(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 May 2010 (27.05.2010)

PCT

(10) International Publication Number
WO 2010/058066 A1

(51) International Patent Classification:
G06F 3/00 (2006.01) *H04M 1/725* (2006.01)
G06F 3/048 (2006.01)

(21) International Application Number:
PCT/FI2009/050782

(22) International Filing Date:
1 October 2009 (01.10.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/274,919 20 November 2008 (20.11.2008) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

WO 2010/058066 A1

(54) Title: METHOD AND APPARATUS FOR ASSOCIATING USER IDENTITY

(57) Abstract: In accordance with an example embodiment of the present invention, an apparatus, comprising a processor configured to associate a first virtual screen with a first user identity receive input for transitioning from the first virtual screen to a second virtual screen, and associate the second virtual screen with a second user identity based at least in part on the input is disclosed.

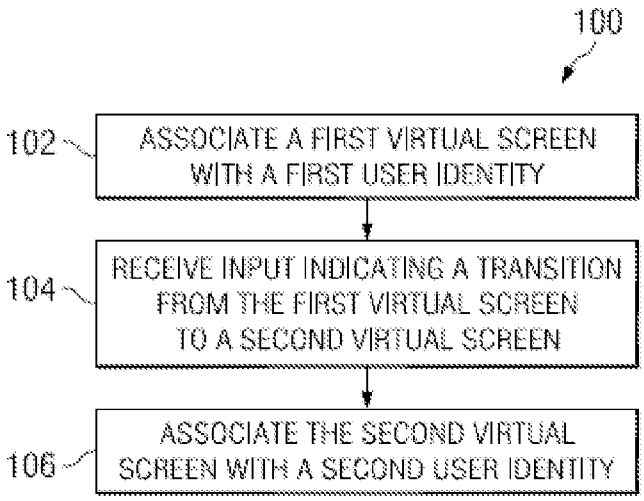


FIG. 1

METHOD AND APPARATUS FOR ASSOCIATING USER IDENTITY

RELATED APPLICATIONS

This application also relates to U.S. Patent Application, entitled "METHOD AND APPARATUS FOR UTILIZING USER IDENTITY", which is being filed concurrently and is hereby incorporated by reference in its entirety.

TECHNICAL FIELD

The present application relates generally to user identity.

BACKGROUND

There has been a recent surge in the use of networking devices. The growth of networking devices has been accompanied by a surge in programs utilizing networks to send and receive data. For example, a program may use a network to send and/or retrieve an image, a video, a message, text, and/or the like. Utilization of a network may be associated with a user identity. A user who utilizes more than one network may utilize more than one user identity.

SUMMARY

Various aspects of examples of the invention are set out in the claims.

According to a first aspect of the present invention, an apparatus comprising a processor configured to associate a first virtual screen with a first user identity, receive input for transitioning from the first virtual screen to a second virtual screen, and associate the second virtual screen with a second user identity based at least in part on the input is disclosed.

According to a second aspect of the present invention, a method comprising associating a first virtual screen with a first user identity, receiving input for transitioning from the first virtual screen to a second virtual screen, and associating the second virtual screen with a second user identity based at least in part on the input is disclosed.

According to a third aspect of the present invention, a computer program product comprising a computer-readable medium bearing computer program code

embodied therein for use with a computer, the computer program code comprising associating a first virtual screen with a first user identity, receiving input for transitioning from the first virtual screen to a second virtual screen, and associating the second virtual screen with a second user identity based at least in part on the input is disclosed.

According to a fourth aspect of the present invention, a computer-readable medium encoded with instructions that, when executed by a computer, perform associating a first virtual screen with a first user identity, receiving input for transitioning from the first virtual screen to a second virtual screen, and associating the second virtual screen with a second user identity based at least in part on the input is disclosed .

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of example embodiments of the present invention, reference is now made to the following descriptions taken in connection with the accompanying drawings in which:

FIGURE 1 is a flow diagram showing a method for using a plurality of subscriber identities according to an example embodiment of the invention;

FIGURE 2 is a flow diagram of another method for using a plurality of subscriber identities according to an example embodiment of the invention;

FIGURES 3A – 3D are diagrams illustrating a virtual screen according to an example embodiment of the invention;

FIGURES 4A and 4B are diagrams illustrating a screen according to an example embodiment of the invention;

FIGURES 5A – 5C are diagrams illustrating virtual locations of virtual screens according to an example embodiment of the invention;

FIGURES 6A – 6C are diagrams illustrating input from a touch display according to an example embodiment of the invention; and

FIGURE 7 is a block diagram showing an electronic device according to an example embodiment of the invention.

DETAILED DESCRIPTON OF THE DRAWINGS

An example embodiment of the present invention and its potential advantages are best understood by referring to FIGURES 1 through 7 of the drawings.

A user of an electronic device may have more than one user identity, for example, if the user utilizes more than one network, if the user has different user identities for work and personal use, and/or the like. In such a situation, the electronic device may operate with more than one user identity. Such an electronic device may allow a user to access these networks using the same device without reconfiguring user identity. For example, an electronic device may have two user identity modules (UIM) that allow the electronic device to connect to two different networks. A user may control which user identity is utilized.

A device may provide a screen that may be customized by a user. For example, a user may customize wallpaper, programs that may be readily started, information displayed, and/or the like. In some circumstances, the user may desire to access more information on the screen than is desirable to display at one time. A virtual screen may be utilized for this information. A virtual screen may be utilized so that a user may be able to view at least part of the desired information when the information may not be desirable to display at one time. For example, if a virtual screen comprises more information than displayed, the user may pan to view the non-displayed information.

A virtual screen may be associated with a user identity. For example, a user may perform some operations when utilizing a user identity, and perform different operations with utilizing a different user identity. In such an example, the different virtual screens may provide the user with a separate experience for performing operations. Furthermore, in such an example, there may be a program, such as a program stored on a subscriber identity module (SIM), which is associated with a user identity that the user may benefit from being able to start from the associated virtual screen. In another example, a user may have a different virtual screen presentation for a different user identity. In such an example, the user may be able to easily distinguish which user identity is being used by glancing at part of the virtual screen.

In an example embodiment, a user who utilizes more than one user identity may utilize them differently. For example, a user who utilizes a user identity for a personal purpose may desire to have a family photo for wallpaper, a music program that can be readily started, and/or the like. In such an example, the user may have a virtual screen arranged in this manner. In another example, a user who utilizes a user identity for business may desire to have a company logo for wallpaper, a meeting calendar shown, an

email program easily startable, and/or the like. In such an example, the user may have virtual screen arranged in this manner.

On an electronic device that associates a virtual screen with a user identity, it may be desirable to switch between user identities by switching virtual screens. For example, an electronic device may switch from a user identity to a different user identity when the device receives input, for example from the user, to switch from a virtual screen to a different virtual screen. In such an example, the user can control which user identity is used by controlling which virtual screen is used. For example, the user may perform a swiping input, for example input 640 of FIGURE 6C, to transition from one virtual screen and user identity to another virtual screen and another user identity. In such an example, the user may be able to transition between virtual screens and user identities without any intervening user operations related to changing the user identity, such as a login.

In an example embodiment, if a first virtual screen and a first user identity are being utilized, the electronic device utilizes information related to a second user identity. For example, in a device utilizing a first virtual screen and an associated first user identity, the electronic device may receive a message associated with a second user identity. In such an example, the electronic device may provide a notification of the message to the user.

FIGURE 1 is a flow diagram showing a method 100 for using a plurality of subscriber identities according to an example embodiment of the invention. An apparatus, for example electronic device 10 of FIGURE 7, may be configured to perform method 100.

At block 102, a first virtual screen is associated with a first user identity. The first virtual screen may be for example virtual screen 302 of FIGURE 3A, virtual screen 546 of FIGURE 5C, and/or the like. The user identity may comprise information related to a user identity module (UIM), for example, UIM 38 of FIGURE 7. For example, the entirety of the user identity may be a UIM. In another example, the user identity may comprise information unassociated with any UIM. In yet another example, the user identity may comprise a UIM and additional information. The association may comprise enabling and/or utilizing at least part of the user identity. For example, the association may comprise utilizing information related to user identity for making a call, receiving a

call, sending a message, receiving a message, transmitting information, receiving information, and/or the like.

At block 104, input indicating a transition from the first virtual screen to a second virtual screen is received. The input may be received from a keypad, such as keypad 28 of FIGURE 7, a touch display, such as display 30 of FIGURE 7, a motion sensor, such as motion sensor 68 of FIGURE 7, and/or the like. The input may comprise a key press, a motion, a touch input, such as input 640 of FIGURE 6C, and/or the like. The input may indicate a transition from the first virtual screen to the second virtual screen by receiving a response to a query and/or by the nature of the input. For example, receiving a selection of a menu item may indicate a transition from the first virtual screen to the second virtual screen. In another example, an input relating to a movement beyond the boundary of a virtual screen may indicate a transition from a first virtual screen to a second virtual screen, for example the transition described with reference to virtual screen 502 and virtual screen 504 of FIGURE 5A.

At block 106, the second virtual screen is associated with a second user identity. The second virtual screen may be for example virtual screen 342 of FIGURE 3C, virtual screen 522 of FIGURE 5B, and/or the like. The user identity may comprise a user identity module (UIM), for example, UIM 38 of FIGURE 7. The association may comprise enabling and/or utilizing at least part of the user identity. For example, the association may comprise utilizing information related to user identity for making a call, receiving a call, sending a message, receiving a message, transmitting information, receiving information, and/or the like.

The association with the second user identity may modify, replace, supplement, and/or the like, information related to the first user identity. For example, the association with the second user identity may result in utilization of information related to the second user identity exclusively over information related to any other user identity. In another example, the association with the second user identity may result in utilization of information related to the second user identity in some circumstances and utilization of information related to the first user identity in other circumstances. In such an example, after association with the second user identity, outgoing information transmission, calls, messages, and/or the like may utilize the second user identity, and incoming information

transmission, calls, messages, and/or the like may utilize the first user identity and/or the second user identity.

FIGURE 2 is a flow diagram of another method 200 for using a plurality of subscriber identities according to an example embodiment of the invention. An apparatus, for example electronic device 10 of FIGURE 7, may be configured to perform method 200.

At block 202, a first virtual screen is associated with a first user identity. The first virtual screen, association, and first user identity may be similar to the first virtual screen, association, and first user identity described with reference to block 102 of FIGURE 1.

At block 204, at least part of the first virtual screen is displayed. For example, at least part of the first virtual screen may be displayed in frame 402 of FIGURE 4A.

At block 206, input indicating a transition from the first virtual screen to a second virtual screen is received. The input, indication of transition, and reception may be similar to the input, indication of transition, and reception described with reference to block 104 of FIGURE 1.

At block 208, the second virtual screen is associated with a second user identity. The second virtual screen and second user identity may be similar to the second virtual screen and second user identity described with reference to block 106 of FIGURE 1. The association may comprise enabling and/or utilizing at least part of the user identity. For example, the association may comprise utilizing information related to user identity for making a call, receiving a call, sending a message, receiving a message, transmitting information, receiving information, and/or the like. For example, the association with the second user identity may result in utilization of information related to the second user identity exclusively over information related to any other user identity.

At block 210, the first user identity is disabled. In an example embodiment, the information related to a first user identity is, at least temporarily, no longer used. In another example embodiment, a UIM, for example UIM 38 of FIGURE 7, may be disabled, turned off, put to sleep, disconnected, and/or the like.

At block 212, at least part of the second virtual screen is displayed. For example, at least part of the second virtual screen may be displayed in frame 422 of FIGURE 4B.

FIGURES 3A – 3D are diagrams illustrating a virtual screen according to an example embodiment of the invention.

FIGURE 3A is a diagram illustrating a virtual screen wider than the part of the virtual screen displayed, for example on screen 400 of FIGURE 4A. In the example of FIGURE 3A, block 302 relates to a virtual screen, and block 304 relates to a frame that displays part of virtual screen 302. The virtual screen 302 may represent an image, text, a group of items, a list, a work area, and/or the like. For example, if an image is wider than what is desirable to represent on a display, virtual screen 302 may be used for the image. In such an example, the frame 304 may be panned left or right to change the part of the virtual screen 302 that is displayed. In an example embodiment, changing the part of the virtual screen 302 that is displayed may be performed when input is received, for example input 620 of FIGURE 6B, input 640 of FIGURE 6C, and/or the like. In an example embodiment, frame 304 may be prevented from panning beyond one or more boundary of virtual screen 302.

FIGURE 3B is a diagram illustrating a virtual screen taller than the part of the virtual screen displayed, for example on screen 420 of FIGURE 4B. In the example of FIGURE 3B, block 322 relates to a virtual screen, and block 324 relates to a frame that displays part of virtual screen 322. The virtual screen 322 may represent an image, text, a group of items, a list, a work area, and/or the like. For example, if group of items, such as a group of icons, is taller than what is desirable to represent on a display, virtual screen 322 may be used for the group of icons. In such an example, the frame 324 may be panned up or down to change the part of the virtual screen 322 that is displayed. In an example embodiment, changing the part of the virtual screen 322 that is displayed may be performed when input is received, for example input 620 of FIGURE 6B, input 640 of FIGURE 6C, and/or the like. In an example embodiment, frame 324 may be prevented from panning beyond one or more boundary of virtual screen 322.

FIGURE 3C is a diagram illustrating a virtual screen wider and taller than the part of the virtual screen displayed, for example on screen 400 of FIGURE 4A. In the example of FIGURE 3C, block 342 relates to a virtual screen, and block 344 relates to a

frame that displays part of virtual screen 342. The virtual screen 342 may represent an image, text, a group of items, a list, a work area, and/or the like. For example, if a list is longer than what is desirable to represent on a display, virtual screen 342 may be used for the work area. In such an example, the displayed part 344 may be panned left, right, up, and/or down to change the part of the virtual screen 342 that is displayed. In an example embodiment, changing the part of the virtual screen 342 that is displayed may be performed when input is received, for example input 620 of FIGURE 6B, input 640 of FIGURE 6C, and/or the like. In an example embodiment, frame 344 may be prevented from panning beyond one or more boundary of virtual screen 342.

FIGURE 3D is a diagram illustrating a virtual screen is the same size as the part of the virtual screen displayed. In the example of FIGURE 3D, block 362 relates to a virtual screen, and block 364 relates to a frame that displays part of virtual screen 362. The virtual screen 362 may represent an image, text, a group of items, a list, a work area, and/or the like. For example, if it is desirable to represent an entire image on a display, virtual screen 362 may be used to display the image.

FIGURES 4A and 4B are diagrams illustrating a screen according to an example embodiment of the invention. It should be understood that the screens of FIGURES 4A and 4B are merely examples of possible screen arrangements which may be used and therefore should not limit the scope of the present invention.

FIGURE 4A is a diagram illustrating a screen comprising frames 402, 404, and 406. Frames 402, 404, and 406 may relate to the displayed part of one or more virtual screen. For example, frame 402 may relate to frame 344 of FIGURE 3C. In another example, frame 404 may relate to frame 364 of FIGURE 3D. In still another example, frame 406 may relate to frame 304 of FIGURE 3A.

In an example embodiment, frame 404 comprises device operating information, such as battery information, signal information, network information, and/or the like. In another example embodiment, frame 402 comprises icons representing programs which may be utilized, such as games, image viewers, and/or the like. In still another example embodiment, frame 406 comprises icons representing device operations which may be performed, such as composing a message, making a call, and/or the like.

FIGURE 4B is a diagram illustrating a screen comprising frames 422, 424, and 426. Frames 422, 424, and 426 may relate to the displayed part of one or more

virtual screen. For example, frame 422 may relate to frame 344 of FIGURE 3C. In another example, frame 404 may relate to frame 364 of FIGURE 3D. In still another example, frame 406 may relate to frame 304 of FIGURE 3A.

In an example embodiment, frame 424 comprises device operating information, such as battery information, signal information, network information, and/or the like. In another example embodiment, frame 422 comprises icons representing programs which may be utilized, such as games, image viewers, and/or the like. In still another example embodiment, frame 426 comprises icons representing device operations which may be performed, such as composing a message, making a call, and/or the like.

It should be understood that example embodiments may vary with respect to the number of frames on a screen and/or the placement of frames on a screen.

FIGURES 5A – 5C are diagrams illustrating virtual locations of virtual screens according to an example embodiment of the invention. Receiving an input indicating panning beyond a boundary of a virtual screen may indicate a transition from a virtual screen to a different virtual screen. For example, if an input is received indicating panning beyond a boundary of a virtual screen towards the virtual location of a different virtual screen, the input may indicate a transition to the different virtual screen.

FIGURE 5A is a diagram illustrating an arrangement 500 of virtual locations for frame 506 and virtual screens 502 and 504. Frame 506 may relate to a frame that displays part of virtual screen 502 or 504, for example similar to frame 304 and virtual screen 302 of FIGURE 3A. Virtual screens 502 and 504 may be related by a virtual location. For example, in the example of FIGURE 5A, virtual screen 504 has a virtual location to the right of virtual screen 502. It may be desirable to transition frame 506 from one virtual screen to another virtual screen. For example, when frame 506 is displaying information related to virtual screen 502, a user may desire frame 506 to display information related to virtual screen 504. In such an example, receiving input, for example input 620 of FIGURE 6B, input 640 of FIGURE 6C, and/or the like, indicating panning frame 506 beyond the right border of virtual screen 502 may indicate a transition from virtual screen 502 to virtual screen 504. In another example, receiving input indicating panning frame 506 beyond the left border of virtual screen 504 may indicate a transition from virtual screen 504 to virtual screen 502.

FIGURE 5B is a diagram illustrating an arrangement 520 of virtual locations for frame 526 and virtual screens 522 and 524. Frame 526 may relate to a frame that displays part of virtual screen 522 and/or 524, for example similar to frame 304 and virtual screen 302 of FIGURE 3B. Virtual screens 522 and 524 may be related by a virtual location. For example, in the example of FIGURE 5B, virtual screen 524 has a virtual location below virtual screen 522. It may be desirable to transition frame 526 from one virtual screen to another virtual screen. For example, when frame 526 is displaying information related to virtual screen 522, a user may desire frame 526 to display information related to virtual screen 524. In such an example, receiving input, for example input 620 of FIGURE 6B, input 640 of FIGURE 6C, and/or the like, indicating panning frame 526 beyond the bottom border of virtual screen 522 may indicate a transition from virtual screen 522 to virtual screen 524. In another example, receiving input indicating panning frame 526 beyond the top border of virtual screen 524 may indicate a transition from virtual screen 524 to virtual screen 522.

FIGURE 5C is a diagram illustrating an arrangement 540 of virtual locations for frame 550 and virtual screens 542, 544, 546, and 548. Frame 550 may relate to a frame that displays a part of virtual screen 542, 544, 546 and/or 548, for example similar to frame 304 and virtual screen 302 of FIGURE 3C. Virtual screens 542, 544, 546, and 548 may be related by a virtual location. For example, in the example of FIGURE 5C, virtual screen 544 has a virtual location to the right of virtual screen 542 and above virtual screen 548 and virtual screen 546 has a virtual location below virtual screen 542 and to the left of virtual screen 548. It may be desirable to transition frame 550 from one virtual screen to another virtual screen. For example, when frame 550 is displaying information related to virtual screen 542, a user may desire frame 550 to display information related to virtual screen 544. In such an example, receiving input, for example input 620 of FIGURE 6B, input 640 of FIGURE 6C, and/or the like, indicating panning frame 550 beyond the bottom border of virtual screen 542 may indicate a transition from virtual screen 542 to virtual screen 546. In another example, receiving input indicating panning frame 550 beyond the right border of virtual screen 542 may indicate a transition from virtual screen 542 to virtual screen 544.

FIGURES 6A – 6C are diagrams illustrating input from a touch display, for example from display 28 of FIGURE 7, according to an example embodiment of the

invention. In FIGURES 6A – 6C, an input related to contact with a touch display is shown with a circle, an input related to releasing a contact from a touch display is shown with two crossed lines, and input related to movement on a touch display is shown with a line.

In the example of FIGURE 6A, input 600 relates to receiving contact input 602 and receiving a release input 604 are shown. In this example, contact input 602 and release input 604 occur at the same position. In an example embodiment, the time between receiving contact input 602 and release input 604 may be utilized. For example, input 600 of FIGURE 6A may be interpreted as a tap for a short time between contact input 602 and release input 604, a press for less short time between contact input 602 and release input 604, and/or the like. In such an example, a tap input may induce one operation, such as selecting an item, and a press input may induce another operation, such as performing an operation on an item.

In the example of FIGURE 6B, input 620 relates to receiving contact input 622, a movement input 624, and a release input 626 are shown. In this example, contact input 622 and release input 626 occur at different positions. Input 620 may be utilized to drag an object from one position to another, to move a scroll bar, to pan a virtual screen, and/or the like. In an example embodiment, input 620 of FIGURE 6B is interpreted differently based at least in part on the speed of movement 624. For example, if input 620 is utilized to pan a virtual screen, the panning motion may be small for a slow movement, large for a fast movement, and/or the like.

In the example of FIGURE 6C, input 640 relates to receiving contact input 642, and a movement input 644, where contact is released during movement. Input 640 may be utilized to move an object from one position to another, to move a scroll bar, to pan a virtual screen, and/or the like. In an example embodiment, input 640 of FIGURE 6C is interpreted differently based at least in part on the speed of movement 644. For example, if input 640 is utilized to pan a virtual screen, the panning motion may be small for a slow movement, large for a fast movement, and/or the like.

FIGURE 7 is a block diagram showing an electronic device 10 according to an example embodiment of the invention. It should be understood, however, that a electronic device as illustrated and hereinafter described is merely illustrative of an electronic device that would benefit from embodiments of the present invention and, therefore, should not be taken to limit the scope of the present invention. While one embodiment of the electronic

device 10 is illustrated and will be hereinafter described for purposes of example, other types of electronic devices, such as, but not limited to, portable digital assistants (PDAs), pagers, mobile computers, desktop computers, televisions, gaming devices, laptop computers, cameras, video recorders, global positioning system (GPS) devices and other types of electronic systems, may readily employ embodiments of the present invention. Furthermore, devices may readily employ embodiments of the present invention regardless of their intent to provide mobility.

Even though embodiments of the present invention are described in conjunction with mobile communications applications, it should be understood that embodiments of the present invention may be utilized in conjunction with a variety of other applications, both in the mobile communications industries and outside of the mobile communications industries.

The electronic device 10 comprises an antenna 12 (or multiple antennae) in operable communication with a transmitter 14 and a receiver 16. The electronic device 10 further comprises a controller 20 or other processing element that provides signals to and receives signals from the transmitter 14 and receiver 16, respectively. The signals may comprise signaling information in accordance with a communications interface standard, user speech, received data, user generated data, and/or the like. The electronic device 10 may operate with one or more air interface standards, communication protocols, modulation types, and access types. By way of illustration, the electronic device 10 may operate in accordance with any of a number of first, second, third and/or fourth-generation communication protocols or the like. For example, the electronic device 10 may operate in accordance with second-generation (2G) wireless communication protocols IS-136 (TDMA), GSM, and IS-95 (CDMA), or with third-generation (3G) wireless communication protocols, such as UMTS, CDMA2000, WCDMA and TD-SCDMA, with fourth-generation (4G) wireless communication protocols, wireless networking protocols, such as 802.11, short-range wireless protocols, such as Bluetooth, and/or the like.

It is understood that the controller 20 comprises circuitry desirable for implementing audio, video, communication, navigation, logic functions, and or the like. For example, the controller 20 may comprise a digital signal processor device, a microprocessor device, various analog to digital converters, digital to analog converters, and other support circuits. Control and signal processing functions of the electronic device

10 are allocated between these devices according to their respective capabilities. The controller 20 thus may also comprise the functionality to encode and interleave message and data prior to modulation and transmission. The controller 20 may additionally comprise an internal voice coder, and may comprise an internal data modem. Further, the controller 20 may comprise functionality to operate one or more software programs, which may be stored in memory. For example, the controller 20 may operate a connectivity program, such as a conventional internet browser. The connectivity program may then allow the electronic device 10 to transmit and receive internet content, such as location-based content and/or other web page content, according to a Transmission Control Protocol (TCP), Internet Protocol (IP), User Datagram Protocol (UDP), Internet Message Access Protocol (IMAP), Post Office Protocol (POP), Simple Mail Transfer Protocol (SMTP), Wireless Application Protocol (WAP), Hypertext Transfer Protocol (HTTP), and/or the like, for example.

The electronic device 10 may comprise a user interface for providing output and/or receiving input. The electronic device 10 may comprise an output device such as a ringer, a conventional earphone and/or speaker 24, a microphone 26, a display 28, and/or a user input interface, which are coupled to the controller 20. The user input interface, which allows the electronic device 10 to receive data, may comprise any of a number of devices allowing the electronic device 10 to receive data, such as a keypad 30, a touch display, for example if display 28 comprises touch capability, and/or the like. In an embodiment comprising a touch display, the touch display, the touch display may be configured to receive input from a single point of contact, multiple points of contact, and/or the like. In such an embodiment, the touch display may determine input based on position, motion, speed, contact area, and/or the like. In embodiments including the keypad 30, the keypad 30 may comprise numeric (for example, 0-9) keys, symbol keys (for example, #, *), alphabetic keys, and/or the like for operating the electronic device 10. For example, the keypad 30 may comprise a conventional QWERTY keypad arrangement. The keypad 30 may also comprise various soft keys with associated functions. In addition, or alternatively, the electronic device 10 may comprise an interface device such as a joystick or other user input interface. The electronic device 10 further comprises a battery 34, such as a vibrating battery pack, for powering various circuits that are required to

operate the electronic device 10, as well as optionally providing mechanical vibration as a detectable output.

In an example embodiment, the electronic device 10 comprises a media capturing element, such as a camera, video and/or audio module, in communication with the controller 20. The media capturing element may be any means for capturing an image, video and/or audio for storage, display or transmission. For example, in an example embodiment in which the media capturing element is a camera module 36, the camera module 36 may comprise a digital camera which may form a digital image file from a captured image. As such, the camera module 36 comprises hardware, such as a lens or other optical component(s), and/or software necessary for creating a digital image file from a captured image. Alternatively, the camera module 36 may comprise only the hardware for viewing an image, while a memory device of the electronic device 10 stores instructions for execution by the controller 20 in the form of software for creating a digital image file from a captured image. In an example embodiment, the camera module 36 may further comprise a processing element such as a co-processor which assists the controller 20 in processing image data and an encoder and/or decoder for compressing and/or decompressing image data. The encoder and/or decoder may encode and/or decode according to a standard format, for example, a JPEG standard format.

The electronic device 10 may comprise one or more user identity modules (UIM) 38. UIM 38 may comprise information stored in memory of electronic device 10, a part of electronic device 10, a device coupled with electronic device 10, and/or the like. UIM 38 may comprise a memory device having a built in processor. UIM 38 may comprise, for example, a subscriber identity module (SIM), a universal integrated circuit card (UICC), a universal subscriber identity module (USIM), a removable user identity module (R-UIM), and/or the like. UIM 38 may store information elements related to a subscriber, an operator, a user account, and/or the like. For example, UIM 38 may store subscriber information, message information, contact information, security information, program information, and/or the like. Usage of one or more UIM 38 may be enabled and/or disabled. For example, electronic device 10 may enable usage of a first UIM 38 and disable usage of a second UIM 38. Usage of more than one UIM 38 may comprise concurrent utilization of information related to a first UIM 38 and a second UIM 38.

In an example embodiment, electronic device 10 comprises a single UIM 38. In such an embodiment, at least part of subscriber information may be stored on the UIM 38.

In another example embodiment, electronic device 10 comprises a plurality of UIM 38. For example, electronic device 10 may comprise two UIM 38 blocks. In such an example, electronic device 10 may utilize part of subscriber information of a first UIM 38 under some circumstances and part of subscriber information of a second UIM 38 under other circumstances. For example, electronic device 10 may enable usage of the first UIM 38 and disable usage of the second UIM 38. In another example, electronic device 10 may disable usage of the first UIM 38 and enable usage of the second UIM 38. In still another example, electronic device 10 may utilize subscriber information from the first UIM 38 and the second UIM 38.

Electronic device 10 may comprise volatile memory 40, such as volatile Random Access Memory (RAM) including a cache area for the temporary storage of data. The electronic device 10 may also comprise other memory, for example, non-volatile memory 42, which may be embedded and/or may be removable. The non-volatile memory 42 may additionally or alternatively comprise an EEPROM, flash memory or the like. The memories may store any of a number of pieces of information, and data. The information and data may be used by the electronic device 10 to implement the functions of the electronic device 10. For example, the memories may comprise an identifier, such as an international mobile equipment identification (IMEI) code, which may uniquely identify the electronic device 10.

Although FIGURE 7 illustrates an example of an electronic device which may utilize embodiments of the present invention, it should be understood that the electronic device 10 of FIGURE 7 is merely an example device that may utilize embodiments of the present invention.

A processing element such as those described may be embodied in various ways. For example, the processing element may be embodied as a processor, a coprocessor, a controller or various other processing means or devices including integrated circuits such as, for example, an ASIC (application specific integrated circuit), FPGA (field programmable gate array), and/or the like.

Without in any way limiting the scope, interpretation, or application of the claims appearing below, it is possible that a technical effect of one or more of the example embodiments disclosed herein may be allowing a user to transition between user identities by transition between virtual screens. Another possible technical effect of one or more of the example embodiments disclosed herein may be providing a simple way for a user to transition between user identities. Another technical effect of one or more of the example embodiments disclosed herein may be providing a simple way for a user to determine which user identity is being used.

Embodiments of the present invention may be implemented in software, hardware, application logic or a combination of software, hardware and application logic. The software, application logic and/or hardware may reside on an electronic device, UIM, or another UIM. If desired, part of the software, application logic and/or hardware may reside on an electronic device, part of the software, application logic and/or hardware may reside on a UIM, and part of the software, application logic and/or hardware may reside on another UIM. The application logic, software or an instruction set is preferably maintained on any one of various conventional computer-readable media. In the context of this document, a "computer-readable medium" may be any media or means that can contain, store, communicate, propagate or transport the instructions for use by or in connection with an instruction execution system, apparatus, or device.

If desired, the different functions discussed herein may be performed in a different order and/or concurrently with each other. Furthermore, if desired, one or more of the above-described functions may be optional or may be combined.

Although various aspects of the invention are set out in the independent claims, other aspects of the invention comprise other combinations of features from the described embodiments and/or the dependent claims with the features of the independent claims, and not solely the combinations explicitly set out in the claims.

It is also noted herein that while the above describes example embodiments of the invention, these descriptions should not be viewed in a limiting sense. Rather, there are several variations and modifications which may be made without departing from the scope of the invention as defined in the appended claims.

WHAT IS CLAIMED IS

1. An apparatus, comprising:

a processor configured to

associate a first virtual screen with a first user identity;

receive input for transitioning from said first virtual screen to a second virtual screen; and

associate said second virtual screen with a second user identity based at least in part on said input.

2. The apparatus of claim 1, wherein said associating said first virtual screen with said first user identity comprises utilizing information related to said first user identity.

3. The apparatus of claim 1, wherein said associating said second virtual screen with said second user identity comprises utilizing information related to said second user identity

4. The apparatus of claim 1, wherein said processor is further configured to display information associated with said first virtual screen.

5. The apparatus of claim 4, wherein said displaying comprises utilizing a frame related to said first virtual screen to display at least part of said virtual screen.

6. The apparatus of claim 1, wherein said processor is further configured to transition from said first virtual screen to said second virtual screen in response to said input.

7. The apparatus of claim 6, wherein said transitioning comprises utilizing a frame related to said first virtual screen to display at least part of said virtual screen.

8. The apparatus of claim 1, wherein said user identity comprises a subscriber identity module.

9. The apparatus of claim 1, wherein said received input relates to touch display input.

10. The apparatus of claim 1, wherein said received input relates to a movement towards a virtual location of said second virtual screen to indicate said transition.

11. The apparatus of claim 1, wherein said received input relates to panning a frame beyond a boundary of said first virtual screen to indicate said transition.

12. The apparatus of claim 1, wherein said processor is further configured to disable said first user identity.

13. The apparatus of claim 1, wherein the processor comprises at least one memory that contains executable instructions that if executed by the processor cause the apparatus to associate a first virtual screen with a first user identity, receive input indicating a transition from said first virtual screen to a second virtual screen, and associate said second virtual screen with a second user identity based at least in part on said transition.

14. A method, comprising:

associating a first virtual screen with a first user identity;

receiving input for transitioning from said first virtual screen to a second virtual screen; and

associating said second virtual screen with a second user identity based at least in part on said input.

15. The method of claim 14, wherein said associating said first virtual screen with said first user identity comprises utilizing information related to said first user identity.

16. The method of claim 14, wherein said associating said second virtual screen with said second user identity comprises utilizing information related to said second user identity.

17. The method of claim 14, further comprising displaying information associated with said first virtual screen.

18. The method of claim 14, further comprising transitioning from said first virtual screen to said second virtual screen in response to said input.

19. The method of claim 14, wherein said user identity comprises a subscriber identity module.

20. The method of claim 14, wherein said received input relates to touch display input.

21. The method of claim 14, wherein said received input relates to a movement towards a virtual location of said second virtual screen to indicate said transition.

22. The method of claim 14, wherein said received input relates to panning a frame beyond a boundary of said first virtual screen to indicate said transition.

23. The method of claim 14, further comprising disabling said first user identity.

24. A computer program product comprising a computer-readable medium bearing computer program code embodied therein for use with a computer, the computer program code comprising:

code for associating a first virtual screen with a first user identity

code for receiving input for transitioning from said first virtual screen to a second virtual screen; and

code for associating said second virtual screen with a second user identity based at least in part on said transition.

25. The computer program product of claim 24, wherein said associating said first virtual screen with said first user identity comprises utilizing information related to said first user identity.

26. The computer program product of claim 24, wherein said associating said second virtual screen with said second user identity comprises utilizing information related to said second user identity.

27. A computer-readable medium encoded with instructions that, when executed by a computer, perform:

associating a first virtual screen with a first user identity

receiving input for transitioning from said first virtual screen to a second virtual screen; and

associating said second virtual screen with a second user identity based at least in part on said transition.

28. The computer-readable medium of claim 27, wherein said associating said first virtual screen with said first user identity comprises utilizing information related to said first user identity.

29. The computer-readable medium of claim 27, wherein said associating said second virtual screen with said second user identity comprises utilizing information related to said second user identity.

30. An apparatus, comprising:

means for associating a first virtual screen with a first user identity;

means for receiving input for transitioning from said first virtual screen to a second virtual screen; and

means for associating said second virtual screen with a second user identity based at least in part on said input.

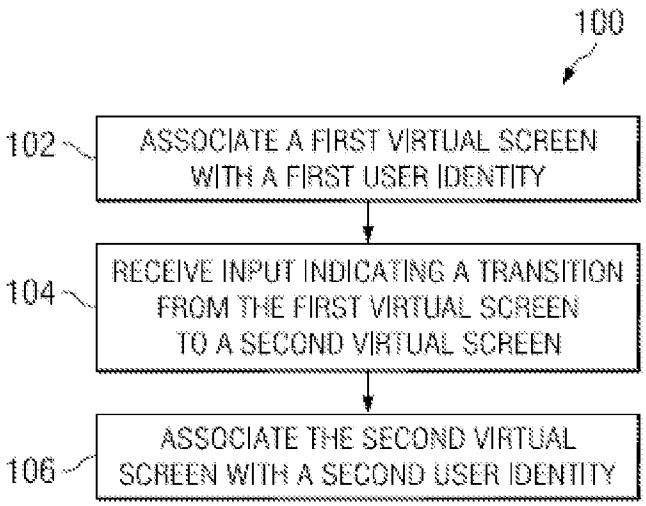

100
102
ASSOCIATE A FIRST VIRTUAL SCREEN WITH A FIRST USER IDENTITY
104
RECEIVE INPUT INDICATING A TRANSITION FROM THE FIRST VIRTUAL SCREEN TO A SECOND VIRTUAL SCREEN
106
ASSOCIATE THE SECOND VIRTUAL SCREEN WITH A SECOND USER IDENTITY

FIG. 1

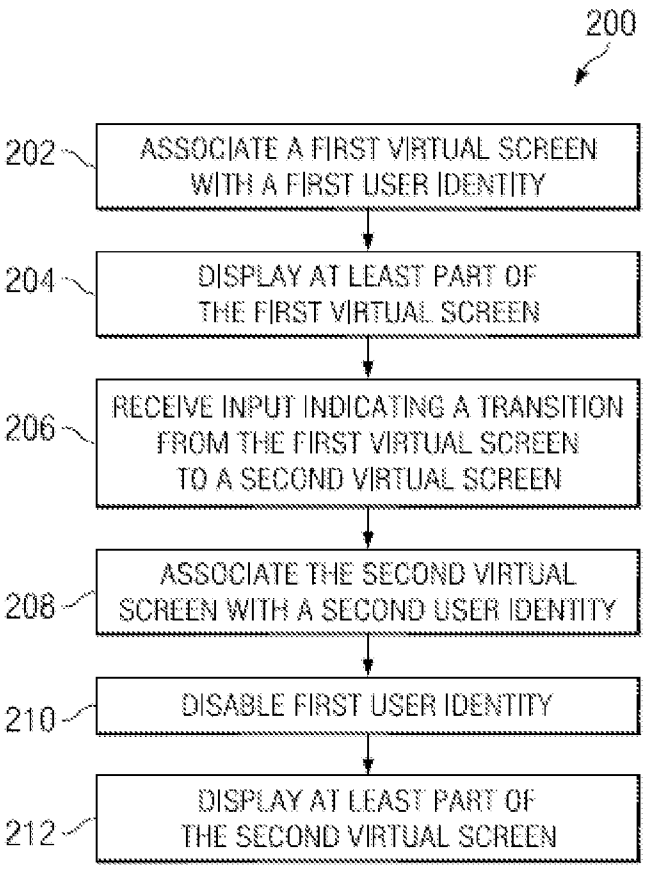

200
202
ASSOCIATE A FIRST VIRTUAL SCREEN WITH A FIRST USER IDENTITY
204
DISPLAY AT LEAST PART OF THE FIRST VIRTUAL SCREEN
206
RECEIVE INPUT INDICATING A TRANSITION FROM THE FIRST VIRTUAL SCREEN TO A SECOND VIRTUAL SCREEN
208
ASSOCIATE THE SECOND VIRTUAL SCREEN WITH A SECOND USER IDENTITY
210
DISABLE FIRST USER IDENTITY
212
DISPLAY AT LEAST PART OF THE SECOND VIRTUAL SCREEN

FIG. 2

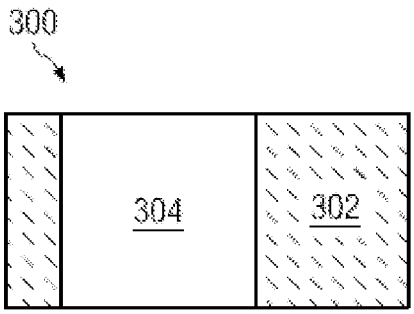


FIG. 3A

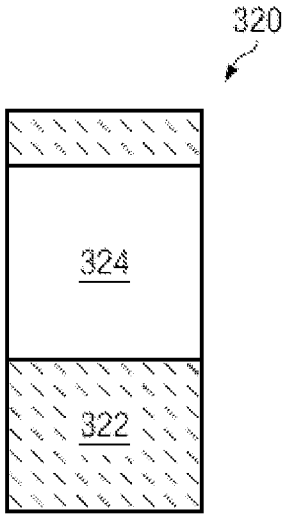


FIG. 3B

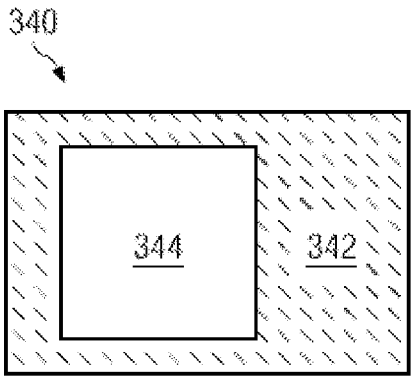


FIG. 3C

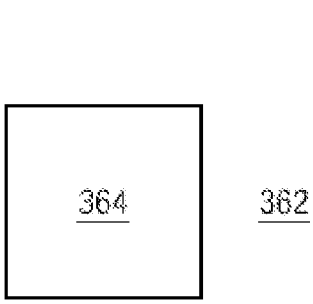


FIG. 3D

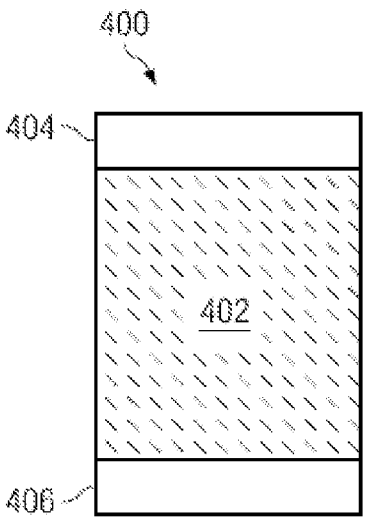


FIG. 4A

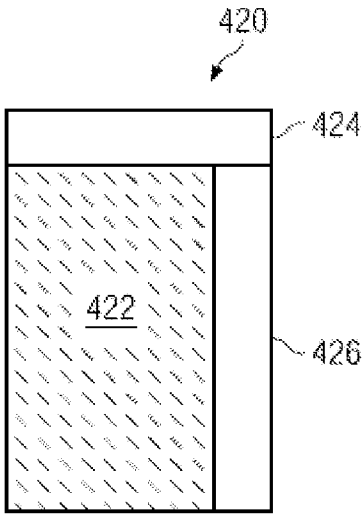


FIG. 4B

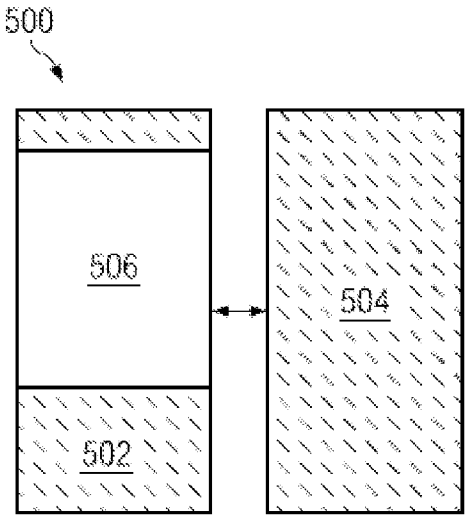


FIG. 5A

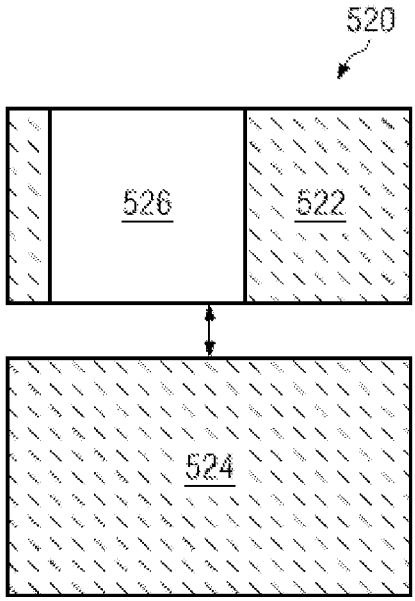


FIG. 5B

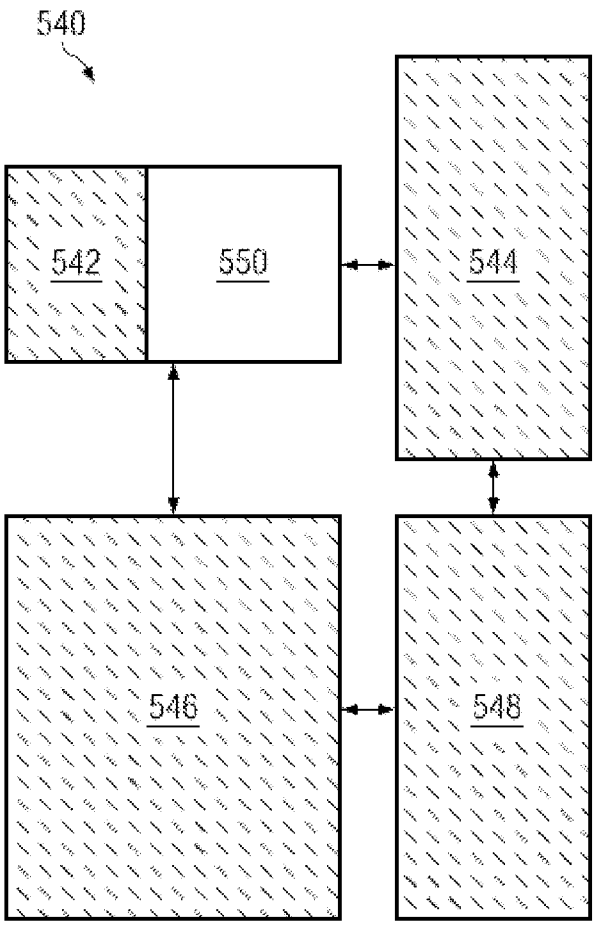


FIG. 5C

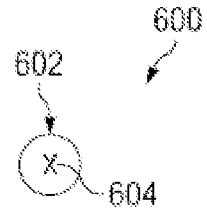


FIG. 6A

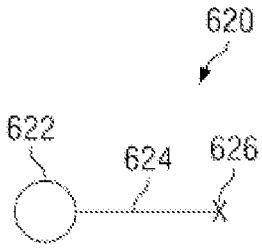


FIG. 6B

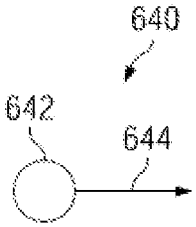


FIG. 6C

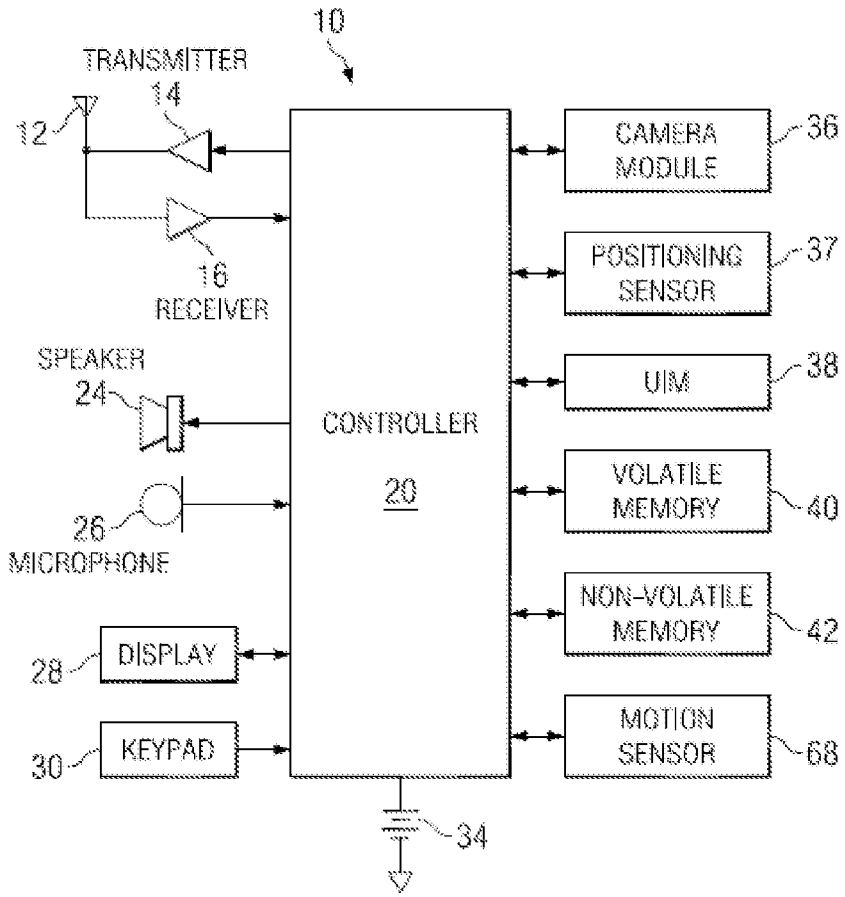


FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI2009/050782

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: G06F

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

FI, SE, NO, DK

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI, IEEE-Xplore, Internet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008147811 A1 (SCHROEDER BS et al.) 19 June 2008 (19.06.2008) Fig. 1, paragraphs [0009], [0014]-[0030]	1-30
X	US 2002194297 A1 (JEN JH et al.) 19 December 2002 (19.12.2002) abstract, Fig. 10, paragraphs [0007], [0010]-[0015], [0025], [0027], [0040], [0042]-[0044], [0048]-[0051]	1-30
Y	US 2005108239 A1 (EVANS CA et al.) 19 May 2005 (19.05.2005) abstract, Figs. 2, 4, paragraphs [0006]-[0009], [0030], [0071], claim 20	1-30
Y	US 6826755 B1 (KABIR AS et al.) 30 November 2004 (30.11.2004) abstract, Figs. 2, 5, column 2 line 61 - column 3 line 13, column 7 lines 37-53, claims 1, 4-6	1-30
A	US 2008148030 A1 (GOFFIN GP) 19 June 2008 (19.06.2008) abstract, Fig. 3, paragraphs [0005]-[0006], [0015]-[0016]	1-30

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 February 2010 (26.02.2010)	03 March 2010 (03.03.2010)

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI2009/050782

CLASSIFICATION OF SUBJECT MATTER

Int.Cl.
G06F 3/00 (2006.01)
G06F 3/048 (2006.01)
H04M 1/725 (2006.01)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/FI2009/050782

Patent document cited in search report	Publication date	Patent family members(s)	Publication date
US 2008147811 A1	19/06/2008	WO 2008061220 A2	22/05/2008
US 2002194297 A1	19/12/2002	None	
US 2005108239 A1	19/05/2005	US 2005022206 A1 US 6795967 B1	27/01/2005 21/09/2004
US 6826755 B1	30/11/2004	US 2005060416 A1 US 2005022204 A1	17/03/2005 27/01/2005
US 2008148030 A1	19/06/2008	None	