some implementations, a user's finger may serve as a stylus. Using the styluses 1814, 1818, one or both of the users are able to enter handwritten or other types of inputs that are automatically transmitted over the data communication channel 1618 and displayed on the whiteboard interface 1802, 1806, respectively, of the other telecommunications device 1602, 1604, respectively, while the users are simultaneously able to discuss the inputs over the voice communication channel 1606. Additionally, while the illustrated implementation shows the use an established data communication channel, in other implementations, single instance messages, as described above, may be used in place of the established data communication channel 1618. Further, in some implementations, server computing device(s) 714 may facilitate the shareable applications 1808, 1810, such as by storing the content created by the shareable applications 1808, 1810 in an online location for later access by the telecommunications devices 1602, 1604.

[0156] FIG. 19 illustrates another example of an implementation of a bilateral shareable application. This implementation may be used in the scenario of FIG. 7, in which a parent can remotely read and navigate an e-book for a child.

[0157] In this example, the user of one of the telecommunications devices 1602, 1604 is able to read an electronic book to the user of the other telecommunications device 1602, 1604. For example, a parent who is out of town could use this shareable application to read a book to his or her child before bedtime. Thus, the shareable applications 1908, 1910 control the display of each page 1912 of the book on each telecommunications device 1602, 1604. This application also lends itself to a master-slave relationship for the applications 1608, 1610, so that the parent is able to control when the next page of the book is displayed on the child's telecommunications device. Additionally, while the illustrated implementation shows the use an established data communication channel, in other implementations, single instance messages, as described above, may be used in place of the established data communication channel 1618. Further, in some implementations, server computing device(s) 714 may facilitate the shareable applications 1908, 1910 such as by storing the book online and downloading the book pages to each telecommunications device upon receiving a command from one or the other of the shareable applications 1908, 1910.

[0158] FIG. 20 illustrates another example of a bilateral shareable application. In this example, the users of the telecommunications devices 1602, 1604 may decide that they would like to browse the Internet together while carrying on a conversation, such as for viewing one or more websites containing information in which they are interested. In this implementation, once the data communication channel 1618 is established, when one of the web browser interfaces 2012 is directed to a particular webpage by user input, the shareable application 2008, 2010 that received the input might automatically direct the web browser interface 2012 of the other telecommunications device to the go to the same webpage so that the users of both telecommunications devices 1602, 1604 are presented with the same webpage for viewing at the same time. In this implementation, either user might be able to direct the web browser, or a master-slave relationship might be established, as discussed above. Additionally, while the illustrated implementation shows the use an established data communication channel, in other implementations, single instance messages, as described above, may be used in place of the established data communication channel 1618. Further, in some implementations, server computing device(s) 714 may facilitate the shareable applications 2008, 2010, such as by converting the web content to a suitable form

factor for each telecommunications device.

[0159] While several examples of bilateral shareable applications have been described, numerous other possible applications, such as games, business applications, and the like, will be apparent to those of skill in the art in light of the disclosure presented herein, and the disclosure herein is not limited to the particular examples illustrated. Furthermore, although the implementations of the unilateral and bilateral shareable applications are presented in this disclosure as applying to voice communications between two telecommunications devices, it should be noted that more than two telecommunications devices may be connected for voice communication while also being connected for data communication via a data communication channel, or the like. For example, three or more telecommunications devices might be connected by a voice channel in a conference call while shareable applications on each of those telecommunications devices are linked via a data communication channel. Additionally, in some implementations, more than one shareable application can be executing on each telecommunications device and communicating with corresponding applications on one or more other telecommunications devices.

[0160] FIG. 21 illustrates a flow chart representing an exemplary implementation of a process 1500 carried out in conjunction with execution of additional implementations of bilateral shareable applications on telecommunications devices. In these additional implementations, the applications on the telecommunications devices are able to interact with each other and/or also interact with the voice communication channel established between the telecommunications devices.

[0161] At block 2102, a voice communication channel is established between a plurality of telecommunications devices for enabling voice communications to be carried out between the telecommunications devices. For example, one of the telecommunications devices may initiate an outgoing call, or receive an incoming call.

[0162] At block 2104, the shareable application is activated on two or more of the telecommunications devices that are connected by the voice communication channel. For example, each user might already have the shareable application installed on their telecommunications device. In other implementations, one of the users might encourage the other user to install the application on their respective device so that the users are able to interact with each other via the shareable application. In any event, the users decide that they would like to activate a shareable application, and a first user activates an instance of the shareable application on the first user's telecommunications device and a second user activates an instance of the shareable application on the second user's telecommunications device. Alternatively, one or both of the shareable applications might activate automatically in response to a triggering event, such as connection of a voice call, or the like, as discussed above. In some implementations, the shareable application on each telecommunications device will automatically establish a data communication channel with the sharable application on the other telecommunications device that is party to the voice communication channel. However, in other implementations, a data communication channel might not be established, and each shareable application will operate independently of the other as with the unilateral shareable applications described above.

[0163] At block 2106, in some implementations, the shareable application on one or both of the telecommunications devices monitor the voice communication between the telecommunications devices. For example, the shareable applications monitor a conversation carried on between the first user and the second user over the voice communication channel. In some implementations, the shareable applications may run in the background and only become apparent when a predetermined condition or hook is detected. In other implementations, the shareable applications might present a user interface to the user of the telecommunications device for providing additional features and functions. Further, in some implementations, a counterpart shareable application on the server computing device(s) 714 may

monitor the conversation instead of or in addition to the shareable applications on the telecommunications devices.

[0164] At block 2108, in some implementations, a predetermined condition is detected in the voice communication. For example, during monitoring of the conversation, the shareable application on the first user's device or on the second user's device detects a predetermined condition or hook in the conversation. In some implementations, for example, the application might detect a particular keyword or phrase spoken by one of the participants in the conversation, might detect a laugh or other noise made by one of the participants, or the like, and recognize this detected condition in the conversation as a trigger or hook for causing the application to carry out a predetermined function.

[0165] At block 2110, as a result of detecting the hook or predetermined condition in the conversation, at least one of the shareable application instances on the telecommunications devices or on the server computing device(s) 714 carries out a predetermined function on one or both of the telecommunications devices. For example, in some implementations, the shareable application might overlay a sound effect or jingle on the conversation, might cause a picture or advertisement to be transmitted to the first or second user via the data communication channel, might cause an application user interface to present a certain view or perform a certain function, or the like. After the shareable application has carried out the predetermined function, the process may return to block 2108, and the shareable applications may continue to monitor the conversation for performing additional such functions until the conversation is terminated.

[0166] FIG. 22 illustrates an exemplary implementation of a bilateral shareable application that also interacts with a voice communication channel. In this implementation, a voice communication session is established between a first user using a first telecommunications device 2202, and a second user using a second telecommunications device 2204. For example, the first user may call the second user, or vice versa, over a communications network, as discussed above with reference to FIG. 7, so that a voice communication channel 2206 is established between the first telecommunications device 2202 and the second telecommunications device 2204.

[0167] First telecommunications device 2202 may have a first bilateral shareable application 2208 loaded in memory and executing on the first telecommunications device, such as by being executed by one or more processors of the first telecommunications device as discussed above with reference to FIGS. 8A-8B. Similarly, second telecommunications device 2204 may have a second bilateral shareable application 2210 loaded in memory and executing on the second telecommunications device, such as by being executed by one or more processors of the second telecommunications device as discussed above with reference to FIGS. 8A-8B. First application 2208 may include a first user interface 2214 to give the first user control over the functions of the first application 2208. Similarly, second application 2210 may include a second user interface 2216 to give the second user control over the functions of the second application 2210.

[0168] As discussed above with reference to the examples of FIGS. 16-20, a data communication channel 2218 may be established between the first application 2208 and the second application 2210. In these implementations, the data communication channel 2218 is interactive with the voice communication channel 2206, as illustrated by arrows 2220. For example, applications 2208, 2210 may be similar to the unilateral data sharing application described above with reference to FIG. 13. However, in these implementations, when a hook or trigger is detected as a predetermined condition in the voice communication channel 2206, such as a laugh, keywords, etc., as discussed above, then the applications are able to communicate data directly via the data communication channel 2218. Additionally, while the illustrated implementation shows the use an established data communication channel, in other implementations, single instance messages, as described above, may be used in place of the established

data communication channel 2218. Further, as discussed above, the server computing device(s) 714 may alternatively, or additionally, detect the trigger in the conversation for delivering content to the telecommunications devices or for adding sound overlays to the voice channel. For example, when a particular word is detected, the server computing device(s) 714 can overlay a sound effect or jingle on the voice conversation, or deliver an image or other content to each the telecommunications devices.

[0169] FIG. 23 illustrates an example of an implementation of a bilateral shareable application with voice channel interaction which enables a first user and the second user to exchange data in response to predetermined conditions detected in the voice communication channel. For example, the first telecommunications device 2320 may include a first user interface 2302 provided by the shareable application 2308, and second telecommunications device 2304 may include a second user interface 2304 provided by the shareable application 2310. When a predetermined condition is detected by either instance of the shareable applications 2308, 2310, an emoticon image 2306 may be transmitted from one of the telecommunications devices to the other and displayed on the respective user interface 2302, 2304. For example, if the user of the first telecommunications device groans, an image of an emoticon 2306 representing the user's emotion may be simultaneously displayed on the second telecommunications device. The emoticon image may be transmitted from the first telecommunications device to the second telecommunications device by the first sharable application 2308, or may be generated at the second telecommunications device by the second shareable application 2310. Additionally, while the illustrated implementation shows the use an established data communication channel, in other implementations, single instance messages, as described above, may be used in place of the established data communication channel 2318. In addition, the above-describe functions may alternatively or additionally be carried out by server computing device(s) 714 on the communication network 704.

[0170] Furthermore, various additional features may be implemented in the examples previously described above with respect to FIGS. 12-14 and 16-20 using the additional monitoring of the voice communication channel. For example, with respect to the photograph or slide presentation implementation of FIG. 17, the shareable applications may monitor the voice communication and automatically detect when the user has finished talking about a particular photograph or presentation slide and proceed to the next image in the photo group or slide deck. Similarly, with respect to the book reading implementation of FIG. 19, the application may monitor the voice communication and detect that the reader has reached the end of the page of the book and automatically display the next page in the book. Other variations will also be apparent to those of skill in the art in light of the disclosure provided herein.

[0171] FIG. 24 illustrates management of the shareable applications on a telecommunication device as a suite 2400. For example, the shareable applications 2410-2426 described above may be packaged and managed as a suite 2400 that enables unitary purchasing, downloading, updating and the like of the shareable applications 2410-2426.

[0172] From the foregoing, it should be apparent that implementations herein provide applications, user interfaces, program modules, and the like for enabling transferring and sharing of data between telecommunications devices while carrying on a simultaneous voice communication on the telecommunications devices. In some implementations, one or more shareable applications on a telecommunications device are able to interact with the voice content of the conversation for carrying out one or more functions of the application in response to or as a result of detecting a predetermined condition in the voice communication. Furthermore, some implementations enable applications executing on each of the telecommunications devices interact with each other during a voice conversation and/or interact with the voice communication itself.

[0173] Implementations also relate to telecommunications devices selectively activated or reconfigured by one or more applications or programs when the program instructions are executed. Such applications or programs may be stored in one or more processor-readable or computer-readable storage mediums having processor-readable program code embodied therein. The processor-readable program code is implemented at least in part by one or more processors to perform functions of the implementations described herein. The one or more processor-readable storage mediums may include, but are not limited to magnetic disks, read-only memories, random access memories, solid-state devices and drives, memory cards, or any other type of medium suitable for storing electronic information, and may in some implementations be stored at a location remote from the one or more processors executing the one or more programs.

[0174] Further, it should be noted that the system configurations illustrated in FIGS. 7-9, 11-14, 16-20 and 22-24 are purely exemplary of systems in which the implementations may be provided, and the implementations are not limited to the particular hardware configurations illustrated. In the description, numerous details are set forth for purposes of explanation in order to provide a thorough understanding of the disclosure. However, it will be apparent to one skilled in the art that not all of these specific details are required.

CONCLUSION

[0175] Although the subject matter has been described in language specific to structural features and/or methodological acts, it is to be understood that the subject matter defined in the appended claims is not necessarily limited to the specific features or acts described. Rather, the specific features and acts are disclosed as exemplary forms of implementing the claims.

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