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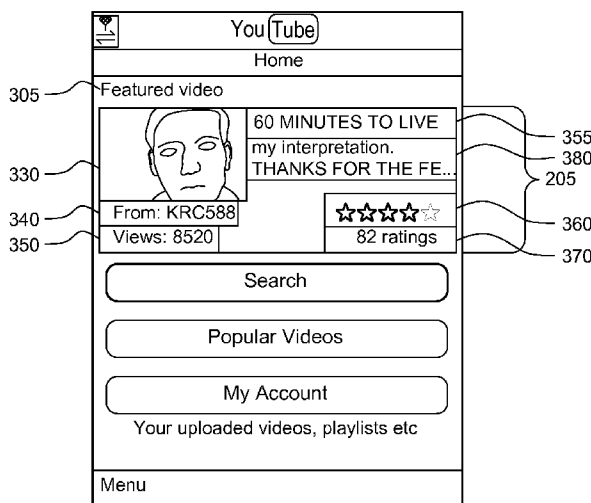


FIG. 4

(57) Abstract: The described embodiments of the present invention provide a video database client application configured to execute on a wireless communication device or a device with a small display screen. The video database client application includes a user interface including user interface components designed to access video information and view videos using the wireless communication device. The video database client application includes a video player module to integrate and control a native video player within the user interface. The video database client application further includes a video database interface module adapted to retrieve videos and video information from the video database. The video database interface module functions to pre-fetch information from the video database based on anticipated user information needs.

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GRAPHICAL USER INTERFACE ELEMENTS USING VIDEO PRE-FETCH**INVENTORS: ANDREAS TUERK, STEPHEN SPENCE, NATALIE DODUC, KAREN GROENINK, MATTHEW SHARIFI, TIM JONES AND DWIPAL DESAI****BACKGROUND**Field

[0001] This invention relates to client software for wireless communication devices. Specifically, the invention relates to software that provides an interface for accessing and displaying information from a video database using a wireless communication device.

Background

[0002] Due to advancement in wireless communication device technology, wireless devices have become an increasingly prevalent substitute for personal computers. Wireless devices include, for example, cellular telephones, pagers, "palmtop" personal information managers (PIMS), and other small, primarily handheld communication and computing devices. Wireless communication devices have matured considerably in their features and are now used alternately with computers for more advanced communications functions, such as electronic mail, facsimile receipt and transmission, Internet access, browsing the World Wide Web, and the like.

[0003] In addition to communications related functions, wireless communications devices are also commonly used as personal entertainment devices in the same way the computers are currently used. Wireless devices are commonly used to play music, watch videos, play video games etc. However, wireless communication devices present a variety of more challenging design and implementation issues that do not arise with larger processor-based systems, such as notebook and desktop computers, which may also have similar telecommunication features. These design challenges include the design of the user interfaces and the integration of Internet and World Wide Web access with other communication functionality.

[0004] One constraint in the design of the user interfaces for wireless devices is the limited size of the display screen of the wireless device. Unlike desktop and notebook computers, wireless communication devices have a form factor that requires a very small screen display size. Desktop computers typically have displays with at least 14" screen size, and resolution typically between 800x600 and 1280x1024 pixels. In contrast, wireless communication devices typically have a screen size between 25x25mm and

80x120mm, and resolutions between 176x144 to 240x320 pixels, or about 5% of the size of the desktop or notebook screen. As a direct result, the user interface design of the wireless communication device must provide access to essentially the same features as desktop computers, such as Web browsing, yet with only a fraction of the screen area for displaying text, images, icons, and the like. This problem of constructing the user interface to provide these features is particularly significant when handling Web-based content, since conventional Web content is frequently designed for presentation on the larger screen size of conventional desktop computers.

[0005] The severely restricted set of inputs available to user provides another constraint in the design of user interfaces for wireless communication devices. Conventional desktop or notebook computers have cursor-based pointing devices, such as a computer mouse, trackballs, joysticks, and the like, as well as a full-sized keyboard. This enables navigation of the Web content by clicking and dragging of scroll bars, clicking of hypertext links, and keyboard tabbing between fields of forms, such as HTML forms. In contrast, wireless communication devices have a very limited number of inputs, typically up and down keys, and one to three soft keys.

[0006] For websites that aim to provide the user with the ability to browse a large amount of information, such as video content distribution websites, the above constraints severely limit both the amount of information presented to the user and the ease with which the user can browse the information.

[0007] Fig. 1 illustrates a conventional video database interface designed for a mobile device. Due to limited screen space, only a subset of video information may be displayed at one time. The video information is displayed in a list format in order to facilitate user selection of videos using the up and down keys of the wireless communication device. In order to view additional or different video information, the user must select the next button. Upon this selection, the user must wait for the next set of video information to load onto the screen. Depending on the speed at which the wireless communication device can retrieve and process video information from the video database server, it may take several seconds to load the next set of video information.

[0008] At the bottom of the screen, a menu of the video database functions is listed in association with the different number keys. Navigation of the video database by highlighting and selecting the menu options or by using the number keys is cumbersome as the user is required to select from the entire menu of options. Further, the display of

the entire menu of options takes up significant screen space and is difficult to read due to the large number of menu options displayed.

SUMMARY

[0009] The described embodiments of the present invention provides a video database client application configured to execute on a wireless communication device or a device with a small display screen. The video database client application includes a user interface including user interface components designed to access video information and view videos using the wireless communication device. These user interface components include buttons to display menu options and account information to users. Other user interface components include a carousel display to interactively browse information associated with videos. These user-interface components facilitate browsing and navigation of the video database using the small screen display of the wireless communication device.

[0010] The video database client application includes a video player module to integrate and control a native video player within the user interface. The incorporation of a native video player within the interface facilitates user control of the video player. Control of the video player through the interface provided by the video database client application further enables the video database client application to monitor video viewing data and store this information in the video database.

[0011] The video database client application further includes a video database interface module adapted to retrieve videos and video information from the video database. The video database interface module functions to pre-fetch information from the video database based on anticipated user information needs. The video database interface module pre-fetches video information to allow the user to interactively and continuously browse large sets of videos using the carousel display without the user having to explicitly request and wait for new video information to be retrieved from the video database. The video database interface module also pre-fetches video information regarding videos that are related to a video the user has selected to view. The video database interface module further pre-fetches user account information such as playlists the user has created or videos that have been sent to the user. By pre-fetching information based on anticipated user needs, the video database client application compensates for slow retrieval of information through a wireless network minimizing time delays in providing video information to users.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Fig. 1 is an illustration of a conventional video database interface for designed for a mobile device.

[0013] Fig. 2 is an illustration of the top level software and system architecture of a wireless communication device in one embodiment of the present invention.

[0014] Fig. 3 shows a video database home page **200** according to one embodiment of the video database client application **102**.

[0015] Fig. 4 shows a video database home page **200** according to one embodiment of the video database client application **102**.

[0016] Fig. 5 shows a video database home page **200** according to one embodiment of the video database client application **102**.

[0017] Fig. 6 shows a most-viewed page **500** according to one embodiment of the video database client application **102**.

[0018] Fig. 7 shows a user account page **600** according to one embodiment of the video database client application **102**.

[0019] Fig. 8 shows a user account page **600** according to one embodiment of the video database client application **102**.

[0020] Fig. 9 shows a user account page **600** according to one embodiment of the video database client application **102**.

[0021] Fig. 10 shows a video viewing page **1000** according to one embodiment of the video database client application **102**.

[0022] Fig. 11 shows a video viewing page **1000** according to one embodiment of the video database client application **102**.

[0023] Fig. 12 illustrates a high-level block diagram of a wireless communication environment adapted to execute the video database client application 102 according to one embodiment.

DETAILED DESCRIPTION

[0024] Referring now to Fig. 2, there is shown an illustration of the system and software architecture of a wireless communication device **100** configured to execute a video database client application **102** in accordance with an embodiment of the present invention. The hardware of the wireless communication device **100** includes a processor **124**, memory **126**, screen display **136**, and keypad **128**. Memory **126** includes ROM,

RAM, and a flash memory for long term storage of data. A suitable wireless communication device **100** for providing the hardware features is a Nokia N series phone manufactured by Nokia Telecommunications, Inc.

[0025] The wireless communication device **100** stores in the memory **126** and executes a conventional real time operating system **122**, which includes modules for managing power, memory, threads (communication connections), keypad inputs, and timer activities. The real time operating system **122** provides a standard application programming interface allowing higher level components of a video database client application **102** to request functionality of the wireless communication device **100**, and to send and receive data.

[0026] Also stored in the memory **126** and in communication with the real time operating system **122** is telephony control module **120** that provides the primary telephone controls, including making and receiving telephone calls, managing multiple telephone lines (if appropriate), management of text messaging (if appropriate), monitoring of telephone signals, and other basic telephony functions. The telephony control module **120** includes a conventional telephone protocol stack that implements an air-interface protocol. The telephony control module **120** and the real time operating system **122** are typically provided by the manufacturer of the wireless communication device **100**, and their particular implementation is not material here.

[0027] The screen display **136** is a bitmapped LCD or similar display device. The screen display **136** is typically of very limited resolution, for example about 90x60 to 240x320 pixels (at about .28mm dot pitch) as would be appropriate for a compact, portable, hand-held electronic device. It is anticipated that advances in display technology will result in screen displays **136** of significantly higher resolution, but even so, the ergonomic and form factor requirements of wireless communication devices will result in screen displays that are relatively small (*e.g.*, between 25x25mm and 80x120mm) as compared to the screen displays of notebook and desktop computers, and as a result will not display content designed for such larger screen displays in the exactly the same manner. The present invention is adapted to increase the ease of use of such screen displays when displaying video database content. In some embodiments, the screen display **136** is a touch screen. Touch screens are screen displays **136** which are sensitive to human touch and allow the user to enter inputs by touching the screen, either with a finger or a pointing device.

[0028] The wireless communication device **100** has a keypad **128** that includes a number of fixed function keys **132** for accessing defined functions of the wireless communication device **100** (e.g., “Send,” “End,” and “Power”), number keys **134** for entering digits (and if suitably encoded, for entering other characters), and programmable soft keys **130**. Soft keys **130** are buttons that have variable functionality that changes depending on the particular screen display of the video database client application **102** being shown.

[0029] The wireless communication device **100** stores in its memory **126** and executes an instance of a video database client application **102** made in accordance with the present invention. This video database client application **102** includes: a navigator **107**, a set of user interface components **116**, a video player module **140**, a video database interface module **145** and a user interface layer **118**. The navigator **107** provides the primary user interface mechanism to the user, allowing access to both telecommunication functions, and Internet/World Wide Web access. The user interface components **116** provide a set of graphics primitives, file store functions, data elements and localization features that allow the navigator **107** to be used on a variety of wireless communication devices **100**. The user interface layer **118** provides an interface for the navigator **107** and user interface components **116** to the real time operating system **122** and the telephone control module **120**.

[0030] The video database client application **102** executes as a multi-threaded application, and is generally designed to run on any real time operating system **122**, telephone control module **120**, and wireless communication device **100** that provides sufficient ROM, RAM, and flash memory, a screen display **136**, and basic services.

[0031] The navigator **107** provides the basic user interface of the video database client application **102** and displays user interface components **116** used to access and browse the video database **147** on the screen display **136** of the wireless communication device **100**. The content displayed by the navigator **107** is retrieved by the video database interface module **145** from a video database **147**.

[0032] The navigator **107** includes a video player module **140** which integrates and controls a native video player **149** within the navigator **107**. A native video player **149** is a software application which plays videos and that is native to the wireless communication device **100**. The native video player **149** is usually associated with the real time operating system **122** of the wireless communication device **100**. According to

the type of wireless communication device **100**, different native video players **149** specific to the wireless communication device **100** may be provided. Example native video players **149** include: RealPlayer®, Windows Media Player and QuickTime Video Player.

[0033] The video player module **140** identifies the native video player **149** of the wireless communication device **100**. The video player module **140** interacts with user interface components **116** to control the display and interaction with the native video player **149** within the navigator **107**. The video player module **140** further transmits information obtained from the user interaction with the native video player **149** to the video database interface module **145**. The video database interface module **145** stores user interaction information in the video database **147**.

[0034] The navigator **107** further includes a video database interface module **145**. The video database interface module **145** provides an interface between the navigator **107** and a video database **147**. The video database interface module **145** retrieves videos and video information from the video database **147** responsive to user selection of user interface components **116**. The video database interface module **145** also retrieves videos and video information from the video database based on anticipated user information needs. The video database interface module **145** pre-fetches packets of video information containing information for plurality of videos. In some embodiments, the video database interface module **145** communicates directly with the video database **147**. In some embodiments, the video database interface module **145** is adapted to communicate with an application programming interface (API) for a video database **147**.

[0035] The video database **147** stores videos and video information. The video database **147** can be any database of videos which resides on a server. The video database **147** stores videos in a format compatible with native video player **149**. The video database **147** also includes information about the videos such as, for example, length, name and source of the videos. The video database **147** further includes annotations of the videos based on information such as: user ratings, genre or type of the videos, frequency at which the videos are viewed and other videos that are related to the videos. The video database **147** stores information specific to users of the video database **147** such as: videos selected by the users, videos sent to the users, videos watched by the users, ratings submitted by the users, user subscriptions to video playlists or video

providers, demographic information regarding the users and selected preferences of type of genre of videos selected by the users.

[0036] Fig. 12 illustrates a high-level block diagram of a wireless communication environment **1200** adapted to execute the video client application **102** according to one embodiment. One or more wireless communication devices **100** execute the video database client application **102**. Upon execution of the video database client application **102**, the video database interface module **145** sends and retrieves videos and video information from the video database **147** over a wireless telecommunications network **1210**.

[0037] The wireless telecommunications network **1210** may be any type of wireless network such as a wireless local area network. In a specific embodiment, the wireless telecommunications network **1210** is a mobile device network such as a Global System for Mobile Communications (GSM) network. In one embodiment, the wireless telecommunications network **1210** uses standard communications technologies and/or protocols. The videos and video information exchanged over the wireless telecommunications network **1210** can be represented using technologies and/or formats including the hypertext markup language (HTML), the extensible markup language (XML), etc. In addition, all or some of videos and video information can be encrypted using conventional encryption technologies. In another embodiment, the entities can use custom and/or dedicated wireless communications technologies instead of, or in addition to, the ones described above.

[0038] Following the terminology of the World Wide Web, an individual user interface screen of the video database client application **102** is herein called a “page.” Referring now to Fig. 3, there is shown a basic layout of a video database home page **200** displayed on the screen display **136** by the navigator **107**. Each video database home page **200** generally has four basic areas: a navigation bar **203**, a video display area **205**, a button area **210** and a soft key area **215**. The navigation bar **203**, in one embodiment, remains present and displays the name associated with a particular page of the video database client application **102**. Accordingly, in the video database home page **200** the navigation bar **203** indicates that the screen displayed is the “Home” page.

[0039] A video information display area **205** either displays video related information or an indicator that the video information is loading or being retrieved from the video database **147** by the video database interface module **145**.

[0040] The video database home page **200** contains a button area **210** for receiving user input. Using the keypad **128** on the telephone, the user can scroll to select the one or more buttons in the button area **210** to navigate to different screens or be presented with other menu options or select the video that is displayed in the video information display area for viewing. If the wireless communication device **100** has a touch screen, the user can select buttons within the button area by touching the buttons. In one embodiment, in order for the button area **210** to have a minimal number of buttons (e.g. 3, 4 or 5 buttons) that take up a maximum amount of space in the button **210** area and to facilitate easy reading of the menu options and selection of the buttons, the buttons take up a majority (e.g., up to approximately 90-95%) of the width of the screen **136**. Other embodiments have more or fewer buttons of varying sizes.

[0041] In the embodiment illustrated, the button area **210** contains a search button **220**, a popular videos button **230** and a user account button **240**, each button labeled according to its title. The search button **220** enables the user to enter textual search queries to search the video database **147**. Upon selection of the search button **220**, the user is presented with a text entry screen that can be used to enter search queries. In a specific embodiment, the text entry screen is a pop-up screen which comprises a majority (up to approximately 90-95%) of the screen display.

[0042] The popular videos button **230** enables the user to view information for videos in the video database **147** that are frequently accessed or highly rated. Upon selection of the popular videos button **230**, the user may either be presented with a set of popular videos retrieved from the video database **147** or presented with a subsequent screen to further select a criterion of popularity. This screen is discussed in detail below with respect to Fig. 5.

[0043] The “my account” button **240** allows the user to access information stored in association with the user’s account in the video database **147**. Upon selecting the user account button **240**, the user can login to their account. If the user has previously selected to automatically login, upon selecting the user account button **240** the user will be presented with an account screen that lists menu options specific to the user’s account settings. This screen is discussed in detail below with respect to Fig. 7.

[0044] The soft key area **215** displays menu options and functions that can be selected using soft keys **130**. The menu options and functions associated with the soft keys **130** are dependant on the page or screen of the video database client application **102**. In the

video database home page **200**, a menu key **250** can be selected to display a menu of options that the user may navigate and make selections from using the up and down keys. In a specific embodiment, the menu of options is a pop up menu listing a set of options including the ability to search the database, navigate to other pages in the video database client application **102**, view related videos to the video for which video information is currently displayed, upload videos or flag videos for inappropriate content.

[0045] Fig. 4 shows a video database home page **200** according to one embodiment. In the embodiment illustrated, the video information display area **205** displays video information from the video database **147**.

[0046] The video information display area **205** displays video information for a featured video **305** in the video database **147**. In alternate embodiments, the video information display area **205** of the video database home page **200** can display information for videos selected based on the user's account settings. For example, the video information display area **205** can display information for videos recommended for the user or video information for unwatched videos sent to the user's account.

[0047] The video information display area **205** displays video information retrieved by the video database interface module **145** from the video database **147**. Typical information displayed in the video information display area **205** includes images from the video, the title of the video, ratings for the video, length of the video, genre of the video, the source of the video and the popularity/ratings of the video. In the embodiment illustrated in Fig. 3, the video information display area **205** displays information including the "source" or user who submit the video **340**, the number of views of the video **350**, an image or frame of the video **330**, an overall rating for the video **360**, the number of ratings used to determine the overall rating **370**, the title of the video **355** and comments or text describing the video **380**.

[0048] Fig. 5 shows a screen of a video database home page **200** in which the popular videos button **230** has been selected according to one embodiment. Upon selection of the popular windows button **230**, a popular videos window **400** is displayed. In the embodiment illustrated, the popular videos window **400** is a pop-up window which is displayed overtop of the video database home page **200**. In alternate embodiments, the popular videos window **400** may be presented as a separate page on screen **136**. The popular videos window **400** contains additional buttons which list different selection criteria for popular videos. The soft keys **130** in the soft key area **215** allow the user to

select **402** an option or cancel **404** the popular videos window **400** to return to the video database home page **200**. Selection criteria for popular videos may include the number of views of a video, the rating of a video or videos which have been pre-selected by the video database **147** administrators such as featured videos. In the embodiment illustrated in Fig. 4, the popular videos window **400** includes a most viewed button **410**, a top rated button **411** and a recently featured button **412**. When selected, the most viewed button **410** directs the user to a most viewed page **500** which displays the most frequently viewed videos. Accordingly, when the top rated button **411** is selected, the user is directed to a top rated page which displays the videos with the top overall user ratings. The recently featured button **412** directs the user to videos recently selected as feature videos by the video database **147** administrator. In some embodiments, the featured videos are automatically selected by the video database client application **102**.

[0049] Fig. 6 shows a most viewed page **500** of the video database client application **102** according to one embodiment. The most viewed page **500** displays the videos in the video database that are most frequently viewed by the users of the video database. The most viewed page **500** includes a video information display area **205**, a navigation bar **203**, a soft key area **215** and a carousel display **502**. The navigation bar **203** displays an indicator **503** that the page is the most viewed page **500**.

[0050] The most viewed page **500** is representative of a page that the video database client application **102** uses to interactively display any set of videos such as: a set of featured videos, a set of top rated videos, a set of recently featured videos, a set of favorite videos or a set of videos retrieved responsive to a search query. In the most viewed page **500**, the carousel display **502** displays a set of images representing a subset of the most viewed videos. In one embodiment, a maximum of 5 images is shown at once. In one embodiment, these images are thumbnails from the videos. In other embodiments, they are small versions of the videos themselves. In the center of the carousel display **502**, a selected image **511** is enlarged relative to the other images in the carousel display **502**. In one embodiment, the selected image is at least 1.5 times larger than the other images displayed in the carousel display **502**.

[0051] Information for the video associated with the selected image **511** is displayed in the video information display area **205**. The video information display area **205** can include any information for the video associated with the selected image **511**. In the embodiment illustrated, the video information display area **205** includes the length **506** of

the video associated with the selected image **511** in minutes and seconds. The navigation bar **203** additionally shows an indicator **504** which displays the a number of videos associated with the selected image **511** relative to the number of videos contained in the set of most popular videos. In the embodiment illustrated, the video is indicated as being the first video in a set of 63 most popular videos.

[0052] The carousel display **502** includes a control key **510** which allows the user to navigate through the entire set of popular videos and select images for which to display video information. Responsive to selection of the control key **510**, the images in the carousel display **502** are shifted to the left and the rightmost image is replaced with a new image. When the images are shifted, the image to the right of the selected image **511** becomes the selected image **511** and is enlarged. Information for the video associated with the newly selected image **511** is displayed in the video information display area **205**. When the user has scrolled past a number of images greater than the number of images in the carousel display (e.g. 5), the carousel display **502** includes a control key which allows the user to shift the images to the right and select the image left of the selected image **511**. To continue to view images and information for all of the videos in the set of most popular videos, the user can continue to press the control keys to scroll through the video information.

[0053] The video database interface module **145** is adapted to interface with the control key **510** in order to retrieve video information and images from the video database **147**. Responsive to selection of the control keys **510**, the video database interface module **145** pre-fetches packets of images and video information for a plurality of the most popular videos. Pre-fetching images and information in packets allows the user to scroll through the most popular videos without having to wait for video information and images to be retrieved over the wireless network. The number of videos for which information and images are pre-fetched in each packet is adjustable either automatically or via a preference setting in the client application or at the server to accommodate the speed at which the information can be retrieved without causing delays. In some embodiments, packets include information and images from 5-10 videos. Providing pre-fetched video information on a carousel display **502** obviates the need for a user to load and scroll through a series of images in a time-consuming manner.

[0054] The soft key area **215** of the most viewed page **500** includes a home key **509** the user may select to navigate to the video database home page **200**. The soft key area

215 of the most viewed page **500** further includes a play key **507** which the user may select to watch the video associated with the selected image **511**. Upon selection of the play key **507**, the user is redirected to a video viewing page **1001** (Fig. 10) to watch the video associated with the selected image **511**.

[0055] Fig. 7 shows a user account page **600** according to one embodiment of the video database client application **102**. The user account page **600** presents the user with a set of options based on information from user interactions with the video database **147**. User interactions with the video database **147** may include user selection of account settings that define personal information and preferences for the user, videos the user has viewed, videos the user has rated, videos the user has uploaded, videos the user has received, and video playlists and subscriptions the user has specified. In one embodiment, the user can customize the available features displayed on the user account page.

[0056] The user account page **600** includes a navigation bar **203**, a button display area **210** and a soft key area **215**. The navigation bar **203** of the user account page displays the account name of the user that is currently logged in.

[0057] In the embodiment shown, the user account page **600** contains a button display area **210** which comprises the majority (up to approximately 90 - 95%) of the screen. The button display area **210** contains 5 buttons that provide the user with options based on the user's interactions with the database. The button display area **210** includes a favorites button **602**, a playlists button **604**, a subscriptions button **606**, a my videos button **608**, and a received videos button **610**. The video database interface module **145** retrieves and lists information from the user's account from the video database **147** within the buttons.

[0058] Responsive to selection of the favorites button **602**, the user is presented with a set of videos that the user has either specified as favorites and/or a set of videos that are frequently viewed by the user. The user can specify account settings (e.g. favorite videos, playlists, subscriptions) by accessing their account in the video database **147** using the video database client application **102** on a wireless communications device **100**. In one embodiment, the user can also access their account in the video database **147** using an internet browser on a personal computer. In a specific embodiment, the set of favorite videos is displayed using a carousel display **502** in an interface similar to that of the most viewed page **500**.

[0059] The video database interface module **145** retrieves the number of playlists the user has created or added to their account and lists this number within the playlists button

604. A playlist is a set of videos the user has designated to be played together in a specified order. Upon selection of the playlists button **604**, the user is presented with a selection of playlists they have created or added to their account. In a specific embodiment, the user is presented with the playlists window **800** illustrated in Fig. 8. In the embodiment illustrated, the playlists window **800** is a pop-up window, which is displayed as an overlay on top of the user account page **600**. In alternate embodiments, the playlists window **800** may be presented as a separate page on screen **136**. The user may use the up and down keys to scroll in conjunction with the select key **402** in the soft keys area **215** to select a playlist from the playlist window **800**.

[**0060**] The video database interface module **145** retrieves and lists the number of subscriptions the user has created within their account within the subscriptions button **606**. Upon selection of the subscriptions button **606**, the user is presented with a selection of their subscriptions. In a specific embodiment, the user is presented with subscriptions popup window **900** illustrated in Fig. 9. The user can then use the up and down keys or touch screen in conjunction with the select key **402** in the soft keys area **215** to select a subscription from the subscriptions window **900**.

[**0061**] Responsive to selection of the my videos button **602**, the user is presented with a set of videos that the user has uploaded to the video database **147**. In some embodiments, the video database client application **102** scans the memory of the wireless communication device **100** for videos and presents this set of videos to the user for uploading to the video database **147**. According to the embodiment, this scan may be specifically requested by the user through the use of a menu option or may be automatically performed responsive to the user accessing the video database client application **102**. In a specific embodiment, the set of videos the user has uploaded is displayed using a carousel display **502** in the interface discussed above in reference to the most viewed page **500**.

[**0062**] Responsive to selection of the favorites button **602**, the user is presented with a set of videos that the user has either specified as favorites and/or a set of videos that are frequently viewed by the user. In a specific embodiment, the set of favorite videos is displayed using a carousel display **502** in the interface discussed above in reference to the most viewed page **500**.

[**0063**] Fig. 10 depicts a screen shot of a video viewing page **1000** of the video database client application **102** according to one embodiment. The video viewing page

1000 includes a navigation bar **203**, a video player area **1001**, a video information display area **205** and a soft key area **215**.

[0064] The navigation bar **203** displays the name of the video currently viewed in the video viewing page **1000**. The video player area **1001** includes a video viewing area **1012** and user interface components **116** for controlling the native video player **149**. The video player module **140** integrates the native video player **149** in the video viewing area **1012**. The video player module **140** interacts with the native video player **149** and the user interface components **116** in order to control the native video player **149**.

[0065] Different user interface components **116** for controlling the native video player **149** may be included in the video viewing page **1000**. In the embodiment illustrated, the video viewing page **1000** includes a play button **1020** used to play or pause the video. The video viewing page **1000** further includes a graphic control element including a slider used to display and select the time point of the video currently viewed **1018**. The video viewing page **1000** further includes a time display element **1014** which displays the time point of the video currently viewed as well as the length of the video in minutes and seconds. The video viewing page **1000** further includes a sound control element **1018** that displays the volume of the video being viewed.

[0066] The video information display area **205** displays information regarding the video being viewed. In the embodiment illustrated, the video information display area **205** includes a composite rating of the video, the number of ratings used to determine the composite rating, the source of the video and the number of times the video has been viewed. The soft key area **215** includes a back button **1022** which redirects the user to the page from which the video has been selected.

[0067] Fig. 11 depicts a screen shot of a video viewing page **1000** of the video database client application **102** according to one embodiment. In this embodiment, the video information display area **205** is used to display a menu option to view videos that are related to the video currently viewed in the video viewing page **1000**. Responsive to selection of a control to view the video in the video viewing page, the video database interface module **145** pre-fetches a set of video information for videos that are related to the video being viewed in the video viewing page **1000** from the video database **149**. Videos that are related to the video being viewed may be selected based on criteria such as the source of the video, the genre of the video, the title of the video and any other type of annotation associated with the video. In some embodiments, the user may specify one

or more of the criteria for related videos in their account. Upon selection of the menu option to display the set of related videos, the user is presented with the retrieved video information. In one embodiment, the retrieved video information is presented in a interface including a carousel display **502** similar to the interface described in reference to the most viewed page **500**.

[0068] The above description is included to illustrate the operation of certain embodiments and is not meant to limit the scope of the invention. The scope of the invention is to be limited only by the following claims. From the above discussion, many variations will be apparent to one skilled in the relevant art that would yet be encompassed by the spirit and scope of the invention.

WHAT IS CLAIMED

1. A video display system adapted to execute on a wireless display device, the system comprising:
 - a carousel display adapted to display a first plurality of images associated with a first plurality of videos on a display of the wireless display device;
 - a carousel display controller adapted to receive an input to select an image from the first plurality of images and display video information for the video associated with the selected image on the display of the wireless display device; and
 - a video database interface module adapted to retrieve, responsive to selection of the image, a second plurality of images associated with a second plurality of videos and video information responsive to a received input to the carousel display controller.
2. A system adapted to execute on a wireless display device, the system comprising:
 - a graphical user interface comprising a button display area on a display of the wireless display device, wherein the button display area comprises at least 3 buttons; and
 - a video database interface module configured to retrieve user account information from a video database and display the user account information within at least a first button of the at least 3 buttons.
3. A computer implemented program product comprising program code for a video database program adapted to execute on a wireless device, the program code comprising:
 - program code for a video viewing page, wherein the video viewing page includes a video player native to an operating system of the wireless device and one or more control elements to control the video player;
 - program code for a video database interface module adapted to retrieve a set of videos responsive to selection of the one or more control elements.
4. A method for displaying video content on a wireless display device, the method comprising:
 - displaying a video selection menu in a first area of a user interface of the wireless communication device, the video selection menu displaying a rotatable

carousel having a first plurality of images associated with each of a first plurality of videos;
responsive to receiving a first input to rotate the carousel, obtaining from a video server a second plurality of images associated with each of a second plurality of videos;
responsive to receiving a second input to rotate the carousel, displaying the second plurality of images.

5. A method for displaying video content on a wireless display device, the method comprising:

retrieving from a video database a first plurality of images associated with a first plurality of videos;

displaying a subset less than the entirety of the first plurality of images in a video selection menu in a first area of a user interface of the wireless communication device;

responsive to receiving a first input to advance the video selection menu, displaying images of the first plurality not included in the subset;

responsive to receiving the first input, retrieving from the video database a second plurality of images associated with a second plurality of videos; and

responsive to a second input to further advance the video selection menu, displaying a subset of the second plurality of images displayed

AMENDED CLAIMS

received by the International Bureau on 19th May 2009 (19.05.09)

1. A video display system adapted to execute on a wireless display device, the system comprising:

- a carousel display component adapted to display a first plurality of images associated with a first plurality of videos on a display of the wireless display device;
- a carousel display controller adapted to receive an input selecting an image from the first plurality of images and display information describing the video associated with the selected image on the display of the wireless display device; and
- a video database interface module adapted to pre-fetch from a video database server, responsive to the selecting of the image, a packet comprising a second plurality of images associated with a second plurality of videos and information describing the second plurality of videos, the second plurality of videos related to the video associated with the selected image.

2. A system adapted to execute on a wireless display device, the system comprising:

- a graphical user interface comprising a button display area on a display of the wireless display device, wherein the button display area comprises at least 3 buttons; and
- a video database interface module configured to pre-fetch user account information for a user of a video database from a video database server and display the user account information within at least a first button of the at least 3 buttons responsive to receiving an indication that the user has logged in to the video database.

3. A computer-readable storage medium comprising executable program code for providing a video display system on a wireless device, the program code comprising:

- program code for displaying a video viewing page for viewing a video on a display of the wireless device, wherein the video viewing page includes a video player native to an operating system of the wireless device and one or more control elements to control the video player; and

program code for pre-fetching a packet of information describing a set of videos related to the video from a video database server responsive to selection of the one or more control elements, the information describing the set of videos comprising images of the videos in the set.

4. A computer-implemented method for displaying video content on a wireless display device, the method comprising:

displaying a video selection menu in a first area of a user interface of the wireless communication device, the video selection menu displaying a rotatable carousel having a first plurality of images associated with information describing each of a first plurality of videos;

responsive to receiving a first input to rotate the carousel, pre-fetching from a video database server a packet comprising a second plurality of images and information describing each of a second plurality of videos; and

responsive to receiving a second input to rotate the carousel, displaying the second plurality of images.

5. A method for displaying video content on a wireless display device, the method comprising:

retrieving from a video database server a first plurality of images associated with a first plurality of videos;

displaying a subset less than an entirety of the first plurality of images in a video selection menu of a user interface of the wireless communication device;

responsive to receiving a first input to advance the video selection menu,

displaying images of the first plurality not included in the subset;

responsive to receiving the first input, pre-fetching from the video database server a second plurality of images associated with a second plurality of videos;

and

responsive to a second input to advance the video selection menu, displaying a subset of the second plurality of images in the video selection menu.

6. The video display system of claim 1, wherein the information describing the second plurality of videos comprises information describing lengths of the second plurality of videos.

7. The video display system of claim 1, wherein the information describing the second plurality of videos comprises information describing titles of the second plurality of videos.

8. The video display system of claim 1, wherein the information describing the second plurality of videos comprises information describing ratings of the second plurality of videos.

9. The computer-readable storage medium of claim 3, wherein the information describing the set of videos comprises information describing lengths of videos in the set.

10. The system of claim 2, wherein the user account information comprises a playlist the user has created.

11. The system of claim 2, wherein the user account information comprises descriptions of videos that have been sent to the user.

12. The computer-readable storage medium of claim 3, wherein the information describing the set of videos comprises information describing titles of videos in the set.

13. The computer-readable storage medium of claim 3, wherein the information describing the set of videos comprises information describing ratings of videos in the set.

14. The computer-readable storage medium of claim 3, further comprising:
program code for retrieving the set of videos that are related to the video based on one of more of: sources associated with videos in the video database server; genres associated with videos in the video database server; and titles associated with the videos in the video database server.

STATEMENT UNDER PCT ARTICLE 19(1)

The above amendments to the Claims are being submitted in accordance with the Patent Cooperation Treaty Article 19.

The differences between the claims as filed and the claims as amended are provided herein.

Claims 1-5 have been replaced by amended claims 1-5

Claims 6-14 are new.

The above-described amendments do not go beyond the disclosure of the international application as filed, and entry of these amendments is respectfully requested.

Replacement sheets effecting the above-described amendments are being transmitted herewith.

Menu You

 CNN YouTube Debates

 The saddest chubby
clo...
01:35  1/2


 Crank That Kosha
Boy
02:50  1/2


 Cootles
01:25  1/2


 12 years old
Wakefield...
00:24  1/2



 Gone in a Flash:
Proje...
05:26 

 "Click, Click, Click,..."
03:02  1/2

 Erickson Sports'
Ninte...
07:17  1/2

 Art...is Father & Son
08:46 

 Lacos(Ties)-
Project...
06:43  1/2

 Daedelus - Fair
Weathe...
03:06  1/2

Pg.1 | [Next>](#)

Menu

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2 [Featured](#)

3 [Recently Added](#)

4 [Most Viewed](#)

5 [Top Rated](#)

6 [Top Favorites](#)


7 [People](#)

8 [Entertainment](#)

9 [Grab Bag](#)

 [Home](#)

 [Back to Top](#)

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FIG. 1 (Prior Art)

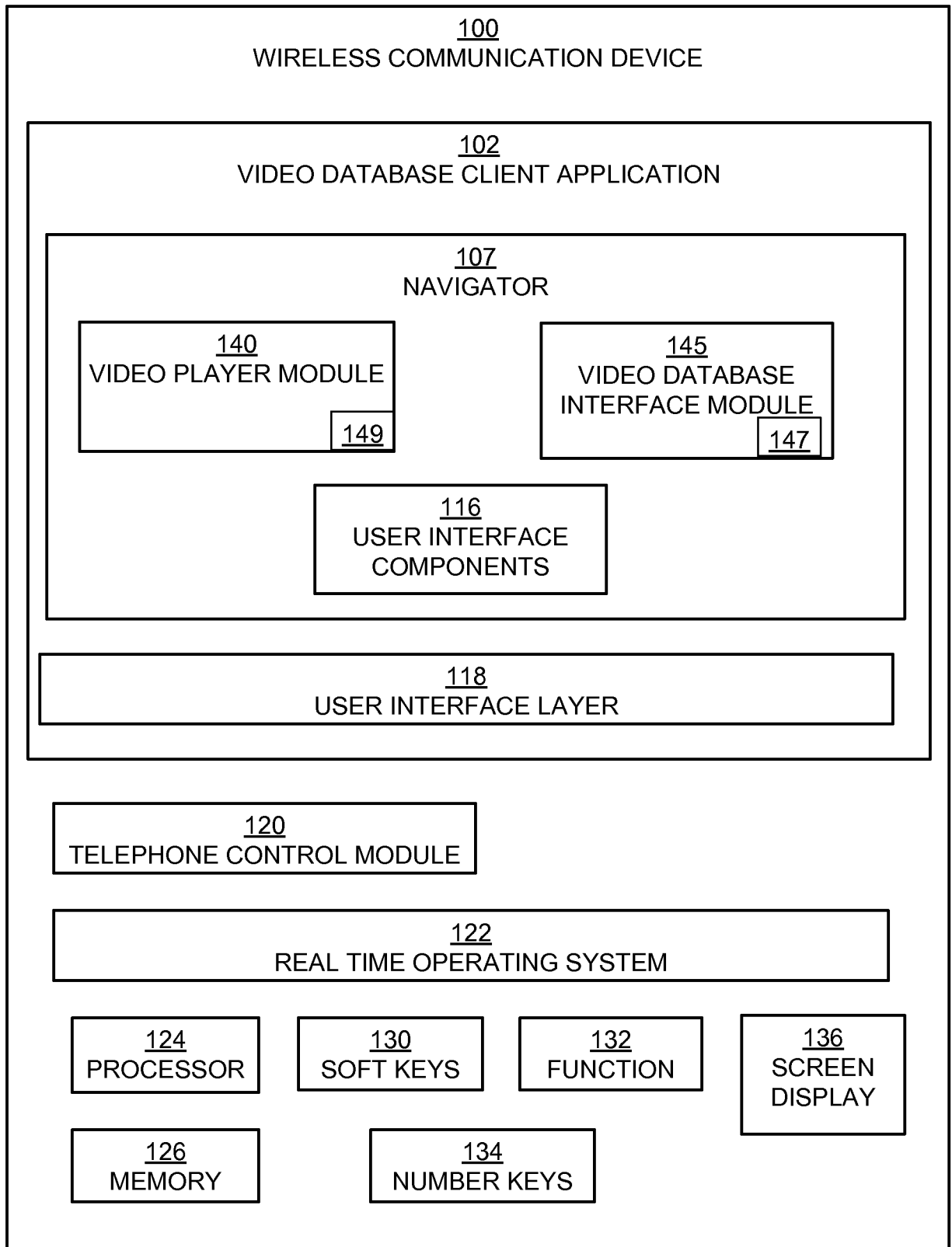


FIG. 2

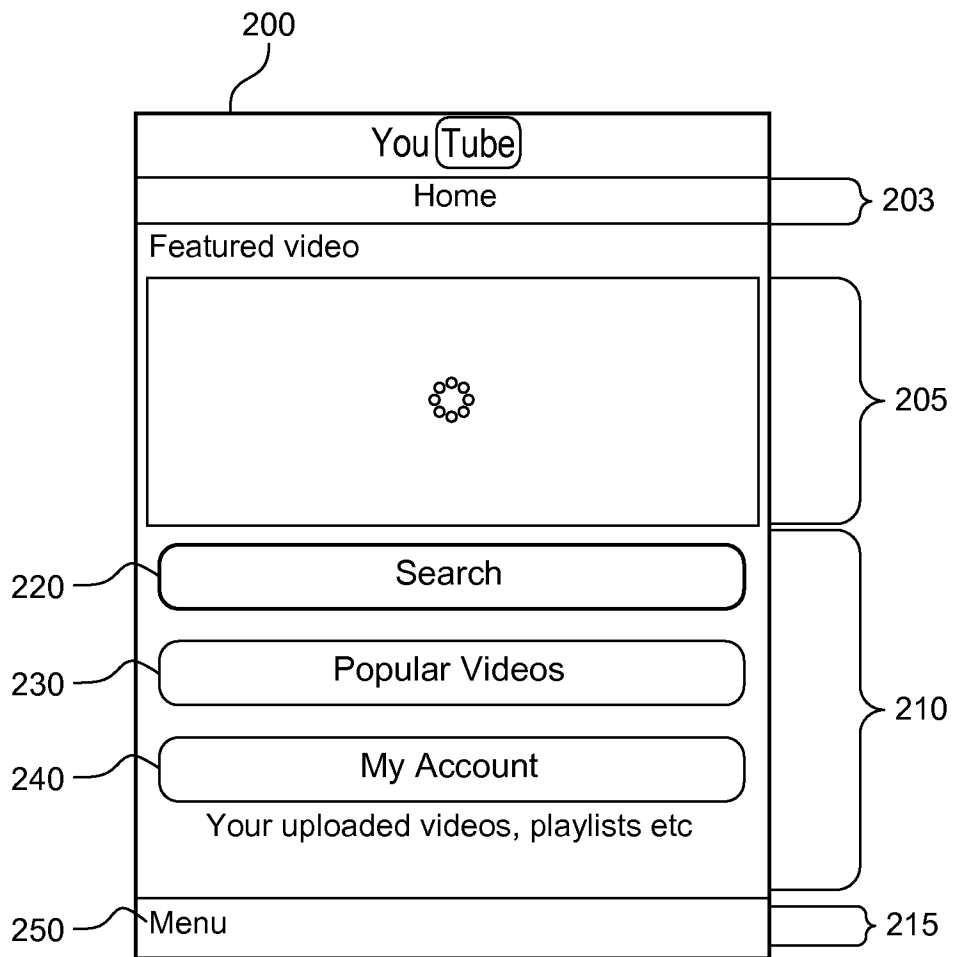


FIG. 3

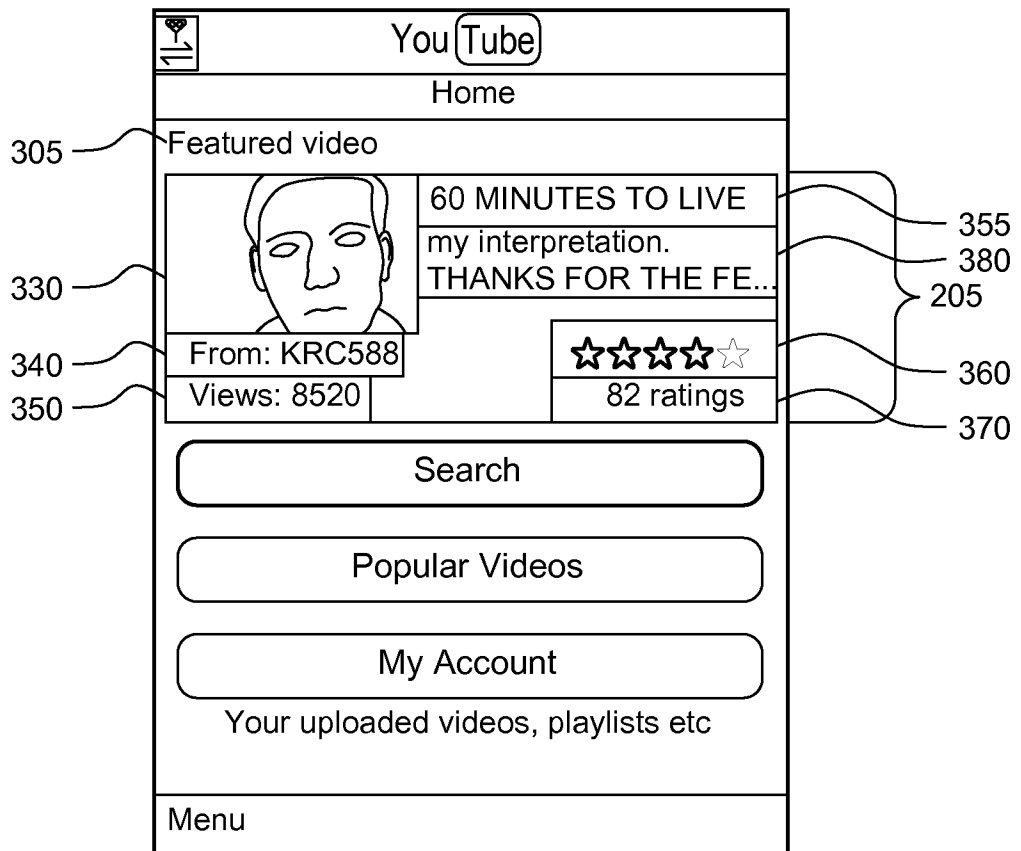


FIG. 4

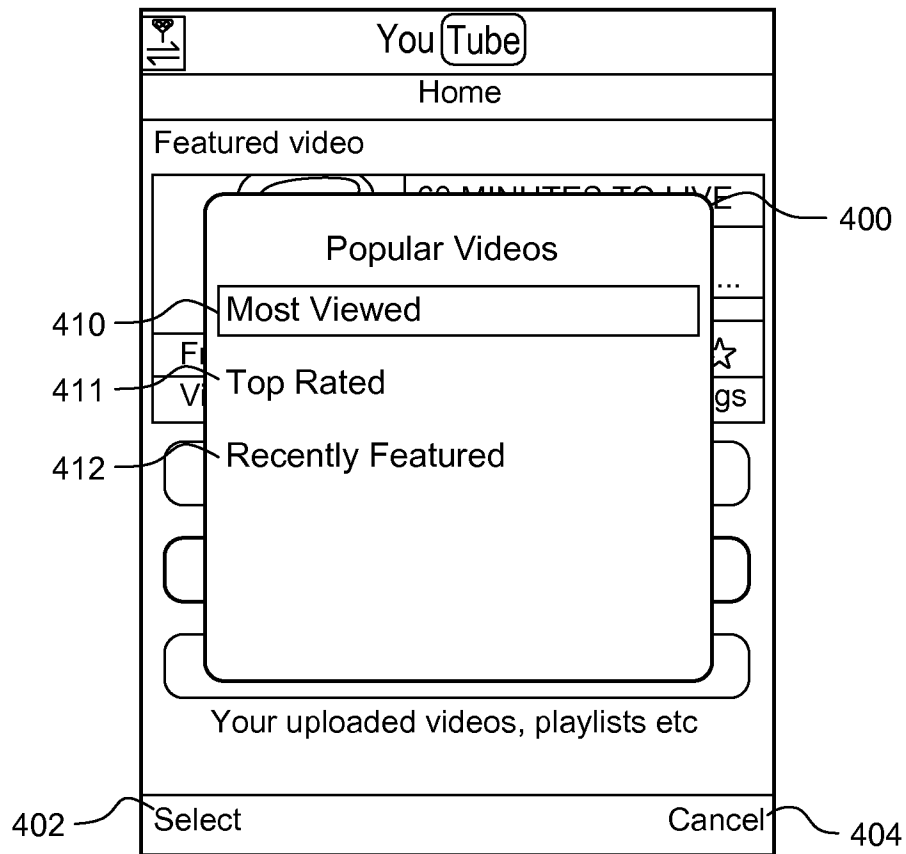


FIG. 5

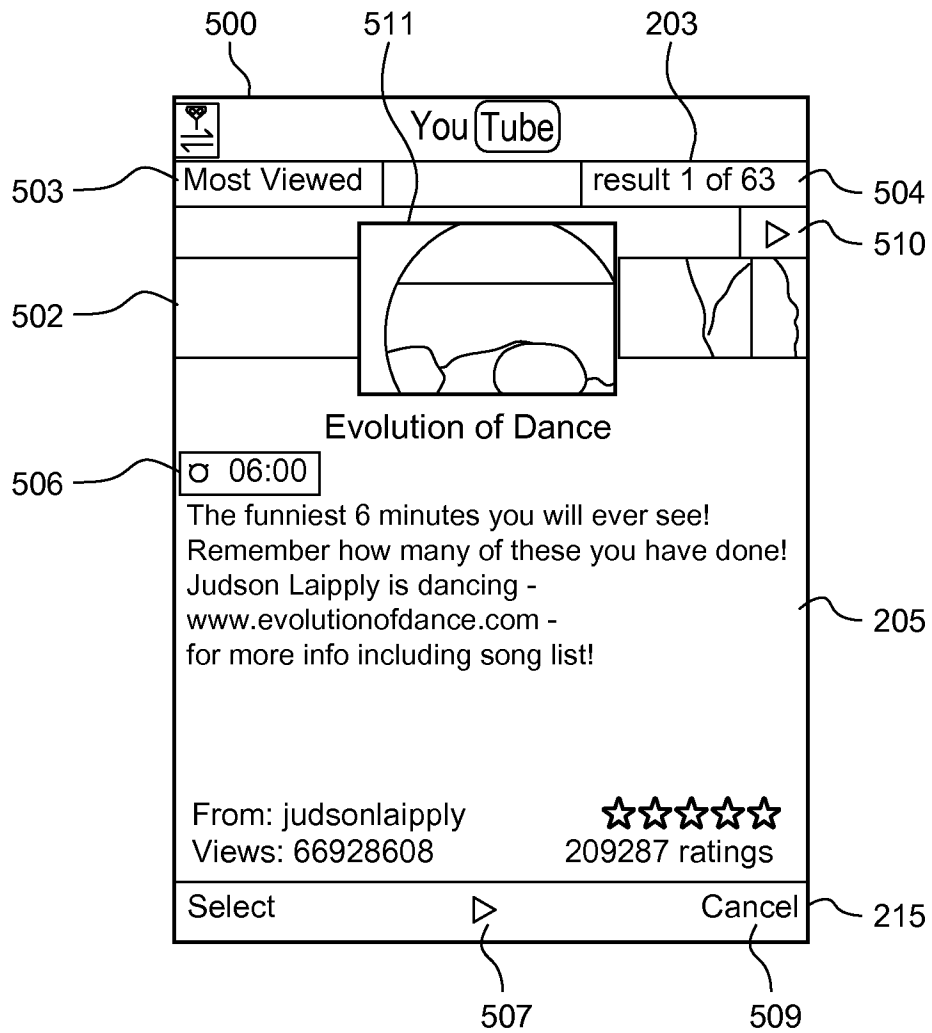


FIG. 6

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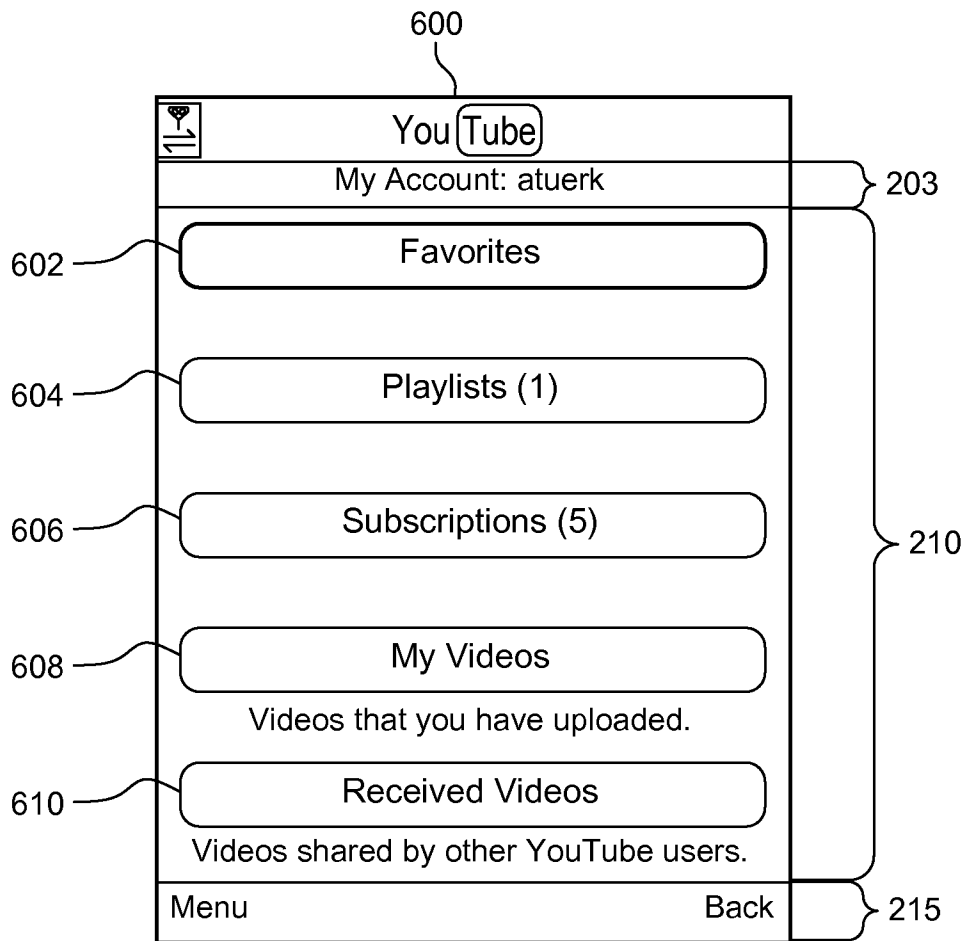


FIG. 7

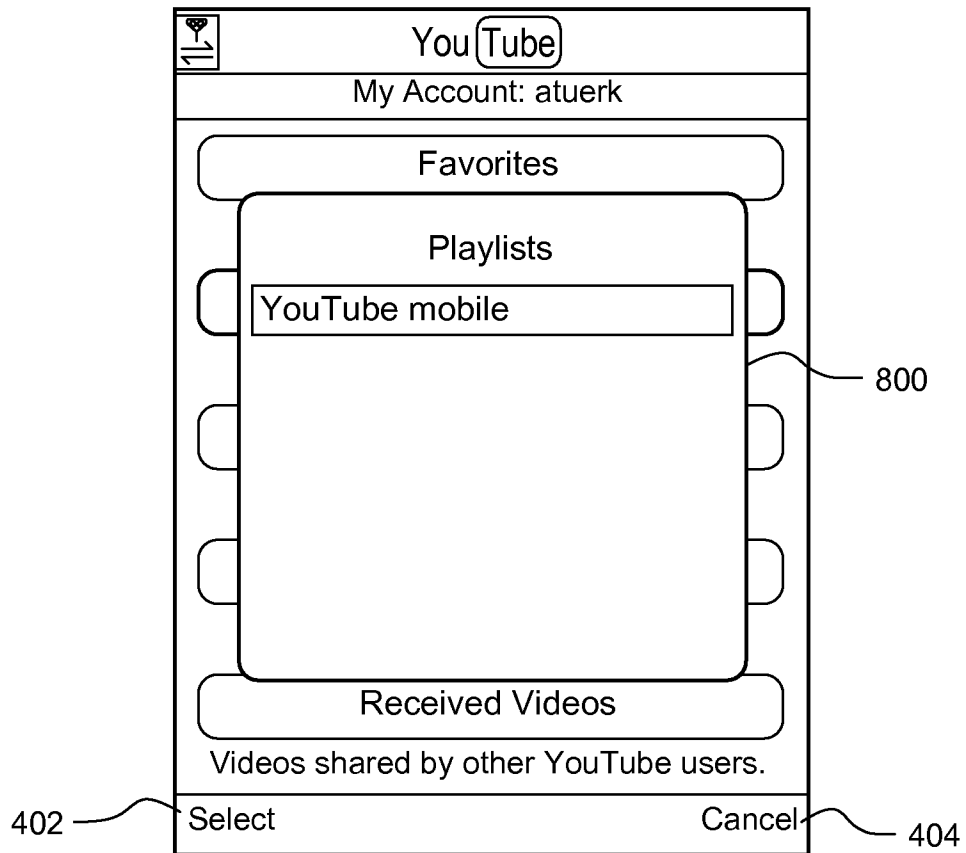


FIG. 8

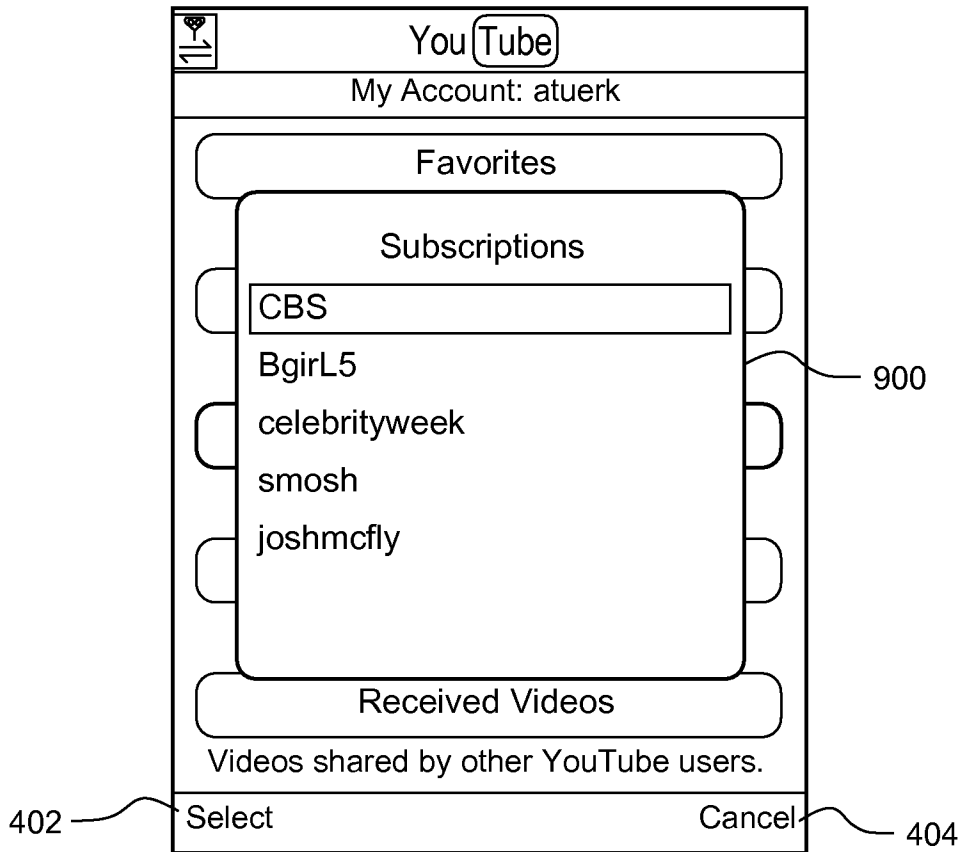


FIG. 9

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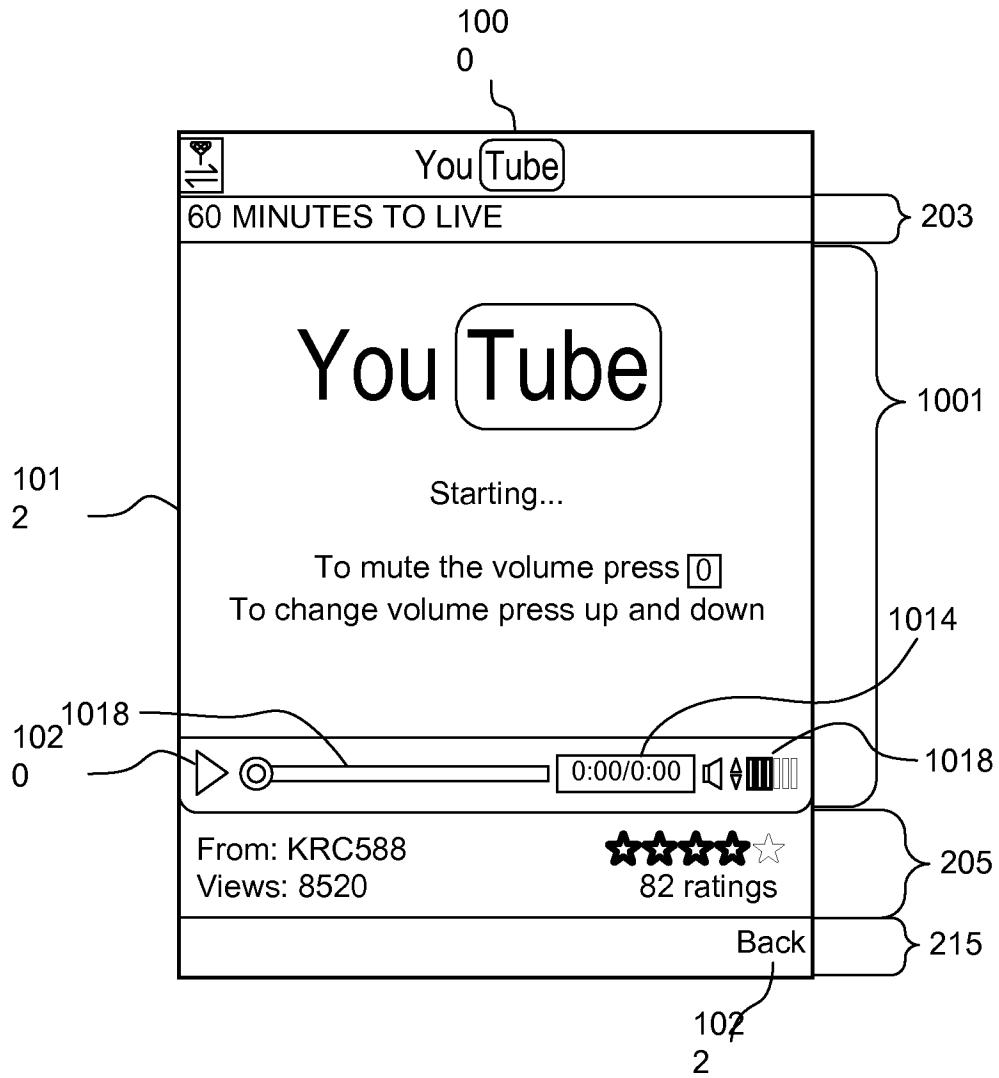


FIG. 10

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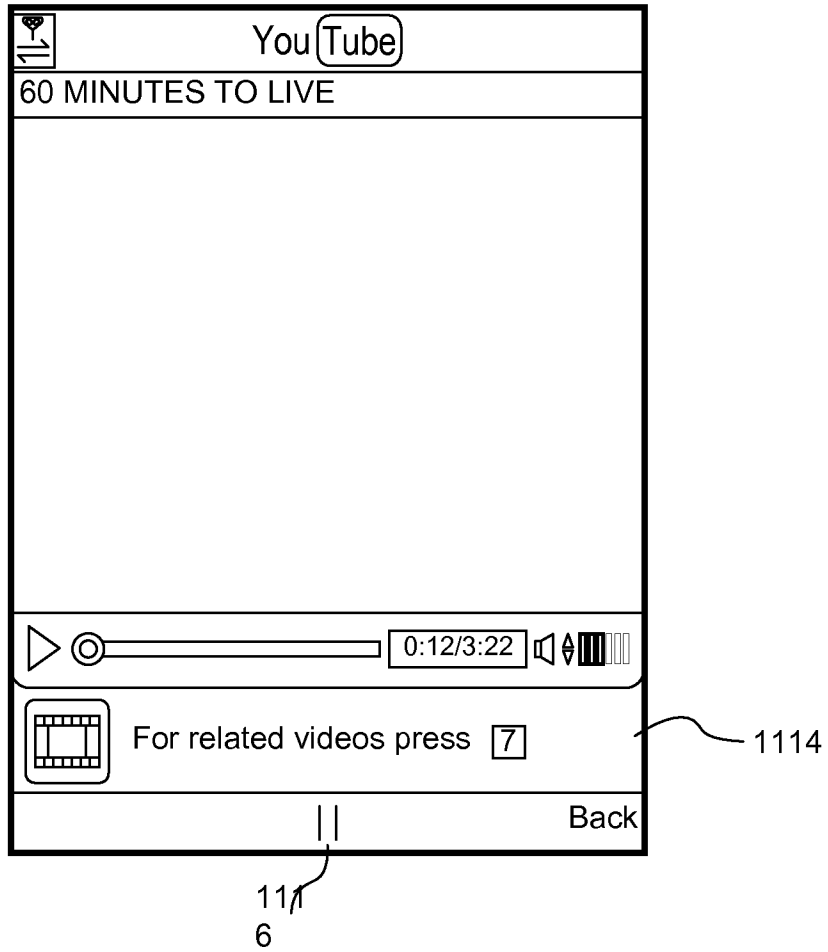


FIG. 11

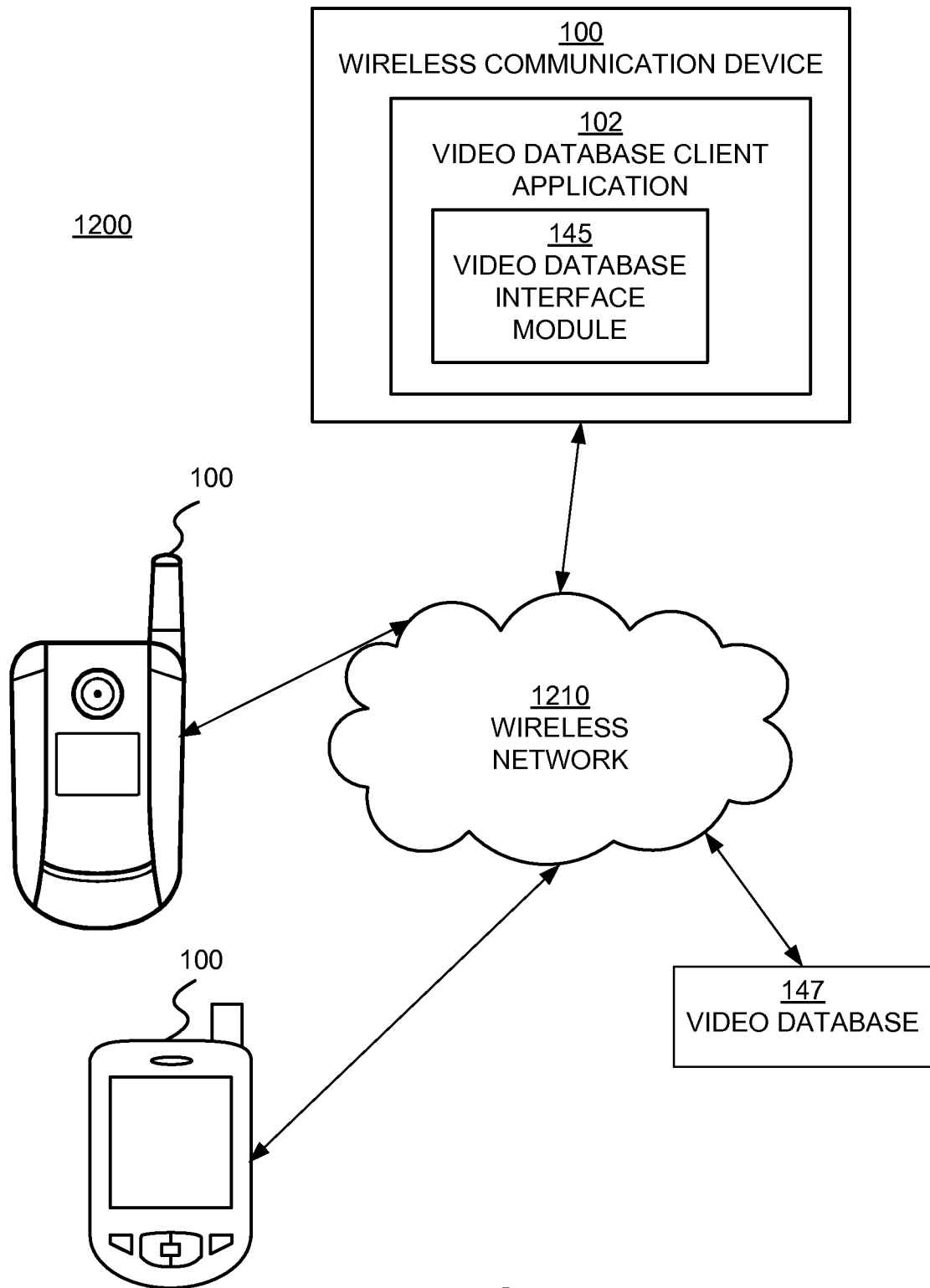


FIG. 12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 09/31866

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G06F 15/16 (2009.01) USPC - 709/217 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) USPC: 709/217		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 709/217; 455/556.1 (keyword limited - see terms below)		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWest (PGPB, USPT, EPAB, JPAB); Google Scholar Search Terms: carousel, plurality, many, video, display, wireless, image, controller, module, choose, interface		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/0160345 A1 (Sakai et al.) 12 July 2007 (12.07.2007), entire document; especially: para [0011], [0023], [0024], [0027], [0028], [0047], [0048].	1-5
A	US 2002/0151327 A1 (Levitt) 17 October 2002 (17.10.2002), entire document	1-5
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 25 February 2009 (25.02.2009)		Date of mailing of the international search report <div style="text-align: center; font-size: 1.5em; font-weight: bold;">16 MAR 2009</div>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774