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(72) **Inventeurs/Inventors:**
LEMAY, STEPHEN O., US;
VAN OS, MARCEL, US;
HERZ, SCOTT, US;
CHRISTIE, GREG, US

(73) **Propriétaire/Owner:**
APPLE INC., US

(74) **Agent:** RICHES, MCKENZIE & HERBERT LLP

(54) **Titre : DISPOSITIF ELECTRONIQUE PORTATIF POUR MESSAGERIE INSTANTANEE**
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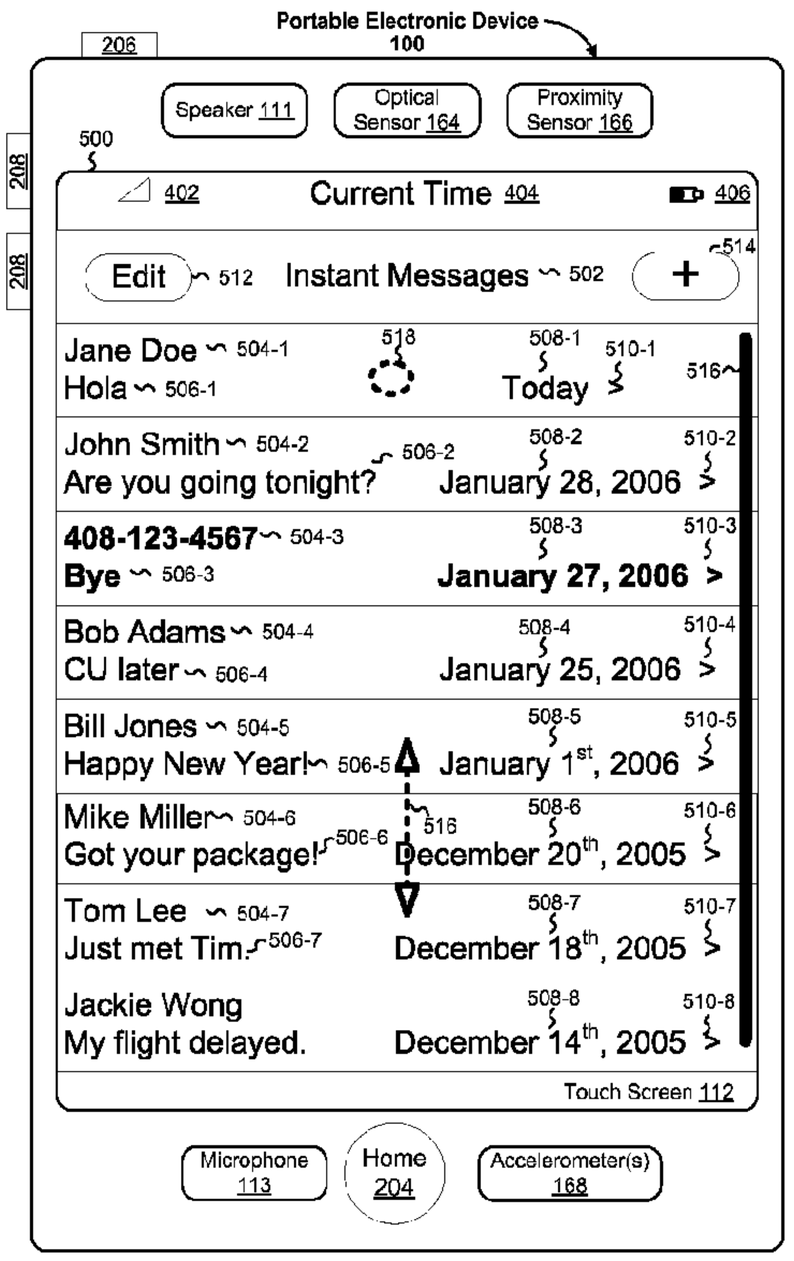

(57) **Abrégé/Abstract:**
A portable electronic device for instant messaging is disclosed. One aspect of the invention involves a graphical user interface (GUI) on a portable electronic device with a touch screen display. The GUI has a set of messages exchanged between a user of the device and another person. The set of messages are displayed in a chronological order. In response to detecting a scrolling gesture comprising a substantially vertical movement of a user contact with the touch screen display, the display of messages are scrolled in accordance with a direction of the scrolling gesture. The detecting of the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

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(71) Applicant *(for all designated States except US)*: **APPLE INC.** [US/US]; 1 Infinite Loop, Cupertino, CA 95014 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **LEMAY, Stephen, O.** [US/US]; 735 Kirkham Street, San Francisco, CA 94122 (US). **VAN OS, Marcel** [NL/US]; 116 Lundy's Lane Unit A, San Francisco, CA 94110 (US). **HERZ, Scott** [US/US]; 2469 Rebecca Lynn Way, Santa Clara, CA 95050 (US). **CHRISTIE, Greg** [US/US]; 1112 Kelly Drive, San Jose, CA 95129 (US).

(74) Agents: **WILLIAMS, Gary, S.** et al.; Morgan Lewis & Bockius Llp, 2 Palo Alto Square, 3000 El Camino Real, Suite 700, Palo Alto, CA 94306 (US).

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(54) Title: PORTABLE ELECTRONIC DEVICE FOR INSTANT MESSAGING

(57) Abstract: A portable electronic device for instant messaging is disclosed. One aspect of the invention involves a graphical user interface (GUI) on a portable electronic device with a touch screen display. The GUI has a set of messages exchanged between a user of the device and another person. The set of messages are displayed in a chronological order. In response to detecting a scrolling gesture comprising a substantially vertical movement of a user contact with the touch screen display, the display of messages are scrolled in accordance with a direction of the scrolling gesture. The detecting of the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

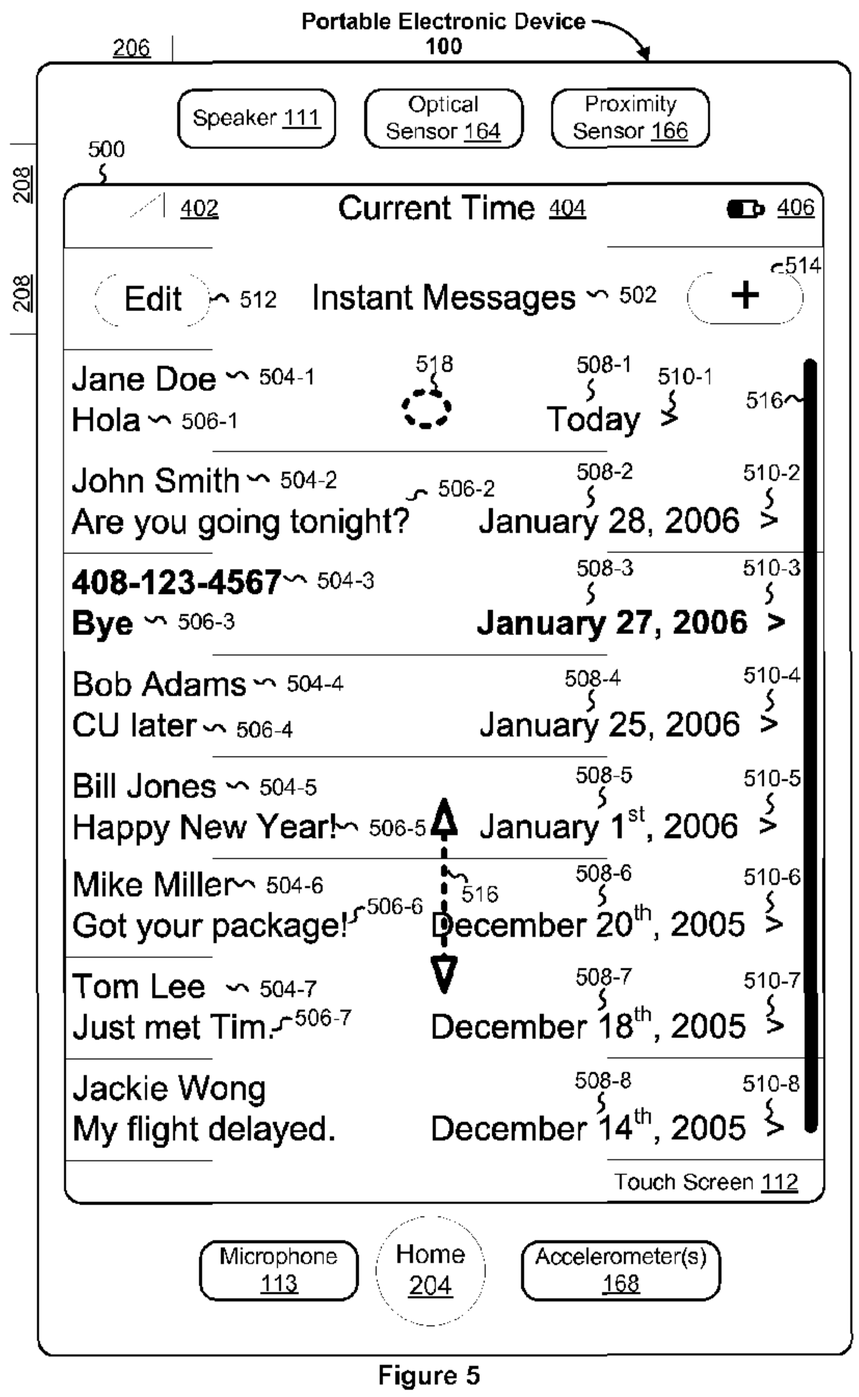

Figure 5

WO 2008/030776 A3

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Portable Electronic Device for Instant Messaging

TECHNICAL FIELD

[0001] The disclosed embodiments relate generally to portable electronic devices, and more particularly, to portable devices for performing instant messaging.

BACKGROUND

[0002] As portable electronic devices become more compact, and the number of functions performed by a given device increase, it has become a significant challenge to design a user interface that allows users to easily interact with a multifunction device. This challenge is particular significant for handheld portable devices, which have much smaller screens than desktop or laptop computers. This situation is unfortunate because the user interface is the gateway through which users receive not only content but also responses to user actions or behaviors, including user attempts to access a device's features, tools, and functions.

[0003] Some portable communication devices (e.g., mobile telephones, sometimes called mobile phones, cell phones, cellular telephones, and the like) have resorted to adding more pushbuttons, increasing the density of pushbuttons, overloading the functions of the pushbuttons, or using complex menu systems to allow a user to access, store and manipulate data. These conventional user interfaces often result in complicated key sequences and menu hierarchies that must be memorized by the user.

[0004] Many conventional user interfaces, such as those that include physical pushbuttons, are also inflexible. This is unfortunate because it may prevent a user interface from being configured and/or adapted by either an application running on the portable device or by users. When coupled with the time consuming requirement to memorize multiple key sequences and menu hierarchies, and the difficulty in activating a desired pushbutton, such inflexibility is frustrating to most users.

[0005] Portable device-based Instant Messaging (IM) services are becoming increasingly popular. But most IM services on portable electronic devices have a rudimentary user interface. It is cumbersome to create instant messages on such devices. A user often needs to press a telephone keypad repeatedly to choose a character. It is also

difficult to find and view previous instant messages. For example, it is inconvenient or even impossible for the user to view a series of previous messages with a particular user while composing a new message for that user.

[0006] Accordingly, there is a need for portable multifunction devices with more transparent and intuitive user interfaces for instant messaging that are easy to use, configure, and/or adapt.

SUMMARY

[0007] The above deficiencies and other problems associated with user interfaces for portable devices are reduced or eliminated by the disclosed portable multifunction device. In some embodiments, the device has a touch-sensitive display (also known as a touch screen or a touch screen display) with a graphical user interface (GUI), one or more processors, memory and one or more modules, programs or sets of instructions stored in the memory for performing multiple functions. In some embodiments, the user interacts with the GUI primarily through finger contacts and gestures on the touch screen display. Instructions for performing instant messaging operations may be included in a computer program product configured for execution by one or more processors.

[0008] One aspect of the invention involves a computer-implemented method in which a portable electronic device with a touch screen display: displays a set of messages exchanged between a user of the device and another person in a chronological order; detects a scrolling gesture comprising a substantially vertical movement of a user contact with the touch screen display, wherein the detecting of the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display; and responds to the scrolling gesture by scrolling the display of messages in accordance with a direction of the scrolling gesture.

[0009] Another aspect of the invention involves a computer-implemented method in which a portable electronic device with a touch screen display: displays a list of conversations, each conversation including a set of messages exchanged between a user of the device and a respective other person; detects a scrolling gesture comprising a substantially vertical movement of a user contact with the touch screen display; and responds to the scrolling gesture by scrolling the list of conversations in accordance with a direction of

the scrolling gesture, wherein the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

[0010] Another aspect of the invention involves a portable electronic device. The device includes a touch screen display, one or more processors, memory, and one or more programs. The one or more program are stored in the memory and configured to be executed by the one or more processors. The one or more programs include: instructions for displaying a set of messages exchanged between a user of the device and another person in a chronological order; instructions for detecting a scrolling gesture comprising a substantially vertical movement of a user contact with the touch screen display, wherein the detecting of the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display; and instructions for responding to the scrolling gesture by scrolling the display of messages in accordance with a direction of the scrolling gesture.

[0011] Another aspect of the invention involves a portable electronic device. The device includes a touch screen display, one or more processors, memory, and one or more programs. The one or more program are stored in the memory and configured to be executed by the one or more processors. The one or more programs include: instructions for displaying a list of conversations, each conversation including a set of messages exchanged between a user of the device and a respective other person; instructions for detecting a scrolling gesture comprising a substantially vertical movement of a user contact with the touch screen display; and instructions for responding to the scrolling gesture by scrolling the list of conversations in accordance with a direction of the scrolling gesture, wherein the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

[0012] Another aspect of the invention involves a computer-program product that includes a computer readable storage medium and a computer program mechanism embedded therein. The computer program mechanism includes instructions, which when executed by a portable electronic device with a touch screen display, cause the device to: display a set of messages exchanged between a user of the device and another person in a chronological order; detect a scrolling gesture comprising a substantially vertical movement of a user contact with the touch screen display, wherein the detecting of the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen

display; and respond to the scrolling gesture by scrolling the display of messages in accordance with a direction of the scrolling gesture.

[0013] Another aspect of the invention involves a computer-program product that includes a computer readable storage medium and a computer program mechanism embedded therein. The computer program mechanism includes instructions, which when executed by a portable electronic device with a touch screen display, cause the device to: display a list of conversations, each including a set of messages exchanged between a user of the device and a respective other person; detect a scrolling gesture comprising a substantially vertical movement of a user contact with the touch screen display; and respond to the scrolling gesture by scrolling the list of conversations in accordance with a direction of the scrolling gesture, wherein the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

[0014] Another aspect of the invention involves a graphical user interface (GUI) on a portable electronic device with a touch screen display. The GUI has a set of messages exchanged between a user of the device and another person. The set of messages are displayed in a chronological order. In response to detecting a scrolling gesture comprising a substantially vertical movement of a user contact with the touch screen display, wherein the detecting of the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display, the display of messages are scrolled in accordance with a direction of the scrolling gesture.

[0015] Another aspect of the invention involves a graphical user interface (GUI) on a portable electronic device with a touch screen display. The GUI has a list of conversations, each conversation including a set of messages exchanged between a user of the device and a respective other person. In response to detecting a scrolling gesture comprising a substantially vertical movement of a user contact with the touch screen display, the list of conversations is scrolled in accordance with a direction of the scrolling gesture. The scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

[0016] Another aspect of the invention involves a portable electronic device with a touch screen display, comprising: means for displaying a set of messages exchanged between a user of the device and another person in a chronological order; means for detecting a scrolling gesture comprising a substantially vertical movement of user contact with the touch

screen display, wherein the detecting of the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display; and means for responding to the scrolling gesture by scrolling the display of messages in accordance with a direction of the scrolling gesture.

[0017] Another aspect of the invention involves a portable electronic device with a touch screen display, comprising: means for displaying a list of conversations, each conversation including a set of messages exchanged between a user of the device and a respective other person; means for detecting a scrolling gesture comprising a substantially vertical movement of user contact with the touch screen display; and means for responding to the scrolling gesture by scrolling the list of conversations in accordance with a direction of the scrolling gesture, wherein the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

[0018] Another aspect of the invention involves a computer-implemented method in which a portable electronic device with a touch screen display displays a set of messages exchanged between a user of the device and another person in a chronological order. The messages sent by the other person include a first message sent from a first address associated with the other person and a second message sent from a second address associated with the other person that is different from the first address.

[0019] Another aspect of the invention involves a portable electronic device. The device includes a touch screen display, one or more processors, memory, and one or more programs. The one or more program are stored in the memory and configured to be executed by the one or more processors. The one or more programs include instructions for displaying a set of messages exchanged between a user of the device and another person in a chronological order. The messages sent by the other person include a first message sent from a first address associated with the other person and a second message sent from a second address associated with the other person that is different from the first address.

[0020] Another aspect of the invention involves a computer-program product that includes a computer readable storage medium and a computer program mechanism embedded therein. The computer program mechanism includes instructions, which when executed by a portable electronic device with a touch screen display, cause the device to display a set of messages exchanged between a user of the device and another person in a chronological order. The messages sent by the other person include a first message sent from a first address

associated with the other person and a second message sent from a second address associated with the other person that is different from the first address.

[0021] Another aspect of the invention involves a graphical user interface (GUI) on a portable electronic device with a touch screen display. The GUI has a set of messages exchanged between a user of the device and another person in a chronological order. The messages sent by the other person include a first message sent from a first address associated with the other person and a second message sent from a second address associated with the other person that is different from the first address.

[0022] Another aspect of the invention involves a portable electronic device with a touch screen display, comprising means for displaying a set of messages exchanged between a user of the device and another person in a chronological order. The messages sent by the other person include a first message sent from a first address associated with the other person and a second message sent from a second address associated with the other person that is different from the first address.

Another aspect of the invention involves a method, comprising: at a portable electronic device with a touch screen display: displaying a list of instant message conversations on the touch screen display, a respective instant message conversation including a respective set of instant messages exchanged between a first person and a respective other person; while displaying the list of instant message conversations, detecting a first scrolling gesture comprising a substantially vertical movement of a first contact with the touch screen display; responding to the first scrolling gesture by scrolling the list of instant message conversations in accordance with a direction of the first scrolling gesture, wherein the first scrolling gesture is substantially independent of a horizontal position of the first contact with the touch screen display; detecting a selection gesture on a particular instant message conversation in the list of instant message conversations; responding to the selection gesture by replacing display of the list of instant message conversations with display of the particular instant message conversation, the particular instant message conversation including a set of instant messages exchanged between the first person and a single other person in a chronological order; while displaying instant messages in the particular instant message conversation, detecting a second scrolling gesture comprising a substantially vertical

movement of a second contact with the touch screen display, wherein the detecting of the second scrolling gesture is substantially independent of a horizontal position of the second contact with the touch screen display; and responding to the second scrolling gesture by scrolling the display of instant messages in the particular instant messaging conversation in accordance with a direction of the second scrolling gesture.

Another aspect of the invention involves a portable electronic device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the programs including instructions for: displaying a list of instant message conversations on the touch screen display, a respective instant message conversation including a respective set of instant messages exchanged between a first person and a respective other person; while displaying the list of instant message conversations, detecting a first scrolling gesture comprising a substantially vertical movement of a first contact with the touch screen display; responding to the first scrolling gesture by scrolling the list of instant message conversations in accordance with a direction of the first scrolling gesture, wherein the first scrolling gesture is substantially independent of a horizontal position of the first contact with the touch screen display; detecting a selection gesture on a particular instant message conversation in the list of instant message conversations; responding to the selection gesture by replacing display of the list of instant message conversations with display of the particular instant message conversation, the particular instant message conversation including a set of instant messages exchanged between the first person and a single other person in a chronological order; while displaying instant messages in the particular instant message conversation, detecting a second scrolling gesture comprising a substantially vertical movement of a second contact with the touch screen display, wherein the detecting of the second scrolling gesture is substantially independent of a horizontal position of the second contact with the touch screen display; and responding to the second scrolling gesture by scrolling the display of instant messages in the particular instant message conversation in accordance with a direction of the second scrolling gesture.

Another aspect of the invention involves a non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by a portable electronic device with a touch screen display, cause the device to: display a list of instant message conversations on the touch screen display, a respective instant message conversation including a respective set of instant messages exchanged between a first person and a respective other person; while displaying the list of instant message conversations, detect a first scrolling gesture comprising a substantially vertical movement of a first contact with the touch screen display; respond to the first scrolling gesture by scrolling the list of instant message conversations in accordance with a direction of the first scrolling gesture, wherein the first scrolling gesture is substantially independent of a horizontal position of the first contact with the touch screen display; detect a selection gesture on a particular instant message conversation in the list of instant message conversations; respond to the selection gesture by replacing display of the list of instant message conversations with display of the particular instant message conversation, the particular instant message conversation including a set of instant messages exchanged between the first person and a single other person in a chronological order; while displaying instant messages in the particular instant message conversation, detect a second scrolling gesture comprising a substantially vertical movement of a second contact with the touch screen display, wherein the detection of the second scrolling gesture is substantially independent of a horizontal position of the second contact with the touch screen display; and respond to the second scrolling gesture by scrolling the display of instant messages in the particular instant messaging conversation in accordance with a direction of the second scrolling gesture.

Another aspect of the invention involves a method, comprising: at a portable electronic device with a touch screen display: displaying a list of instant message conversations on the touch screen display, a respective instant message conversation including a respective set of instant messages exchanged between a first person and a respective other person; while displaying the list of instant message conversations, detecting a first scrolling gesture comprising a substantially vertical movement of a first contact with the touch screen display; responding to the first scrolling gesture by scrolling the list of instant message conversations in accordance with a direction of the first scrolling gesture; detecting a selection gesture on a particular instant message conversation in the list of instant

message conversations; responding to the selection gesture by replacing display of the list of instant message conversations with display of the particular instant message conversation, the particular instant message conversation including a set of instant messages exchanged between the first person and a single other person in a chronological order; while displaying instant messages in the particular instant message conversation, detecting a second scrolling gesture comprising a substantially vertical movement of a second contact with the touch screen display; and responding to the second scrolling gesture by scrolling the display of instant messages in the particular instant messaging conversation in accordance with a direction of the second scrolling gesture.

Another aspect of the invention involves a portable electronic device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the programs including instructions for: displaying a list of instant message conversations on the touch screen display, a respective instant message conversation including a respective set of instant messages exchanged between a first person and a respective other person; while displaying the list of instant message conversations, detecting a first scrolling gesture comprising a substantially vertical movement of a first contact with the touch screen display; responding to the first scrolling gesture by scrolling the list of instant message conversations in accordance with a direction of the first scrolling gesture; detecting a selection gesture on a particular instant message conversation in the list of instant message conversations; responding to the selection gesture by replacing display of the list of instant message conversations with display of the particular instant message conversation, the particular instant message conversation including a set of instant messages exchanged between the first person and a single other person in a chronological order; while displaying instant messages in the particular instant message conversation, detecting a second scrolling gesture comprising a substantially vertical movement of a second contact with the touch screen display; and responding to the second scrolling gesture by scrolling the display of instant messages in the particular instant message conversation in accordance with a direction of the second scrolling gesture.

Another aspect of the invention involves a non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by a portable electronic device with a touch screen display, cause the device to: display a list of instant message conversations on the touch screen display, a

respective instant message conversation including a respective set of instant messages exchanged between a first person and a respective other person; while displaying the list of instant message conversations, detect a first scrolling gesture comprising a substantially vertical movement of a first contact with the touch screen display; respond to the first scrolling gesture by scrolling the list of instant message conversations in accordance with a direction of the first scrolling gesture; detect a selection gesture on a particular instant message conversation in the list of instant message conversations; respond to the selection gesture by replacing display of the list of instant message conversations with display of the particular instant message conversation, the particular instant message conversation including a set of instant messages exchanged between the first person and a single other person in a chronological order; while displaying instant messages in the particular instant message conversation, detect a second scrolling gesture comprising a substantially vertical movement of a second contact with the touch screen display; and respond to the second scrolling gesture by scrolling the display of instant messages in the particular instant messaging conversation in accordance with a direction of the second scrolling gesture.

[0023] Thus, the invention provides a transparent and intuitive user interface for creating, viewing, and finding instant message conversations on a portable electronic device with a touch screen display.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] For a better understanding of the aforementioned embodiments of the invention as well as additional embodiments thereof, reference should be made to the Description of Embodiments below, in conjunction with the following drawings in which like reference numerals refer to corresponding parts throughout the figures.

[0025] Figure 1 is a block diagram illustrating a portable electronic device with a touch-sensitive display in accordance with some embodiments.

[0026] Figure 2 illustrates a portable electronic device having a touch screen in accordance with some embodiments.

[0027] Figure 3 illustrates an exemplary user interface for unlocking a portable electronic device in accordance with some embodiments.

[0028] Figure 4 illustrates an exemplary user interface for a menu of applications on a portable electronic device in accordance with some embodiments.

[0029] Figure 5 illustrates an exemplary user interface for listing instant message conversations on a portable electronic device in accordance with some embodiments.

[0030] Figures 6A through 6K illustrate an exemplary user interface for inputting text for an instant message in accordance with some embodiments.

[0031] Figure 7 illustrates an exemplary user interface for deleting an instant message conversation in accordance with some embodiments.

[0032] Figures 8A & 8B illustrate an exemplary user interface for a contact list in accordance with some embodiments.

[0033] Figure 9 illustrates an exemplary user interface for entering a phone number for instant messaging in accordance with some embodiments.

[0034] Figure 10 is a flowchart illustrating a process for displaying a list of instant message conversations on a portable electronic device's touch screen in accordance with some embodiments.

[0035] Figure 11 is a flowchart illustrating a process for displaying a user selected instant message conversation upon detecting a predefined user contact with the portable electronic device's touch screen in accordance with some embodiments.

[0036] Figure 12 is a flowchart illustrating a process for displaying a user-entered character and word suggestions, if any, in accordance with some embodiments.

[0037] Figure 13 is a flowchart illustrating a process for displaying respective keyboards upon detecting a user contact with a keyboard selection icon in accordance with some embodiments.

[0038] Figure 14 is a flowchart illustrating a process for interpreting the meaning of a particular user contact with the shift key in accordance with some embodiments.

[0039] Figure 15 is a flowchart illustrating a process for sending an instant message to a respective recipient in accordance with some embodiments.

[0040] Figure 16 is a flowchart illustrating a process for displaying a list of instant message conversations for editing in accordance with some embodiments.

[0041] Figure 17 is a flowchart illustrating a process for editing a user selected instant message conversation in accordance with some embodiments.

[0042] Figure 18 is a flowchart illustrating a process for removing a user selected instant message conversation or exiting a conversation edit mode in accordance with some embodiments.

[0043] Figure 19 is a flowchart illustrating a process for displaying a list of contacts from which a user chooses to send an instant message in accordance with some embodiments.

[0044] Figure 20 is a flowchart illustrating a process for launching a new conversation using a new phone number in accordance with some embodiments.

[0045] Figure 21 illustrates an exemplary user interface for alerting a user to a new instant message in accordance with some embodiments.

DESCRIPTION OF EMBODIMENTS

[0046] Reference will now be made in detail to embodiments, examples of which are illustrated in the accompanying drawings. In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the present invention. However, it will be apparent to one of ordinary skill in the art that the present invention may be practiced without these specific details. In other instances, well-known methods, procedures, components, circuits, and networks have not been described in detail so as not to unnecessarily obscure aspects of the embodiments.

[0047] Embodiments of a portable electronic device, user interfaces for such devices, and associated processes for using such devices are described. In some embodiments, the device is a portable communications device such as a mobile telephone that also contains other functions, such as PDA and/or music player functions.

[0048] The user interface may include a physical click wheel in addition to a touch screen or a virtual click wheel displayed on the touch screen. A click wheel is a user-interface device that may provide navigation commands based on an angular displacement of the wheel or a point of contact with the wheel by a user of the device. A click wheel may also be used to provide a user command corresponding to selection of one or more items, for example, when the user of the device presses down on at least a portion of the wheel or the center of the wheel. Alternatively, breaking contact with a click wheel image on a touch screen surface may indicate a user command corresponding to selection. For simplicity, in the discussion that follows, a portable electronic device that includes a touch screen is used as an exemplary embodiment. It should be understood, however, that some of the user interfaces

and associated processes may be applied to other devices, such as personal computers and laptop computers, which may include one or more other physical user-interface devices, such as a physical click wheel, a physical keyboard, a mouse and/or a joystick.

[0049] In addition to instant messaging, the device may support a variety of other applications, such as a telephone application, a video conferencing application, an e-mail application, a blogging application, a digital camera application, a digital video camera application, a web browsing application, a digital music player application, and/or a digital video player application.

[0050] The various applications that may be executed on the device may use at least one common physical user-interface device, such as the touch screen. One or more functions of the touch screen as well as corresponding information displayed on the device may be adjusted and/or varied from one application to the next and/or within a respective application. In this way, a common physical architecture (such as the touch screen) of the device may support the variety of applications with user interfaces that are intuitive and transparent.

[0051] The user interfaces may include one or more soft keyboard embodiments. The soft keyboard embodiments may include standard (QWERTY) and/or non-standard configurations of symbols on the displayed icons of the keyboard, such as those described in U.S. patent publication no. 2007-0152978, "Keyboards For Portable Electronic Devices," published July 5, 2007, and patent publication no. 2007-0152980, "Touch Screen Keyboards For Portable Electronic Devices," published July 5, 2007. The keyboard embodiments may include a reduced number of icons (or soft keys) relative to the number of keys in existing physical keyboards, such as that for a typewriter. This may make it easier for users to select one or more icons in the keyboard, and thus, one or more corresponding symbols. The keyboard embodiments may be adaptive. For example, displayed icons may be modified in accordance with user actions, such as selecting one or more icons and/or one or more corresponding symbols. One or more applications on the portable electronic device may utilize common and/or different keyboard embodiments. Thus, the keyboard embodiment used may be tailored to at least some of the applications. In some embodiments, one or more keyboard embodiments may be tailored to a respective user. For example, based on a word usage history (lexicography, slang, individual usage) of the respective user. Some of the keyboard embodiments may be adjusted to reduce a probability

of a user error when selecting one or more icons, and thus one or more symbols, when using the soft keyboard embodiments.

[0052] Attention is now directed towards embodiments of the device. Figure 1 is a block diagram illustrating a portable electronic device 100 with a touch-sensitive display 112 in accordance with some embodiments. The touch-sensitive display 112 is sometimes called a "touch screen" for convenience. The device 100 may include a memory 102 (which may include one or more computer readable storage mediums), a memory controller 122, one or more processing units (CPU's) 120, a peripherals interface 118, RF circuitry 108, audio circuitry 110, a speaker 111, a microphone 113, an input/output (I/O) subsystem 106, other input or control devices 116, and an external port 124. The device 100 may include one or more optical sensors 164. These components may communicate over one or more communication buses or signal lines 103.

[0053] It should be appreciated that the device 100 is only one example of a portable electronic device 100, and that the device 100 may have more or fewer components than shown, may combine two or more components, or a may have a different configuration or arrangement of the components. The various components shown in Figure 1 may be implemented in hardware, software or a combination of hardware and software, including one or more signal processing and/or application specific integrated circuits.

[0054] Memory 102 may include high-speed random access memory and may also include non-volatile memory, such as one or more magnetic disk storage devices, flash memory devices, or other non-volatile solid-state memory devices. Access to memory 102 by other components of the device 100, such as the CPU 120 and the peripherals interface 118, may be controlled by the memory controller 122.

[0055] The peripherals interface 118 couples the input and output peripherals of the device to the CPU 120 and memory 102. The one or more processors 120 run or execute various software programs and/or sets of instructions stored in memory 102 to perform various functions for the device 100 and to process data.

[0056] In some embodiments, the peripherals interface 118, the CPU 120, and the memory controller 122 may be implemented on a single chip, such as a chip 104. In some other embodiments, they may be implemented on separate chips.

[0057] The RF (radio frequency) circuitry 108 receives and sends RF signals, also called electromagnetic signals. The RF circuitry 108 converts electrical signals to/from electromagnetic signals and communicates with communications networks and other communications devices via the electromagnetic signals. The RF circuitry 108 may include well-known circuitry for performing these functions, including but not limited to an antenna system, an RF transceiver, one or more amplifiers, a tuner, one or more oscillators, a digital signal processor, a CODEC chipset, a subscriber identity module (SIM) card, memory, and so forth. The RF circuitry 108 may communicate with networks, such as the Internet, also referred to as the World Wide Web (WWW), an intranet and/or a wireless network, such as a cellular telephone network, a wireless local area network (LAN) and/or a metropolitan area network (MAN), and other devices by wireless communication. The wireless communication may use any of a plurality of communications standards, protocols and technologies, including but not limited to Global System for Mobile Communications (GSM), Enhanced Data GSM Environment (EDGE), high-speed downlink packet access (HSDPA), wideband code division multiple access (W-CDMA), code division multiple access (CDMA), time division multiple access (TDMA), Bluetooth, Wireless Fidelity (Wi-Fi) (e.g., IEEE 802.11a, IEEE 802.11b, IEEE 802.11g and/or IEEE 802.11n), voice over Internet Protocol (VoIP), Wi-MAX, a protocol for email (e.g., Internet Message Access Protocol (IMAP) and/or Post Office Protocol (POP)), instant messaging (e.g., eXtensible Messaging and Presence Protocol (XMPP), Session Initiation Protocol for Instant Messaging and Presence Leveraging Extensions (SIMPLE), and/or Instant Messaging and Presence Service (IMPS)), and/or Short Message Service (SMS), or any other suitable communication protocol, including communication protocols not yet developed as of the filing date of this document.

[0058] The audio circuitry 110, the speaker 111, and the microphone 113 provide an audio interface between a user and the device 100. The audio circuitry 110 receives audio data from the peripherals interface 118, converts the audio data to an electrical signal, and transmits the electrical signal to the speaker 111. The speaker 111 converts the electrical signal to human-audible sound waves. The audio circuitry 110 also receives electrical signals converted by the microphone 113 from sound waves. The audio circuitry 110 converts the electrical signal to audio data and transmits the audio data to the peripherals interface 118 for processing. Audio data may be retrieved from and/or transmitted to memory 102 and/or the RF circuitry 108 by the peripherals interface 118. In some embodiments, the audio circuitry 110 also includes a headset jack (not shown). The headset jack provides an interface between

the audio circuitry 110 and removable audio input/output peripherals, such as output-only headphones or a headset with both output (e.g., a headphone for one or both ears) and input (e.g., a microphone).

[0059] The I/O subsystem 106 couples input/output peripherals on the device 100, such as the touch screen 112 and other input/control devices 116, to the peripherals interface 118. The I/O subsystem 106 may include a display controller 156 and one or more input controllers 160 for other input or control devices. The one or more input controllers 160 receive/send electrical signals from/to other input or control devices 116. The other input/control devices 116 may include physical buttons (e.g., push buttons, rocker buttons, etc.), dials, slider switches, joysticks, click wheels, and so forth. In some alternate embodiments, input controller(s) 160 may be coupled to any (or none) of the following: a keyboard, infrared port, USB port, and a pointer device such as a mouse. The one or more buttons (e.g., 208, Figure 2) may include an up/down button for volume control of the speaker 111 and/or the microphone 113. The one or more buttons may include a push button (e.g., 206, Figure X). A quick press of the push button may disengage a lock of the touch screen 112 or begin a process that uses gestures on the touch screen to unlock the device, as described in U.S. Patent No. 7,657,849 (Unlocking a Device by Performing Gestures on an Unlock Image, issued February 2, 2010). A longer press of the push button (e.g., 206) may turn power to the device 100 on or off. The user may be able to customize a functionality of one or more of the buttons. The touch screen 112 is used to implement virtual or soft buttons and one or more soft keyboards.

[0060] The touch-sensitive touch screen 112 provides an input interface and an output interface between the device and a user. The display controller 156 receives and/or sends electrical signals from/to the touch screen 112. The touch screen 112 displays visual output to the user. The visual output may include graphics, text, icons, video, and any combination thereof (collectively termed "graphics"). In some embodiments, some or all of the visual output may correspond to user-interface objects, further details of which are described below.

[0061] touch screen 112 has a touch-sensitive surface, sensor, or set of sensors that accepts input from the user based on haptic and/or tactile contact. The touch screen 112 and the display controller 156 (along with any associated modules and/or sets of instructions in memory 102) detect contact (and any movement or breaking of the contact) on the touch

screen 112 and converts the detected contact into interaction with user-interface objects (e.g., one or more soft keys, icons, web pages or images) that are displayed on the touch screen. In an exemplary embodiment, a point of contact between a touch screen 112 and the user corresponds to a finger of the user.

[0062] The touch screen 112 may use LCD (liquid crystal display) technology, or LPD (light emitting polymer display) technology, although other display technologies may be used in other embodiments. The touch screen 112 and the display controller 156 may detect contact and any movement or breaking thereof using any of a plurality of touch sensing technologies now known or later developed, including but not limited to capacitive, resistive, infrared, and surface acoustic wave technologies, as well as other proximity sensor arrays or other elements for determining one or more points of contact with a touch screen 112. A touch-sensitive display in some embodiments of the touch screen 112 may be analogous to the multi-touch sensitive tablets described in the following U.S. Patents: 6,323,846 (Westerman et al), 6,570,557 (Westerman et al), and/or 6,677,932 (Westerman), and/or U.S. patent publication no. 2002-0015024 published February 7, 2007. However, a touch screen 112 displays visual output from the portable device 100, whereas touch sensitive tablets do not provide visual output. The touch screen 112 may have a resolution in excess of 100 dpi. In an exemplary embodiment, the touch screen in the display system has a resolution of approximately 168 dpi. The user may make contact with the touch screen 112 using any suitable object or appendage, such as a stylus, a finger, and so forth. In some embodiments, the user interface is designed to work primarily with finger- based contacts and gestures, which are much less precise than stylus-based input due to the larger area of contact of a finger on the touch screen. In some embodiments, the device translates the rough finger-based input into a precise pointer/cursor position or command for performing the actions desired by the user.

[0063] A touch-sensitive display in some embodiments of the touch screen 112 may be as described in the following applications: (1) U.S. patent publication no. 2007-0257890, "Multipoint Touch Surface Controller," published November 8, 2007; (2) U.S. patent publication no. 2006-0097991, "Multipoint Touchscreen," published May 11, 2006; (3) U.S. patent publication no. 2006-0026521, "Gestures For Touch Sensitive Input Devices," published February 2, 2006; (4) U.S. patent publication no. 2006-0026536, "Gestures For Touch Sensitive Input Devices," published February 2, 2006; (5) U.S. patent publication no. 2006-0026535, "Mode-Based Graphical

User Interfaces For Touch Sensitive Input Devices," published February 2, 2006; (6) U.S. patent publication no. 2006-0033724, "Virtual Input Device Placement On A Touch Screen User Interface," published February 16, 2006; (7) U.S. patent publication no. 2006-0053387, "Operation Of A Computer With A Touch Screen Interface," published March 9, 2006; (8) U.S. patent publication no. 2006-0085757, "Activating Virtual Keys Of A Touch-Screen Virtual Keyboard," published April 20, 2006; and (9) U.S. patent publication no. 2006-0197753, "Multi-Functional Hand-Held Device," published September 7, 2006.

[0064] In some embodiments, in addition to the touch screen, the device 100 may include a touchpad (not shown) for activating or deactivating particular functions. In some embodiments, the touchpad is a touch-sensitive area of the device that, unlike the touch screen, does not display visual output. The touchpad may be a touch-sensitive surface that is separate from the touch screen 112 or an extension of the touch-sensitive surface formed by the touch screen.

[0065] In some embodiments, the device 100 may include a physical or virtual click wheel as an input control device 116. A user may navigate among and interact with one or more graphical objects (henceforth referred to as icons) displayed in the touch screen 112 by rotating the click wheel or by moving a point of contact with the click wheel (e.g., where the amount of movement of the point of contact is measured by its angular displacement with respect to a center point of the click wheel). The click wheel may also be used to select one or more of the displayed icons. For example, the user may press down on at least a portion of the click wheel or an associated button. User commands and navigation commands provided by the user via the click wheel may be processed by an input controller 160 as well as one or more of the modules and/or sets of instructions in memory 102. For a virtual click wheel, the click wheel and click wheel controller may be part of the touch screen 112 and the display controller 156, respectively. For a virtual click wheel, the click wheel may be either an opaque or semitransparent object that appears and disappears on the touch screen display in response to user interaction with the device. In some embodiments, a virtual click wheel is displayed on the touch screen of a portable multifunction device and operated by user contact with the touch screen.

[0066] The device 100 also includes a power system 162 for powering the various components. The power system 162 may include a power management system, one or more

power sources (e.g., battery, alternating current (AC)), a recharging system, a power failure detection circuit, a power converter or inverter, a power status indicator (e.g., a light-emitting diode (LED)) and any other components associated with the generation, management and distribution of power in portable electronic devices.

[0067] The device 100 may also include one or more optical sensors 164. Figure 1 shows an optical sensor coupled to an optical sensor controller 158 in I/O subsystem 106. The optical sensor 164 may include charge-coupled device (CCD) or complementary metal-oxide semiconductor (CMOS) phototransistors. The optical sensor 164 receives light from the environment, projected through one or more lens, and converts the light to data representing an image. In conjunction with an imaging module 143, the optical sensor 164 may capture still images or video. In some embodiments, an optical sensor is located on the back of the device 100, opposite the touch screen display 112 on the front of the device, so that the touch screen display may be used as a viewfinder for either still and/or video image acquisition. In some embodiments, an optical sensor is located on the front of the device so that the user's image may be obtained for videoconferencing while the user views the other video conference participants on the touch screen display. In some embodiments, the position of the optical sensor 164 can be changed by the user (e.g., by rotating the lens and the sensor in the device housing) so that a single optical sensor 164 may be used along with the touch screen display for both video conferencing and still and/or video image acquisition.

[0068] The device 100 may also include one or more proximity sensors 166. Figure 1 shows a proximity sensor 166 coupled to the peripherals interface 118. Alternately, the proximity sensor 166 may be coupled to an input controller 160 in the I/O subsystem 106. The proximity sensor 166 may perform as described in U.S. Patent No. 7,653,883, "Proximity Detector In Handheld Device, issued January 6, 2010, and publication no. 2006-0161870, "Proximity Detector In Handheld Device," published July 20, 2006. In some embodiments, the proximity sensor turns off and disables the touch screen 112 when the multifunction device is placed near the user's ear (e.g., when the user is making a phone call). In some embodiments, the proximity sensor keeps the screen off when the device is in the user's pocket, purse, or other dark area to prevent unnecessary battery drainage when the device is a locked state.

[0069] The device 100 may also include one or more accelerometers 168. Figure 1 shows an accelerometer 168 coupled to the peripherals interface 118. Alternately, the

accelerometer 168 may be coupled to an input controller 160 in the I/O subsystem 106. The accelerometer 168 may perform as described in U.S. Patent Publication No. 20050190059, "Acceleration-based Theft Detection System for Portable Electronic Devices," and U.S. patent publication no. 2006-0017692, "Methods And Apparatuses For Operating A Portable Device Based On An Accelerometer," published January 26, 2006. In some embodiments, information is displayed on the touch screen display in a portrait view or a landscape view based on an analysis of data received from the one or more accelerometers.

[0070] In some embodiments, the software components stored in memory 102 may include an operating system 126, a communication module (or set of instructions) 128, a contact/motion module (or set of instructions) 130, a graphics module (or set of instructions) 132, a text input module (or set of instructions) 134, a Global Positioning System (GPS) module (or set of instructions) 135, and applications (or set of instructions) 136.

[0071] The operating system 126 (e.g., Darwin, RTXC, LINUX, UNIX, OS X, WINDOWS, or an embedded operating system such as VxWorks) includes various software components and/or drivers for controlling and managing general system tasks (e.g., memory management, storage device control, power management, etc.) and facilitates communication between various hardware and software components.

[0072] The communication module 128 facilitates communication with other devices over one or more external ports 124 and also includes various software components for handling data received by the RF circuitry 108 and/or the external port 124. The external port 124 (e.g., Universal Serial Bus (USB), FIREWIRE, etc.) is adapted for coupling directly to other devices or indirectly over a network (e.g., the Internet, wireless LAN, etc.). In some embodiments, the external port is a multi-pin (e.g., 30-pin) connector that is the same as, or similar to and/or compatible with the 30-pin connector used on iPod (trademark of Apple Computer, Inc.) devices.

[0073] The contact/motion module 130 may detect contact with the touch screen 112 (in conjunction with the display controller 156) and other touch sensitive devices (e.g., a touchpad or physical click wheel). The contact/motion module 130 includes various software components for performing various operations related to detection of contact, such as determining if contact has occurred, determining if there is movement of the contact and tracking the movement across the touch screen 112, and determining if the contact has been

broken (i.e., if the contact has ceased). Determining movement of the point of contact may include determining speed (magnitude), velocity (magnitude and direction), and/or an acceleration (a change in magnitude and/or direction) of the point of contact. These operations may be applied to single contacts (e.g., one finger contacts) or to multiple simultaneous contacts (e.g., "multitouch"/multiple finger contacts). In some embodiments, the contact/motion module 130 and the display controller 156 also detects contact on a touchpad. In some embodiments, the contact/motion module 130 and the controller 160 detects contact on a click wheel 116.

[0074] The graphics module 132 includes various known software components for rendering and displaying graphics on the touch screen 112, including components for changing the intensity of graphics that are displayed. As used herein, the term “graphics” includes any object that can be displayed to a user, including without limitation text, web pages, icons (such as user-interface objects including soft keys), digital images, videos, animations and the like.

[0075] The text input module 134, which may be a component of graphics module 132, provides soft keyboards for entering text in various applications (e.g., contacts 137, e-mail 140, IM 141, blogging 142, browser 147, and any other application that needs text input).

[0076] The GPS module 135 determines the location of the device and provides this information for use in various applications (e.g., to telephone 138 for use in location-based dialing, to camera 143 and/or blogger 142 as picture/video metadata, and to applications that provide location-based services such as weather widgets, local yellow page widgets, and map/navigation widgets).

[0077] The applications 136 may include the following modules (or sets of instructions), or a subset or superset thereof:

- a contacts module 137 (sometimes called an address book or contact list);
- a telephone module 138;
- a video conferencing module 139;
- an e-mail client module 140;
- an instant messaging (IM) module 141;

- a blogging module 142;
- a camera module 143 for still and/or video images;
- an image management module 144;
- a video player module 145;
- a music player module 146;
- a browser module 147;
- a calendar module 148;
- widget modules 149, which may include weather widget 149-1, stocks widget 149-2, calculator widget 149-3, alarm clock widget 149-4, dictionary widget 149-5, and other widgets obtained by the user, as well as user-created widgets 149-6;
- widget creator module 150 for making user-created widgets 149-6; and/or
- search module 151.

[0078] Examples of other applications 136 that may be stored in memory 102 include memo pad and other word processing applications, JAVA-enabled applications, encryption, digital rights management, voice recognition, and voice replication.

[0079] In conjunction with RF circuitry 108, touch screen 112, display controller 156, contact module 130, graphics module 132, and text input module 134, the instant messaging module 141 may be used to enter a sequence of characters corresponding to an instant message, to modify previously entered characters, to transmit a respective instant message (for example, using a Short Message Service (SMS) or Multimedia Message Service (MMS) protocol for telephony-based instant messages or using XMPP, SIMPLE, or IMPS for Internet-based instant messages), to receive instant messages and to view an IM conversation including messages exchanged between a user of the portable device 100 and a respective other person. In some embodiments, transmitted and/or received instant messages may include graphics, photos, audio files, video files and/or other attachments as are supported in a MMS and/or an Enhanced Messaging Service (EMS). As used herein, "instant messaging" refers to both telephony-based messages (e.g., messages sent using SMS or MMS) and Internet-based messages (e.g., message sent using XMPP, SIMPLE, or IMPS). Embodiments of user interfaces and associated processes using instant messaging module 141 are described further below.

[0080] Note that the above identified modules and applications (including the instant messaging module 141) correspond to a set of instructions for performing one or more functions described above. These modules (i.e., sets of instructions) need not be implemented as separate software programs, procedures or modules, and thus various subsets of these modules may be combined or otherwise re-arranged in various embodiments. In some embodiments, memory 102 may store a subset of the modules and data structures identified above. Furthermore, memory 102 may store additional modules and data structures not described above.

[0081] In some embodiments, the device 100 is a device where operation of a predefined set of functions on the device is performed exclusively through a touch screen 112 and/or a touchpad. By using a touch screen and/or a touchpad as the primary input/control device for operation of the device 100, the number of physical input/control devices (such as pushbuttons, dials, and the like) on the device 100 may be reduced.

[0082] The predefined set of functions that may be performed exclusively through a touch screen and/or a touchpad include navigation between user interfaces. In some embodiments, the touchpad, when touched by the user, navigates the device 100 to a main, home, or root menu from any user interface that may be displayed on the device 100. In such embodiments, the touchpad may be referred to as a "menu button." In some other embodiments, the menu button may be a physical push button or other physical input/control device instead of a touchpad.

[0083] Figure 2 illustrates a portable electronic device 100 having a touch screen 112 in accordance with some embodiments. The touch screen may display one or more graphics. In this embodiment, as well as others described below, a user may select one or more of the graphics by making contact or touching the graphics, for example, with one or more fingers 202 (not drawn to scale in the figure) or a stylus (not shown in the figure). In some embodiments, selection of one or more graphics occurs when the user breaks contact with the one or more graphics. In some embodiments, the contact may include a gesture, such as one or more taps, one or more swipes (from left to right, right to left, upward and/or downward and/or a rolling of a finger (from right to left, left to right, upward and/or downward) that has made contact with the device 100. In some embodiments, inadvertent contact with a graphic may not select the graphic. For example, a swipe gesture that sweeps over an application icon may not select the corresponding application when the gesture corresponding to

selection is a tap. In other words, the portable electronic device 100 interprets the meaning of a gesture and acts accordingly after considering which application or module is in use at the moment.

[0084] The device 100 may also include one or more physical buttons, such as "home" or menu button 204. As described previously, the menu button 204 may be used to navigate to any application 136 in a set of applications that may be executed on the device 100. Alternatively, in some embodiments, the menu button is implemented as a soft key in a GUI in touch screen 112.

[0085] In one embodiment, the device 100 includes a touch screen 112, a menu button 204, a push button 206 for powering the device on/off and locking the device, and volume adjustment button(s) 208. The push button 206 may be used to turn the power on/off on the device by depressing the button and holding the button in the depressed state for a predefined time interval; to lock the device by depressing the button and releasing the button before the predefined time interval has elapsed; and/or to unlock the device or initiate an unlock process. In an alternative embodiment, the device 100 also may accept verbal input for activation or deactivation of some functions through the microphone 113.

[0086] Attention is now directed towards embodiments of user interfaces ("UI") and associated processes that may be implemented on a portable electronic device 100.

[0087] Figure 3 illustrates an exemplary user interface for unlocking a portable electronic device in accordance with some embodiments. In some embodiments, user interface 300 includes the following elements, or a subset or superset thereof:

- Unlock image 302 that is moved with a finger gesture to unlock the device;
- Arrow 304 that provides a visual cue to the unlock gesture;
- Channel 306 that provides additional cues to the unlock gesture;
- Time 308;
- Day 310;
- Date 312; and
- Wallpaper image 314.

[0088] In some embodiments, the device detects contact with the touch-sensitive display (e.g., a user's finger making contact on or near the unlock image 302) while the

device is in a user-interface lock state. The device moves the unlock image 302 in accordance with the contact. The device transitions to a user-interface unlock state if the detected contact corresponds to a predefined gesture, such as moving the unlock image across channel 306. Conversely, the device maintains the user-interface lock state if the detected contact does not correspond to the predefined gesture. As noted above, processes that use gestures on the touch screen to unlock the device are described in U.S. Patent No. 7,657,849, "Unlocking a Device by Performing Gestures on an Unlock Image," issued February 2, 2010.

[0089] Figure 4 illustrates an exemplary user interface for a menu of applications on a portable electronic device in accordance with some embodiments. In some embodiments, user interface 400 includes the following elements, or a subset or superset thereof:

- Signal strength indicator 402 for wireless communication;
- Time 404;
- Battery status indicator 406;
- Tray 408 with icons for frequently used applications, such as:
  - Phone 138;
  - E-mail client 140, which may include an indicator 410 of the number of unread e-mails;
  - Browser 147; and
  - Music player 146; and
- Icons for other applications, such as:
  - IM 141;
  - Image management 144;
  - Camera 143;
  - Video player 145;
  - Weather 149-1;
  - Stocks 149-2;
  - Blog 142;

- Calendar 148;
- Calculator 149-3;
- Alarm clock 149-4;
- Dictionary 149-5; and
- User-created widget 149-6.

[0090] In some embodiments, UI 400 displays all of the available applications 136 on one screen so that there is no need to scroll through a list of applications (e.g., via a scroll bar). In some embodiments, as the number of applications increase, the icons corresponding to the applications may decrease in size so that all applications may be displayed on a single screen without scrolling. In some embodiments, having all applications on one screen and a menu button enables a user to access any desired application with at most two inputs, such as activating the menu button 204 and then activating the desired application (e.g., by a tap or other finger gesture on the icon corresponding to the application).

[0091] In some embodiments, UI 400 provides integrated access to both widget-based applications and non-widget-based applications. In some embodiments, all of the widgets, whether user-created or not, are displayed in UI 400. In other embodiments, activating the icon for user-created widget 149-6 may lead to another UI (not shown) that contains the user- created widgets or icons corresponding to the user-created widgets.

[0092] In some embodiments, a user may rearrange the icons in UI 400, e.g., using processes described in U.S. Patent No. 7,509,588, "Portable Electronic Device With Interface Reconfiguration Mode," issued March 24, 2009. For example, a user may move application icons in and out of tray 408 using finger gestures.

[0093] In some embodiments, UI 400 includes a gauge (not shown) that displays an updated account usage metric for an account associated with usage of the device (e.g., a cellular phone account), as described in U.S. Patent No. 7,650,137, "Account Information Display For Portable Communication Device," issued January 19, 2010.

[0094] Figure 5 illustrates an exemplary user interface for listing instant message conversations on a portable electronic device in accordance with some embodiments. An

instant message conversation includes a set of messages exchanged between a user of the portable electronic device and one or more other persons. In some embodiments, user interface 500 includes the following elements, or a subset or superset thereof:

- 402, 404, and 406, as described above;
- "Instant Messages" or other similar label 502:
- Names 504 of the persons a user has instant message conversations with (e.g., Jane Doe 504-1) or the phone number if the corresponding person's name is not available (e.g., 408-123-4567 504-3);
- Text 506 of the last message or a portion thereof in the conversation (note that the last message could be the last one either sent or received by the user);
- Date 508 and/or time of the last message in the conversation;
- Selection icon 510 that when activated (e.g., by a finger gesture on the icon) initiates transition to a UI for the corresponding conversation (e.g., Figure 6A for Jane Doe 504-1);
- Edit icon 512 that when activated (e.g., by a finger gesture on the icon) initiates transition to a UI for deleting conversations (e.g., Figure 7);
- Create message icon 514 that when activated (e.g., by a finger gesture on the icon) initiates transition to the users contact list (e.g., Figure 8A); and
- Vertical bar 516 that helps a user understand what portion of the list of instant message conversations is being displayed.

[0095] Figure 10 is a flowchart illustrating a process for displaying a list of instant message conversations on a portable electronic device's touch screen in accordance with some embodiments. Upon detecting a finger gesture (1002) (e.g., a finger tap 412 on the IM icon 141, Figure 4), the IM module 141 identifies a set of IM conversations (1004) and displays them on the touch screen (1006). To be able to edit an existing conversation or launch a new conversation, the portable device may display an edit icon 512 and a create message icon 514, respectively, on the touch screen (1008). The portable device monitors user contact with the touch screen and acts accordingly (1010).

[0096] As shown in Figure 5, the list of conversations may be displayed in a chronological order. The conversation with "Jane Doe" is at the top because it is the only

conversation that includes at least one message generated today 508-1, which is assumed to be January 29, 2006 in this example. In some embodiments, the conversations are ordered by the timestamp of the most recent message in each conversation. In some embodiments, a conversation including at least one message that has not been checked by the user is highlighted in the touch screen. For example, the third conversation in the list is displayed using boldfaced characters to suggest that the user has not checked the recent message sent by the person at the phone number 408-123-4567.

[0097] In some embodiments, the name 504 associated with an instant message conversation is determined by finding an entry in the user's contact list 137 that contains the phone number used by the instant message conversation. If no such entry is found, then just the phone number is displayed (e.g., 504-3). In some embodiments, if the other person sends messages from two or more different phone numbers, the messages may appear in the same conversation including the person's name if all the phone numbers used are found in the same entry (i.e., the entry for the other person) in the user's contact list 137. In some embodiments, the conversation includes messages sent from phone numbers and/or email addresses associated with the other person. In some embodiments, the messages sent by the other person include a first message sent from a first address associated with the other person and a second message sent from a second address associated with the other person that is different from the first address. In some embodiments, the first address is a telephone number and the second address is an email address. In some embodiments, the first and second addresses are two distinct telephone numbers. In some embodiments, the first and second addresses are two distinct email addresses.

[0098] In some other embodiments, if the other person sends messages from two or more different phone numbers, the messages may appear in different conversations corresponding to different numbers. The phone numbers or other identifiers are displayed next to the person's name to distinguish these conversations from each other.

[0099] In some embodiments, the name field of an instant message conversation includes names or other identifiers of multiple parties that participate in the conversation as message recipients and/or senders. If there is no room for displaying all the names, a selected subset of names is displayed with a symbol like "…" at the end, indicating that there are more parties in the conversation. By default, a message by the user of the portable electronic device is sent to all the parties of the conversation. For simplicity, the subsequent

embodiments of IM conversations described here involve only two parties, the user and another person. But one skilled in the art will appreciate that the methodologies described in the present invention are also applicable to an IM conversation involving more than two parties.

[00100] Automatically binning the instant messages into "conversations" (instant messages exchanged between the user of the device and a respective person or phone number) makes it easier for the user to carry on and keep track of instant message exchanges with multiple parties. As will be described below, the user is not only able to see the last message sent by the other party, the user can also visit old messages exchanged between the user and the other party.

[00101] In some embodiments, vertical bar 516 is displayed temporarily after an object is detected on or near the touch screen display (e.g., a finger touch is detected anywhere on the list of instant message conversations). In some embodiments, the vertical bar 516 has a vertical position on top of the displayed portion of the list that corresponds to the vertical position in the list of the displayed portion of the list. In some embodiments, the vertical bar 516 has a vertical length that corresponds to the portion of the list being displayed. In some embodiments, if the entire list of IM conversations can be displayed simultaneously on the touch screen 112, the vertical bar 516 is not displayed. In some embodiments, if the entire list of IM conversations can be displayed simultaneously on the touch screen 112, the vertical bar 516 is displayed with a length that corresponds to the length of the list display area (e.g., as shown in Figure 5).

[00102] As noted above, the portable device monitors (1010) user contact with the conversation list. When the user swipes his finger or a stylus on the touch screen in a substantially vertical direction (1012), this user contact may be interpreted as a scrolling gesture. In some embodiments, the scrolling gesture is independent of the horizontal position of the user contact with the touch screen display. In some embodiments, the scrolling gesture is substantially independent of the horizontal position of the user contact with the touch screen display (e.g., one or more side regions of the touch screen display may be reserved for other functions, such as functions corresponding to icons, soft keys or application navigation functions, and not available for the scroll gesture). The portable electronic device, accordingly, scrolls the conversation list and displays a different portion of the conversation list (1020).

[00103] As shown in Figure 5, the conversation list moves in a direction consistent with the scrolling gesture 516. If the scrolling gesture is downward (or upward), the conversation list also moves downward (or upward). Scrolling the conversation list downward will typically scroll the list to earlier entries in the list, until the first entry is reached (e.g., Jane Doe 504-1). But if the user does not have too many IM conversations, the portable electronic device may display the entire conversation list and the scrolling gesture has no effect.

[00104] If the user taps on the edit icon 512 using his finger or stylus (1018), the portable electronic device replaces the conversation list UI with a new UI that allows the user to edit the conversations. A more detailed description of the conversation editing feature is provided below in connection with Figures 7 and 16.

[00105] Similarly, if the user taps on the message creation icon 514 (1019), the portable electronic device replaces the conversation list UI with a new UI that allows the user to create a new instant message and therefore a new conversation. A more detailed description of this feature is provided below in connection with Figures 8A-8B, 9 and 19.

[00106] If the user taps on a particular conversation in the list (1014), the portable electronic device would interpret the tap as a gesture indicating that the user intends to check the messages associated with the user selected conversation. Accordingly, the portable electronic device replaces the conversation list UI shown in Figure 5 with a conversation UI shown in Figure 6A.

[00107] Figures 6A through 6K illustrate an exemplary user interface for inputting text for an instant message in accordance with some embodiments.

[00108] In some embodiments, user interface 600A (Figure 6A) includes the following elements, or a subset or superset thereof:

- 402, 404, and 406, as described above;
- Name 504 corresponding to the phone number used in the instant message conversation (or the phone number itself if the name is not available);
- Instant messages icon 602 that when activated (e.g., by a finger gesture on the icon) initiates transition to a UI listing instant message conversations (e.g., UI 500);

- Instant messages 604 from the other party, typically listed in order along one side of UI 600A;
- Instant messages 606 to the other party, typically listed in order along the opposite side of UI 600A to show the back and forth interplay of messages in the conversation;
- Timestamps 608 for at least some of the instant messages;
- Text entry box 612;
- Send icon 614 that when activated (e.g., by a finger gesture on the icon) initiates sending of the message in text box 612 to the other party (e.g., Jane Doe 504-1);
- Letter keyboard 616 for entering text in box 612;
- Alternate keyboard selector icon 618 that when activated (e.g., by a finger gesture on the icon) initiates the display of a different keyboard (e.g., 624, Figure 6C);
- Send icon 620 that when activated (e.g., by a finger gesture on the icon) initiates sending of the message in text box 612 to the other party (e.g., Jane Doe 504-1);
- Shift key 628 that when activated (e.g., by a finger gesture on the icon) capitalizes the next letter chosen on letter keyboard 616; and
- Vertical bar 630 that helps a user understand what portion of the list of instant messages in an IM conversation is being displayed.

[00109] Figure 11 is a flowchart illustrating a process for displaying a user selected instant message conversation upon detecting a predefined user contact with the portable electronic device's touch screen in accordance with some embodiments. In this example, the conversation with Jane Doe is displayed in response to a finger gesture 518 on the conversation with Jane Doe (Figure 5).

[00110] Upon detecting the user selection of the conversation with Jane Doe (1102), IM module 141 identifies a set of instant messages 604 & 606 associated with the conversation (1104) and displays the instant messages in a message display region of the touch screen in a chronological order (1106). Because a user visiting an existing conversation may want to compose a new instant message to the other person, the portable electronic device also displays a message compose region on the touch screen (1108). In some embodiments, the message compose region includes a text box 612 displaying characters entered by the user, a send message icon 614, a letter keyboard 616, and a

keyboard selector icon 618. The portable electronic device monitors the user contact with the touch screen and responds accordingly (1110).

[00111] In some embodiments, the portable electronic device receives an instant message while the user of the device is using another application, e.g., browsing a web page using the browser 147 or listening to music using the music player 146. In this case, the device may replace the user interface of an on-going application with a new user interface on the touch screen 112 or superimpose a new user interface on top of the user interface for the on-going application. Figure 21 illustrates an exemplary user interface for alerting a user to a new instant message in accordance with some embodiments. This user interface may or may not suspend or terminate the on-going application. For example, the user may still listen to the music when this new user interface appears on the touch screen 112. This may be true even if the user subsequently chooses to activate the IM module 141 and respond to the new message.

[00112] In some embodiments, the new user interface (e.g., UI2100, Figure 21) includes the following elements, or a subset or superset thereof::

- the name 2102 of the person sending the instant message (e.g., Jane Doe), which may be determined by matching the phone number for the incoming instant message with a phone number in the user's contacts 137;
- the newly received instant message or a portion thereof 2104 (e.g., "Do U want 2 . . ");
- a first action icon 2106, e.g., "Ignore"; and
- a second action icon 2108, e.g., "View."

A user selection of the "Ignore" icon 2106 brings back the user interface of the on-going application and the user can resume the operation that was interrupted by the incoming message. A user selection of the "View" icon 2108 may bypass the user interface 500 and bring the user directly to the user interface 600A that includes the new instant message. The user can then perform any message-related operations, as described below.

[00113] In some embodiments, the portable electronic device may receive an instant message while it is in the lock mode. In this case, the device may include a visual alert indicating the arrival of the new message in the user interface 300 and/or generate an audio

alert through the device's speaker 111. If the user of the device unlocks the device's touch screen 112 in response to the visual and/or audio alert, the user may see user interface 600A (not user interface 400) on the touch screen.

[00114] As shown in Figure 6A, the instant messages 604 from Jane Doe may be displayed on the left side of the message display region with the most recent message (e.g., 604-2) towards the bottom. The messages sent by the user to Jane Doe are on the opposite side of the display region. The messages' relative vertical locations correspond to the order in which these messages are exchanged between the user of the device and Jane Doe. Selected timestamps 608 further indicate when these messages are exchanged. In some embodiments, a timestamp is displayed near the message it is associated with. If the message display region does not have enough room to display the timestamp of every message currently in the message display region, the device may choose to display timestamps for a subset of the messages, e.g., a timestamp 608-1 corresponding to the message 604-1 at the top of the message region and a timestamp 608-2 corresponding to the message 606-2 at the bottom of the message region. In some embodiments, the device may display more timestamps for messages in the middle if, e.g., the time gap between the two messages is above a predefined threshold. From the instant messages, the user can easily capture the topic of the conversation. If necessary, the user can browse the other old messages not currently on display by applying a scrolling gesture 610 on the message display region (1112). In response, the portable electronic device scrolls the set of message conversations (1124). In some embodiments, the scrolling gesture is independent of the horizontal position of the user contact with the touch screen display. In some embodiments, the scrolling gesture is substantially independent of the horizontal position of the user contact with the touch screen display, as described above.

[00115] In some embodiments, the device highlights certain portions of incoming and outgoing messages using, e.g., underlines, distinct font sizes or styles, and/or colors. Typically, the highlighted portions are deemed to have special connotations such as phone numbers, URLs, stock tickers, or contacts' names. These highlighted message portions may be user-selectable. For example, a user finger gesture on the highlighted portion "apple.com" of the message 604-2 causes the activation of the browser 147, which then brings up the home page of the website www.apple.com. Similarly, a user finger gesture on a telephone number activates the phone 138 and initiates a call to the telephone number.

[00116] In some embodiments, a vertically downward scrolling gesture scrolls the conversation downward, thereby showing older messages in the conversation. In some embodiments, a vertically upward scrolling gesture scrolls the conversation upward, thereby showing newer, more recent messages in the conversation. In some embodiments, as noted above, the last message in the conversation (e.g., 606-2) is displayed in the list of instant message conversations 500 (e.g., 506-1).

[00117] In some embodiments, vertical bar 630 is displayed temporarily after an object is detected on or near the touch screen display (e.g., a finger touch is detected anywhere on the list of instant messages). In some embodiments, the vertical bar 630 has a vertical position on top of the displayed portion of the list that corresponds to the vertical position in the list of the displayed portion of the list. In some embodiments, the vertical bar 630 has a vertical length that corresponds to the portion of the list being displayed. For example, in Figure 6A, the vertical position of the vertical bar 630 indicates that the bottom of the list of messages is being displayed (which correspond to the most recent messages) and the vertical length of the vertical bar 630 indicates that roughly half of the messages in the conversation are being displayed.

[00118] In response to the user's finger gestures on different letter keys in the keyboard (1114), a new instant message is composed in the text box 612. A more detailed description of this composition process is provided below in connection with Figure 12. In some embodiments, the keyboard 616 in Figure 6A has only 26 English characters due to the touch screen's limited size. To enter characters such as digits, punctuation and other special symbols, the user needs to tap on the keyboard selector icon 618 (1120) and/or the shift key icon 628 (1116) to bring in additional keyboards or switch the existing keyboard to a different display mode (e.g., from upper/lower case to lower/upper case). More detailed descriptions of these processes are provided below in connection with Figures 13 and 14, respectively. After completing the new message, the user taps on the send message icon 614 or 620 to transmit the message to the other participant of the conversation (1118). A more detailed description of the sending process is provided below in connection with Figure 15.

[00119] Figure 12 is a flowchart illustrating a process for displaying a user-entered character and word suggestions, if any, in accordance with some embodiments. Upon detecting a user selection of a letter key (1202), the portable electronic device displays the user-selected letter in the text box 612 (1204). To expedite the process of composing the new

message, the portable electronic device may determine if it can offer any word suggestions based on the user input (1206). To do so, the portable electronic device may apply linguistics-based algorithms (e.g., as described in U.S. Patent No. 7,793,228, titled "Method, System, and Graphical User Interface for Text Entry with Partial Word Display" issued September 7, 2010) to the user input and display one or more related words from its database (1208).

[00120] As shown in Figure 6B, user interface 600B (Figure 6B) includes the following elements, or a subset or superset thereof:

- 402, 404, 406, 602, 604, 606, 608, 612, 614, 616, 618, and 620 as described above; and
- word suggestion area 622 that provides a list of possible words to complete the word fragment being typed by the user in text box 612.

[00121] In this example, based on the user-entered string "vacat", the portable electronic device displays three possible words, "vacant", "vacate", and "vacation", in the area 622. The user can choose any of them by finger tapping on a respective word icon. Alternatively, the user can ignore all the computer-suggested words by tapping on the one exactly matching his input. In some embodiments, the portable electronic device also saves the user input as a new word in its database. Subsequently, when the user enters the same string or a subset thereof, the portable electronic device may display this new word as one of the word suggestions. In some embodiments, the word suggestion area does not appear in UI 600B until after a predefined time delay (e.g., 2-3 seconds) in text being entered by the user. In some embodiments, the word suggestion area is not used or can be turned off by the user.

[00122] If there is no suggestion by the portable electronic device or if the option is turned off, the portable electronic device resumes monitoring the user contact with the touch screen and acts accordingly (1210).

[00123] Additional description of providing word suggestions can be found in U.S. Patent publication no. 2008-0168366, "Method, System, and Graphical User Interface for Providing Word Recommendations," published July 10, 2008.

[00124] As noted above, the keyboard 616 may not include all the characters the user would like to enter. There are different approaches to bringing in additional characters. For

example, as shown in Figure 6B, the user can tap on the keyboard selector icon 618 to replace the current letter keyboard 616 with a new keyboard that includes a different set of characters such as digits and/or punctuation.

[00125] Figure 13 is a flowchart illustrating a process for displaying respective keyboards upon detecting a user contact with a keyboard selection icon in accordance with some embodiments. In response to a user selection of the keyboard selector 618 (1302), the portable electronic device checks what type of keyboard is requested (1304). Depending on the type of the requested keyboard, the portable electronic device displays a letter keyboard (1308) or non-letter keyboard (1306). In some embodiments, the meaning of the user contact with the keyboard selector icon 618 depends on the keyboard's current display mode. Following the display of the requested keyboard, the portable electronic device then resumes monitoring the user contact with the touch screen (1310).

[00126] As shown in Figure 6C, after a user finger gesture on the keyboard selector icon 618 in Figure 6B, a new user interface 600C is rendered on the touch screen with the following elements, or a subset or superset thereof:

- 402, 404, 406, 602, 604, 606, 608, 612, 614, 620, and 622 as described above;
- Alternate keyboard 624, which may be made up primarily of digits and punctuation, with frequently used punctuation keys (e.g., period key 631, comma key 633, question mark key 635, and exclamation point key 637) made larger than the other keys;
- Letter keyboard selector icon 626 that when activated (e.g., by a finger gesture on the icon) initiates the display of a letter keyboard (e.g., 616, Figure 6A); and
- Shift key 628 that when activated (e.g., by a finger gesture on the icon) initiates display of yet another keyboard (e.g., 639, Figure 6D).

[00127] Note that the non-letter keyboard selector 618 in Figure 6B is now replaced with the letter keyboard selector 626 in Figure 6C. In some embodiments, the period key 631 and the comma key 633 are located near the keyboard selector icon 626 to reduce the distance that a user's finger needs to travel to enter the oft-used period and comma.

[00128] But the alternate keyboard 624 may not be all-inclusive. For example, it may not have any arithmetic operators such as "+", "-", "*", or "/". A finger gesture on the keyboard selector 626 brings back the letter keyboard 616, not any new keyboards. In some

embodiments, the user may tap on another multi-function key, e.g., the shift key 628, to bring in additional keyboards.

[00129] In some embodiments, like the keyboard selector icons (618, 626), the shift key 628 has different meanings in different contexts. Figure 14 is a flowchart illustrating a process for interpreting the meaning of a particular user contact with the shift key 628 in accordance with some embodiments. The portable electronic device detects user selection of the shift key (1402). The portable electronic device checks what keyboard is currently displayed on the touch screen (1404). If the current one is a letter keyboard, a finger gesture on the shift key triggers the portable electronic device to switch its display mode of the subsequent user-entered letters from uppercase to lowercase or vice versa (1406).

[00130] Referring back to Figure 6B, in some embodiments, the portable electronic device, by default, only displays the first letter "h" of the first word "how" in uppercase. If the user wants to enter another uppercase letter in the same sentence, he can tap on the shift key 628. As a result, the shift key 628 is displayed in a visually different manner (e.g., with a different color or shading) after the finger gesture. In some embodiments, the shift key 628 returns to the lowercase mode after the user enters the next letter in uppercase. If the user wants to enter a sequence of uppercase letters, he can maintain the finger contact with the shift key 628 for a predefined extended period of time (e.g., 1-3 seconds) until the shift key 628 has a new appearance. In some other embodiments, the shift key 628 stays in the uppercase mode for all subsequent user-entered letters until another finger gesture is detected on the shift key 628.

[00131] Returning now to Figure 14, the user contact with the shift key 628 has a different meaning if the current keyboard is a non-letter keyboard (e.g., the alternate keyboard 624 in Figure 6C). Because none of the characters in the keyboard 624 have two different display modes, the portable electronic device replaces the keyboard 624 with another non-letter keyboard 639 (1408) and then waits for the next user contact with the touch screen (1410).

[00132] Figure 6D is a screenshot of the corresponding user interface 600D, which includes the following elements, or a subset or superset thereof:

- 402, 404, 406, 602, 604, 606, 608, 612, 614, 620, 622, 626, 628 as described above; and

- Another alternate keyboard 639, which may be made up primarily of symbols and punctuation, with frequently used punctuation keys (e.g., period key 631, comma key 633, question mark key 635, and exclamation point key 637) made larger than the other keys.

[00133] Like the keyboard 624, none of the characters in the keyboard 639 have two different display modes. In some embodiments, the user can tap again on the shift key 628 to bring in more alternate keyboards with more special characters or symbols. In some embodiments, the user can tap again on the shift key 628 to return to the alternate keyboard 624. At any time, the user can also switch back to the letter keyboard by tapping on the keyboard selection icon 626.

[00134] Additional description of selecting soft keyboards can be found in U.S. Patent No. 7,602,378, "Method, System, and Graphical User Interface for Selecting a Soft Keyboard," issued October 13, 2009.

[00135] After completing a new message, the user sends the message by activating (e.g., with a finger gesture) the send message icon 614 or 620. Figure 6E depicts such a user interface 600E that includes the following elements, or a subset or superset thereof:

- 402, 404, 406, 602, 604, 606, 608, 612, 614, 616, 618, and 620, as described above; and
- New instant message 606-3 sent to the other party.

[00136] In some embodiments, this user finger gesture triggers an animation of the new message moving from the text box 612 to the side of the message display region showing messages sent by the user of the device. For example, when the user activates a send key (e.g., either 614 or 620), the text in text box 612 "pops" or otherwise comes out of the box and becomes part of the string of user messages 606 to the other party. The black arrows in Figure 6E illustrate an animated formation of a quote bubble 606-3. In some embodiments, the size of the quote bubble scales with the size of the message. In some embodiments, a sound is also made when the message is sent, such as a droplet sound, to notify the user.

[00137] Figure 15 is a flowchart illustrating a process for sending an instant message to a respective recipient in accordance with some embodiments. In response to a user

selection of the send message icon (1502), the portable electronic device checks if there is any user input in the text box (1504). If not, it may simply ignore the user's finger gesture on the send icon or display an error message on the touch screen (1508). In some embodiments, the visual appearance of the send icon 614 is changed (e.g., dimmed) if there is no user input in the text box.

[00138] If there is any user input in the text box (1504, yes), the portable electronic device may optionally conduct a spell check of the user input (1506). If there are any spelling errors (1506, yes), an error message and/or word suggestions are displayed on the touch screen for the user to choose (1512). If there are no spelling errors, the portable electronic device sends the message and may also animate the movement of the new message from the text box into the message display region (1514). The portable electronic device then monitors the user contact with the touch screen (1516).

[00139] In some embodiments, keys in keyboards 616 (Figures 6A, 6B, 6E-6K), 624 (Figure 6C), and/or 639 (Figure 6D) briefly change shape, shade and/or color when touched/activated by a user to help the user learn to activate the desired keys. In some embodiments, a user selection of any key on the touch screen by a finger gesture is accompanied by a sound for the same purpose. In some other embodiments, different sounds are associated with different types of keystrokes to indicate what keys have been "pressed" by the user. In some embodiments, an outline or shaded area corresponding to the user's finger contact is shown on the keyboard to help train the user.

[00140] In some embodiments, a user can delete an instant message from a conversation by finger tapping on the corresponding quote bubble in the message display region. The portable electronic device, in response, grays out the bubble and pops up a small window on the touch screen. The small window may include a "Yes" icon and a "No" icon. If the user re-affirms his decision of deleting the message by finger tapping on the "Yes" icon, the portable electronic device removes the bubble from the message display region. But if the user chooses the "No" icon, the quote bubble resumes its normal appearance.

[00141] In some embodiments, user interface 600F (Figure 6F) includes the following elements, or a subset or superset thereof:

- 402, 404, 406, 612, 614, 616, 618, 620, and 628, as described above;

- Recipient input field 632 that when activated (e.g., by a finger tap on the field) receives and displays the phone number of the recipient of the instant message (or the recipient's name if the recipient is already in the user's contact list);
- Add recipient icon 634 that when activated (e.g., by a finger tap on the icon) initiates the display of a scrollable list of contacts (e.g., 638, Figure 6G); and
- Cancel icon 636 that when activated (e.g., by a finger tap on the icon) cancels the new instant message.

[00142] In some embodiments, user interface 600G (Figure 6G) includes the following elements, or a subset or superset thereof:

- 402, 404, 406, 612, 614, 616, 618, 620, 628, 632, 634, and 636, as described above;
- Scrollable list 638 of contacts that match the input in recipient input field 632; and
- Vertical bar 640 that helps a user understand how many items in the contact list that match the input in recipient input field 632 are being displayed.

[00143] In some embodiments, list 638 contains contacts that match the input in recipient input field 632. For example, if the letter "v" is input, then contacts with either a first name or last name beginning with "v" are shown. If the letters "va" are input in field 632, then the list of contacts is narrowed to contacts with either a first name or last name beginning with "va", and so on until one of the displayed contacts is selected (e.g., by a tap on a contact in the list 638).

[00144] In some embodiments, a user can scroll through the list 638 by applying a vertical swipe gesture 642 to the area displaying the list 638. In some embodiments, a vertically downward gesture scrolls the list downward and a vertically upward gesture scrolls the list upward,

[00145] In some embodiments, vertical bar 640 is displayed temporarily after an object is detected on or near the touch screen display (e.g., a finger touch is detected anywhere on the list 638). In some embodiments, the vertical bar 640 has a vertical position on top of the displayed portion of the list that corresponds to the vertical position in the list of the displayed portion of the list. In some embodiments, the vertical bar 640 has a vertical length that corresponds to the portion of the list being displayed.

[00146] In some embodiments, user interfaces 600H (Figure 6H) and 600I (Figure 6I) include the following elements, or a subset or superset thereof:

- 402, 404, 406, 612, 614, 616, 618, 620, 628, 632, 634, and 636, as described above;
- Suggested word 644 adjacent to the word being input;
- Suggested word 646 in the space bar in keyboard 616; and/or
- Insertion marker 656 (e.g., a cursor, insertion bar, insertion point, or pointer).

[00147] In some embodiments, activating suggested word 644 (e.g., by a finger tap on the suggested word) replaces the word being typed with the suggested word 644. In some embodiments, activating suggested word 646 (e.g., by a finger tap on the space bar) replaces the word being typed with the suggested word 646. In some embodiments, a user can set whether suggested words 644 and/or 646 are shown (e.g., by setting a user preference).

[00148] In some embodiments, a letter is enlarged briefly after it is selected (e.g., "N" is enlarged briefly after typing "din" in Figure 6H) to provide feedback to the user.

[00149] In some embodiments, user interfaces 600J (Figure 6J) and 600K (Figure 6K) include the following elements, or a subset or superset thereof:

- 402, 404, 406, 612, 614, 616, 618, 620, 628, 632, 634, 636, and 656 as described above; and
- Expanded portion 650 of graphics that helps a user adjust the position of an expanded insertion marker 657 (sometimes called an "insertion point magnifier");
- Expanded insertion marker 657; and
- Vertical bar 658 that indicates what portion of an instant message including multiple lines of text is being displayed.

[00150] In some embodiments, a finger contact 648-1 on or near the insertion marker 656 initiates the display of insertion point magnifier 650 and expanded insertion marker 657-1. In some embodiments, as the finger contact is moved on the touch screen (e.g., to position 648-2), there is corresponding motion of the expanded insertion marker (e.g., to 657-2) and the insertion point magnifier 650. Thus, the insertion point magnifier 650 provides an efficient way to position a cursor or other insertion marker using finger input on the touch screen. In some embodiments, the magnifier 650 remains visible and can be repositioned as

long as continuous contact is maintained with the touch screen (e.g., from 648-1 to 648-2 to even 648-3).

[00151] In some embodiments, a portable electronic device displays graphics and an insertion marker (e.g., marker 656, Figure 6I) at a first location in the graphics on a touch screen display (e.g., Figure 6I). In some embodiments, the insertion marker 656 is a cursor, insertion bar, insertion point, or pointer. In some embodiments, the graphics comprise text (e.g., text in box 612, Figure 6I).

[00152] A finger contact is detected with the touch screen display (e.g., contact 648-1, Figure 6I). In some embodiments, the location of the finger contact is proximate to the location of the insertion marker. In some embodiments, the location of the finger contact is anywhere within a text entry area (e.g., box 612, Figure 6I).

[00153] In response to the detected finger contact, the insertion marker is expanded from a first size (e.g., marker 656, Figure 6I) to a second size (e.g., marker 657-1, Figure 6J) on the touch screen display, and a portion (e.g., portion 650-1, Figure 6J) of the graphics on the touch screen display is expanded from an original size to an expanded size.

[00154] In some embodiments, the portion of the graphics that is expanded includes the insertion marker and adjacent graphics. In some embodiments, after the insertion point and the portion of the graphics are expanded, graphics are displayed that include the insertion marker and adjacent graphics at the original size and at the expanded size.

[00155] Movement of the finger contact is detected on the touch screen display (e.g., from 648-1 to 648-2, Figure 6J).

[00156] The expanded insertion marker is moved in accordance with the detected movement of the finger contact from the first location (e.g., 657-1, Figure 6J) to a second location in the graphics (e.g., 657-2, Figure 6J).

[00157] In some embodiments, the portion of the graphics that is expanded changes as the insertion marker moves from the first location to the second location (e.g., from 650-1 to 650-2, Figure 6J). In some embodiments, the portion of the graphics that is expanded is displayed in a predefined shape. In some embodiments the portion (e.g., 650, Figure 6J) of the graphics that is expanded is displayed in a circle. In some embodiments, the expanded insertion marker 657 is within the circle.

[00158] In some embodiments, the detected movement of the finger contact has a horizontal component on the touch screen display and a vertical component on the touch screen display. In some embodiments, moving the expanded insertion marker 657 in accordance with the detected movement of the finger contact includes moving the expanded insertion marker and the expanded portion of the graphics in accordance with the horizontal component of motion of the finger contact if the finger contact moves outside a text entry area without breaking contact. For example, in Figure 6I, if the finger contact moves from 648-2 (inside the text entry area 612) to 648-3 (in the keyboard area), the expanded insertion point 657 and the expanded portion 650 of the graphics may move horizontally along the lower portion of the text entry area in accordance with the horizontal component of the movement from 648-2 to 648-3 (not shown).

[00159] In some embodiments, moving the expanded insertion marker in accordance with the detected movement of the finger contact includes moving the expanded insertion marker in a first area of the touch screen that includes characters entered using a soft keyboard (e.g., text box 612, Figure 6J), wherein the soft keyboard is located in a second area of the touch screen that is separate from the first area (e.g., keyboard 616, Figure 6J).

[00160] In some embodiments, the expanded insertion marker is contracted from the second size to the first size if finger contact with the touch screen display is broken (e.g., insertion marker 656, Figure 6K). In some embodiments, the contracting includes an animation of the expanded insertion marker 657 shrinking into the insertion marker 656 at the second location.

[00161] In some embodiments, the expanded portion 650 of the graphics is contracted if finger contact with the touch screen display is no longer detected for a predetermined time.

[00162] A graphical user interface on a portable electronic device with a touch screen display comprises an insertion marker and graphics. In response to detecting a finger contact 648 with the touch screen display, the insertion marker is expanded from a first size 656 to a second size 657, and a portion 650 of the graphics is expanded. In response to detecting movement of the finger contact on the touch screen display, the expanded insertion marker is moved in accordance with the detected movement of the finger contact from a first location 657-1 in the graphics to a second location 657-2 in the graphics.

[00163] As noted above in connection with Figure 6E, a user finger selection of the send key 614 triggers an animation of the message moving from the text box 612 to the message display region. In some embodiments, prior to sending the message, the size of the text box expands as text is entered (e.g., from one line of text in Figure 6H to two lines of text in figure 61). In some embodiments, the text box 612 does not have enough room for displaying the entire message if it has too many lines of text (as indicated by the short vertical bar 658). When a quote bubble containing the multi-line message comes out of the text box 612, it may gradually grow its size until a predefined condition is met (e.g., the bubble has enough room to contain the entire message and/or the size of the bubble reaches a threshold that is statically or dynamically determined by the device based on the number of existing messages in the conversation). For example, if the text box shows 3 lines of a 10 line instant message, then the quote bubble may grow from a 3 line quote bubble to a 10 line quote bubble during the animation that moves the message from the text box 612 to the message display region.

[00164] Additional description of insertion marker positioning can be found in U.S. patent publication No. 2008-0259040, "Method, System, And Graphical User Interface For Positioning An Insertion Marker In A Touch Screen Display," published October 23, 2008.

[00165] Besides deleting individual messages from a conversation, an entire conversation may be deleted via edit icon 512 in Figure 5. Figure 7 illustrates an exemplary user interface for deleting an instant message conversation in accordance with some embodiments. In some embodiments, user interface 700 includes the following elements, or a subset or superset thereof:

- 402, 404, 406, 504, 506, 508, 510, as described above;
- Delete icons 702;
- Remove icon 704; and
- Done icon 706.

[00166] Figure 16 is a flowchart illustrating a process for displaying a list of instant message conversations for editing in accordance with some embodiments. Upon detecting a user selection of the edit icon 512 (1602), the portable electronic device associates a delete icon 702 with each conversation (1604) (e.g., a delete icon 702 appears next to each

conversation). Additionally, the portable electronic device may replace the edit icon 512 with a done icon 706 (1606) and monitor user contact with the touch screen (1608).

[00167] If the user swipes his finger or stylus on the touch screen in a substantially vertical direction (1610), the portable electronic device scrolls the conversation list (1616). If a user activates a delete icon (e.g., with a finger gesture), the portable electronic device continues the deletion process for the corresponding conversation. A more detailed description of an exemplary conversation removal process is provided below in connection with Figures 17 and 18. But if the user touches the done icon, the portable electronic device removes all the delete icons 702 from the touch screen and brings back the conversation list UI as shown in Figure 5.

[00168] Figure 17 is a flowchart illustrating a process for editing a user selected instant message conversation in accordance with some embodiments. Upon detecting a user selection of the delete icon associated with a conversation (1702), the portable electronic device changes the delete icon's appearance (e.g., rotating the selected delete icon 702-4, Figure 7, by 90 degrees) (1704). The portable electronic device associates a confirmation icon (e.g., remove icon 704) with the selected conversation (1706). In some embodiments, during the editing process, at most one confirmation icon at a time is displayed on the touch screen. Depending on the next user contact with the touch screen (1708), the portable electronic device may perform different operations to the conversation list. For example, the device may scroll the list up/down in response to a scrolling gesture by the user (1710, 1718). The device may bring back the conversation list UI in response to a finger gesture on the done icon (1714).

[00169] Figure 18 is a flowchart illustrating a process for removing a user selected instant message conversation or exiting a conversation edit mode in accordance with some embodiments. If the user selects the confirmation icon (1712, 1802), the portable electronic device removes the conversation from the touch screen (1804). If the removed conversation is not the last one in the list, the portable electronic device may shift other conversations upward to fill the space left by the removed conversation (1806). A finger gesture on the modified delete icon 702-4 or, in some embodiments, anywhere on the touch screen besides the confirmation icon 704 (1716, 1803) indicates that the user decides not to delete the conversation. Accordingly, the portable electronic device changes the delete icon back to its original appearance (1805) and removes the confirmation icon from the touch screen (1807).

[00170] Following the operation 1806 or 1807, the portable electronic device resumes monitoring the user contact with the touch screen (1808). For example, the user may activate the done icon 706 (1814) by tapping on it with a finger when the user has finished deleting IM conversations and the device returns to UI 500. The user may delete another conversation by activating its associated delete icon (1812). If there is a long list of conversations that fill more than the screen area, the user may scroll through the list using vertically upward and/or vertically downward gestures 708 on the touch screen (1810, 1816).

[00171] This conversation removal process, which requires multiple gestures by the user on different parts of the touch screen (e.g., delete icon 702-4 and confirmation icon 704 are on opposite sides of the touch screen) can reduce the chance that a user accidentally deletes a conversation or other similar item.

[00172] Referring again to Figure 5, a user may start a new conversation with another person by activating the message creation icon 514 (e.g., with a finger tap or other gesture). Figure 19 is a flowchart illustrating a process for displaying a list of contacts from which a user chooses to send an instant message in accordance with some embodiments. After detecting the user selection of the message creation icon (1902), the portable electronic device identifies a set of contacts from the user's address book or the equivalent because it does not know to whom this new conversation is directed (1904). Next, the portable electronic device displays the identified contacts on the touch screen (1908). In some embodiments, the portable electronic device displays multiple icons on the touch screen in addition to the contact list (1909), such as the group contacts icon, the first name and last name icons, the alphabet list icons, the cancel icon, and the other number icon. A more detailed description of these icons is provided below in connection with Figures 8A and 8B. After rendering the contact list and the additional icons, the portable electronic device then monitors the user contact with the touch screen (1910).

[00173] Figures 8A & 8B illustrate an exemplary user interface for a contact list in accordance with some embodiments. In some embodiments, user interfaces 800A and 800B include the following elements, or a subset or superset thereof:

- 402, 404, 406, as described above;
- Groups icon 802 that when activated (e.g., by a finger gesture on the icon) initiates display of groups of contacts;

- First name icon 804 that when activated (e.g., by a finger gesture on the icon) initiates an alphabetical display of the user's contacts by their first names (Figure 8B);

- Last name icon 806 that when activated (e.g., by a finger gesture on the icon) initiates an alphabetical display of the user's contacts by their last names (Figure 8A);

- Alphabet list icons 808 that the user can touch to quickly arrive at a particular first letter in the displayed contact list;

- Cancel icon 810 that when activated (e.g., by a finger gesture on the icon) initiates transfer back to the previous UI (e.g., UI 500); and

- Other number icon 812 that when activated (e.g., by a finger gesture on the icon) initiates transfer to a UI for entering a phone number for instant messaging, such as a phone number that is not in the user's contact list (e.g., UI 900, Figure 9).

[00174] As described in U.S. Patent 7,958,456, entitled "Scrolling List With Floating Adjacent Index Symbols," issued June 7, 2011, the user may scroll through the contact list using vertically upward and/or vertically downward gestures 814 on the touch screen.

[00175] If the next user contact is such a scrolling gesture 814 (1912) or a finger gesture on one of the first name icon 804, the second name icon 806 and the alphabet list icons 808 (1914), the portable electronic device modifies the contacts currently on display (1920). Although the contact list may be shared by multiple applications on the same portable device (e.g., email, phone, and instant messaging), a user selection of a name in the contact list in this context will be used for IM service because the contact list was requested from within the IM application. Here the contact list is being shown in connection with user activation of the message creation icon 514 in the IM application 141.

[00176] If the portable electronic device detects a finger gesture on one person's name or other identifier in the contact list (1916), the portable electronic device displays a message compose region for a message to the selected contact (1108, Figure 11) and displays a conversation UI as shown in Figure 6A. In some embodiments, if there is an existing conversation between the user and the selected person, the portable electronic device merges the new conversation into the existing one by displaying messages associated with the existing conversation.

[00177] If the portable electronic device detects a user gesture on the cancel icon 810 (1918), the portable electronic device aborts the process of creating the new conversation and brings back the conversation list shown in Figure 5 (1006, Figure 10).

[00178] If the portable electronic device detects a finger gesture on the other number icon 812 (1919), typically a new conversation with a person not in the contact list is initiated. Accordingly, the portable electronic device may render a new user interface for the user to enter the person's contact information that is going to be used by the new conversation.

[00179] Figure 20 is a flowchart illustrating a process for launching a new conversation using a new phone number in accordance with some embodiments. Upon detecting user selection of the other number icon (2002), the portable electronic device provides a contact information display region (2004) and a contact information compose region (2006) on the touch screen. The contact information may be a phone number or an email address for IM service. The contact information display region includes a text box 906 for displaying the user-entered contact information. The contact information compose region includes a keyboard 624 for the user to enter such contact information. If the user activates the cancel icon (2012), the portable electronic device aborts the process of creating a new conversation and returns to the conversation list UI shown in Figure 5. If the user input is a letter or number (2010), the portable electronic device displays it in the text box (2014).

[00180] Figure 9 illustrates an exemplary user interface for entering a phone number for instant messaging in accordance with some embodiments. In some embodiments, user interface 900 includes the following elements, or a subset or superset thereof:

- 402, 404, 406, 602, and 624, as described above;
- Cancel icon 902 that when activated (e.g., by a finger gesture on the icon) initiates transfer back to the previous UI (e.g., UI 800A or UI 800B);
- Save icon 904 that when activated (e.g., by a finger gesture on the icon) initiates saving the entered phone number in the instant messages conversation list (e.g., UI 500) and displaying a UI to compose an instant message to be sent to the entered phone number (e.g., UI 600A); and
- Number entry box 906 for entering the phone number using keyboard 624.

[00181] Note that the keyboard displayed may depend on the application context. For example, the UI displays a soft keyboard with numbers (e.g., 624) when numeric input is

needed or expected. The UI displays a soft keyboard with letters (e.g., 616) when letter input is needed or expected.

[00182] The foregoing description, for purpose of explanation, has been described with reference to specific embodiments. However, the illustrative discussions above are not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated.

The embodiment of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method, comprising:

at a portable electronic device with a touch screen display:

displaying a list of instant message conversations on the touch screen display, a respective instant message conversation including a respective set of instant messages exchanged between a first person and a respective other person;

while displaying the list of instant message conversations, detecting a first scrolling gesture comprising a substantially vertical movement of a first contact with the touch screen display;

responding to the first scrolling gesture by scrolling the list of instant message conversations in accordance with a direction of the first scrolling gesture;

detecting a selection gesture on a particular instant message conversation in the list of instant message conversations;

responding to the selection gesture by replacing display of the list of instant message conversations with display of the particular instant message conversation, the particular instant message conversation including a set of instant messages exchanged between the first person and a single other person in a chronological order;

while displaying instant messages in the particular instant message conversation, detecting a second scrolling gesture comprising a substantially vertical movement of a second contact with the touch screen display; and

responding to the second scrolling gesture by scrolling the display of instant messages in the particular instant messaging conversation in accordance with a direction of the second scrolling gesture.

2. The method of claim 1, including displaying instant messages sent by the first person to the single other person aligned to a first side of the touch screen display and instant messages sent by the single other person to the first person aligned to an opposite side of the touch screen display.

3. The method of claim 1, further including

displaying one or more timestamps adjacent one or more of the instant messages.

4. The method of claim 1, further including

displaying the instant messages sent by the first person to the single other person in a first color; and

displaying the instant messages sent by the single other person to the first person in a second color, the second color different from the first color.

5. The method of claim 1, further including

displaying the instant messages sent by a first one of the first person and the single other person left justified on the touch screen display; and

displaying the instant messages sent by the other one of the first person and the single other person right justified on the touch screen display.

6. The method of claim 1, further including

visually animating movement of a newly sent instant message, from the first person to the single other person, from a message compose region of the touch screen display to a message display region of the touch screen display.

7. The method of claim 1, further including

displaying the instant messages exchanged between the first person and the single other person in a message display region; and

displaying a text box and a first set of keys in a message compose region.

8. The method of claim 7, further including

displaying a symbol in the text box upon detecting a contact with one of the first set of keys.

9. The method of claim 7, further including

replacing at least a subset of the first set of keys with a second set of keys upon detecting a contact with one of the first set of keys.

10. The method of claim 7, further including

displaying one or more text entry suggestions in the message compose region in accordance with text entered by the first person; and

upon detecting a predefined gesture, adding a text entry suggestion selected by the first person to the text box.

11. The method of claim 7, further including

displaying one or more text entry suggestions in the message compose region in accordance with text entered by the first person; and

upon detecting a predefined gesture, replacing at least a portion of text in the text box with a text entry suggestion selected by the first person.

12. The method of claim 1, further including:

while displaying the list of instant message conversations:

displaying an edit icon in the touch screen display;

upon detecting a selection of the edit icon, displaying a delete icon adjacent to each listed conversation and replacing the edit icon with a done icon;

upon detecting a selection of one of the delete icons, deleting a conversation adjacent to the selected delete icon; and

upon detecting a selection of the done icon, deleting the delete icon adjacent to each listed conversation and replacing the done icon with the edit icon.

13. The method of claim 1, further including:

while displaying the list of instant message conversations:

displaying an edit icon in the touch screen display;

upon detecting a selection of the edit icon, displaying a delete icon adjacent to each listed conversation;

upon detecting a selection of one of the delete icons, deleting a conversation adjacent to the selected delete icon; and

upon detecting a selection of a portion of the touch screen display that is not occupied by any of the delete icons, deleting the delete icon adjacent to each listed conversation.

14. The method of claim 1, further including:

while displaying the list of instant message conversations:

displaying an edit icon in the touch screen display;

upon detecting a selection of the edit icon, displaying a delete icon adjacent to each listed conversation and replacing the edit icon with a done icon;

upon detecting a selection of one of the delete icons, displaying a confirmation icon adjacent to the conversation adjacent to the selected delete icon; and

upon detecting a selection of the confirmation icon, deleting the conversation adjacent to the selected delete icon from the touch screen display.

15. A portable electronic device, comprising:

a touch screen display;

one or more processors;

memory; and

one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the programs including instructions for:

displaying a list of instant message conversations on the touch screen display, a respective instant message conversation including a respective set of instant messages exchanged between a first person and a respective other person;

while displaying the list of instant message conversations, detecting a first scrolling gesture comprising a substantially vertical movement of a first contact with the touch screen display;

responding to the first scrolling gesture by scrolling the list of instant message conversations in accordance with a direction of the first scrolling gesture;

detecting a selection gesture on a particular instant message conversation in the list of instant message conversations;

responding to the selection gesture by replacing display of the list of instant message conversations with display of the particular instant message conversation, the particular instant message conversation including a set of instant messages exchanged between the first person and a single other person in a chronological order;

while displaying instant messages in the particular instant message conversation, detecting a second scrolling gesture comprising a substantially vertical movement of a second contact with the touch screen display; and

responding to the second scrolling gesture by scrolling the display of instant messages in the particular instant message conversation in accordance with a direction of the second scrolling gesture.

16. The device of claim 15, wherein instant messages sent by the first person to the single other person are displayed aligned to a first side of the touch screen display and instant

messages sent by the single other person to the first person are displayed aligned to an opposite side of the touch screen display.

17. The device of claim 15, further including

instructions for displaying one or more timestamps adjacent one or more of the instant messages.

18. The device of claim 15, further including

instructions for displaying the instant messages sent by the first person to the single other person in a first color; and

instructions for displaying the instant messages sent by the single other person to the first person in a second color, the second color different from the first color.

19. The device of claim 15, further including

instructions for displaying the instant messages sent by a first one of the first person and the single other person left justified on the touch screen display; and

instructions for displaying the instant messages sent by the other one of the first person and the single other person right justified on the touch screen display.

20. The device of claim 15, further including

instructions for visually animating movement of a newly sent instant message, from the first person to the single other person, from a message compose region of the touch screen display to a message display region of the touch screen display.

21. The device of claim 15, further including

instructions for displaying the instant messages exchanged between the first person and the single other person in the message display region; and

instructions for displaying a text box and a first set of keys in a message compose region.

22. The device of claim 21, further including

instructions for displaying a symbol in the text box upon detecting a contact with one of the first set of keys.

23. The device of claim 21, further including

instructions for replacing at least a subset of the first set of keys with a second set of keys upon detecting a contact with one of the first set of keys.

24. The device of claim 21, further including

instructions for displaying one or more text entry suggestions in the message compose region in accordance with text entered by the first person; and

instructions for, upon detecting a predefined gesture, adding a text entry suggestion selected by the first person to the text box.

25. The device of claim 21, further including

instructions for displaying one or more text entry suggestions in the message compose region in accordance with text entered by the first person; and

instructions for, upon detecting a predefined gesture, replacing at least a portion of text in the text box with a text entry suggestion selected by the first person.

26. The device of claim 15, further including:

while displaying the list of instant message conversations:

instructions for displaying an edit icon in the touch screen display;

instructions for, upon detecting a selection of the edit icon, displaying a delete icon adjacent to each listed conversation and replacing the edit icon with a done icon;

instructions for, upon detecting a selection of one of the delete icons, displaying a confirmation icon associated with the selected delete icon;

instructions for, upon detecting a selection of the confirmation icon, deleting a conversation associated with the selected delete icon; and

instructions for, upon detecting a selection of the done icon, deleting the delete icon adjacent to each listed conversation and replacing the done icon with the edit icon.

27. The device of claim 26, further including

instructions for displaying the confirmation icon and the selected delete icon on opposite sides of the touch screen display.

28. A non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by a portable electronic device with a touch screen display, cause the device to:

display a list of instant message conversations on the touch screen display, a respective instant message conversation including a respective set of instant messages exchanged between a first person and a respective other person;

while displaying the list of instant message conversations, detect a first scrolling gesture comprising a substantially vertical movement of a first contact with the touch screen display;

respond to the first scrolling gesture by scrolling the list of instant message conversations in accordance with a direction of the first scrolling gesture;

detect a selection gesture on a particular instant message conversation in the list of instant message conversations;

respond to the selection gesture by replacing display of the list of instant message conversations with display of the particular instant message conversation, the particular instant message conversation including a set of instant messages exchanged between the first person and a single other person in a chronological order;

while displaying instant messages in the particular instant message conversation, detect a second scrolling gesture comprising a substantially vertical movement of a second contact with the touch screen display; and

respond to the second scrolling gesture by scrolling the display of instant messages in the particular instant messaging conversation in accordance with a direction of the second scrolling gesture.

29. The method of any one of claims 1 to 14 wherein the first scrolling gesture is substantially independent of a horizontal position of the first contact with the touch screen display; and

wherein the detecting of the second scrolling gesture is substantially independent of a horizontal position of the second contact with the touch screen display.

30. The method of claim 1, wherein the instant message conversations are listed in chronological order.

31. The method of claim 1, further including:

while displaying the list of instant message conversations:

displaying, for a respective instant message conversation, at least a portion of the most recent message in the respective instant message conversation.

32. The method of claim 1, further including:

while displaying the list of instant message conversations:

displaying, for a respective instant message conversation, at least a portion of the most recent message in the respective instant message conversation;

wherein the instant message conversations are listed in chronological order based on the respective most recent messages in the respective instant message conversations.

33. The device of claim 15, wherein the instant message conversations are listed in chronological order.

34. The device of claim 15, further including instructions for:

while displaying the list of instant message conversations:

displaying, for a respective instant message conversation, at least a portion of the most recent message in the respective instant message conversation.

35. The device of claim 15, further including instructions for:

while displaying the list of instant message conversations:

displaying, for a respective instant message conversation, at least a portion of the most recent message in the respective instant message conversation;

wherein the instant message conversations are listed in chronological order based on the respective most recent messages in the respective instant message conversations.

36. The computer readable storage medium of claim 28, wherein the instant message conversations are listed in chronological order.

37. The computer readable storage medium of claim 28, further including instructions that cause the device to:

while displaying the list of instant message conversations:

display, for a respective instant message conversation, at least a portion of the most recent message in the respective instant message conversation.

38. The computer readable storage medium of claim 28, further including instructions that cause the device to:

while displaying the list of instant message conversations:

display, for a respective instant message conversation, at least a portion of the most recent message in the respective instant message conversation;

wherein the instant message conversations are listed in chronological order based on the respective most recent messages in the respective instant message conversations.

39. The computer readable storage medium of claim 28, further including instructions that cause the device to display instant messages sent by the first person to the single other person aligned to a first side of the touch screen display and instant messages sent by the single other person to the first person aligned to an opposite side of the touch screen display.

40. The computer readable storage medium of claim 28, further including instructions that cause the device to:

visually animate movement of a newly sent instant message, from the first person to the single other person, from a message compose region of the touch screen display to a message display region of the touch screen display.

41. The computer readable storage medium of claim 28, further including instructions that cause the device to:

while displaying the list of instant message conversations:

displaying an edit icon in the touch screen display;

upon detecting a selection of the edit icon, displaying a delete icon adjacent to each listed conversation and replacing the edit icon with a done icon;

upon detecting a selection of one of the delete icons, displaying a confirmation icon adjacent to the conversation adjacent to the selected delete icon; and

upon detecting a selection of the confirmation icon, deleting the conversation adjacent to the selected delete icon from the touch screen display.

42. The method of claim 1, further including:

while displaying the list of instant message conversations:

displaying an edit icon in the touch screen display;

upon detecting a selection of the edit icon, displaying a delete icon adjacent to each listed conversation and replacing the edit icon with a done icon;

upon detecting a selection of one of the delete icons, displaying a confirmation icon associated with the selected delete icon;

upon detecting a selection of the confirmation icon, deleting a conversation associated with the selected delete icon; and

upon detecting a selection of the done icon, deleting the delete icon adjacent to each listed conversation and replacing the done icon with the edit icon.

43. The method of claim 42, further including:

displaying the confirmation icon and the selected delete icon on opposite sides of the touch screen display.

44. The device of claim 15, further including:

while displaying the list of instant message conversations:

instructions for displaying an edit icon in the touch screen display;

instructions for upon detecting a selection of the edit icon, displaying a delete icon adjacent to each listed conversation and replacing the edit icon with a done icon;

instructions for upon detecting a selection of one of the delete icons, deleting a conversation adjacent to the selected delete icon; and

instructions for upon detecting a selection of the done icon, deleting the delete icon adjacent to each listed conversation and replacing the done icon with the edit icon.

45. The device of claim 15, further including:

while displaying the list of instant message conversations:

instructions for displaying an edit icon in the touch screen display;

instructions for upon detecting a selection of the edit icon, displaying a delete icon adjacent to each listed conversation;

instructions for upon detecting a selection of one of the delete icons, deleting a conversation adjacent to the selected delete icon; and

instructions for upon detecting a selection of a portion of the touch screen display that is not occupied by any of the delete icons, deleting the delete icon adjacent to each listed conversation.

46. The device of claim 15, further including:

while displaying the list of instant message conversations:

instructions for displaying an edit icon in the touch screen display;

instructions for upon detecting a selection of the edit icon, displaying a delete icon adjacent to each listed conversation and replacing the edit icon with a done icon;

instructions for upon detecting a selection of one of the delete icons, displaying a confirmation icon adjacent to the conversation adjacent to the selected delete icon; and

instructions for upon detecting a selection of the confirmation icon, deleting the conversation adjacent to the selected delete icon from the touch screen display.

47. The computer readable storage medium of claim 28, further including instructions which cause the device to:

display one or more timestamps adjacent one or more of the instant messages.

48. The computer readable storage medium of claim 28, further including instructions which cause the device to:

display the instant messages sent by the first person to the single other person in a first color; and

display the instant messages sent by the single other person to the first person in a second color, the second color different from the first color.

49. The computer readable storage medium of claim 28, further including instructions which cause the device to:

display the instant messages sent by a first one of the first person and the single other person left justified on the touch screen display; and

display the instant messages sent by the other one of the first person and the single other person right justified on the touch screen display.

50. The computer readable storage medium of claim 28, further including instructions which cause the device to:

display the instant messages exchanged between the first person and the single other person in a message display region; and

display a text box and a first set of keys in a message compose region.

51. The computer readable storage medium of claim 50, further including instructions which cause the device to:

display a symbol in the text box upon detecting a contact with one of the first set of keys.

52. The computer readable storage medium of claim 50, further including instructions which cause the device to:

replace at least a subset of the first set of keys with a second set of keys upon detecting a contact with one of the first set of keys.

53. The computer readable storage medium of claim 50, further including instructions which cause the device to:

display one or more text entry suggestions in the message compose region in accordance with text entered by the first person; and

upon detecting a predefined gesture, add a text entry suggestion selected by the first person to the text box.

54. The computer readable storage medium of claim 50, further including instructions which cause the device to:

display one or more text entry suggestions in the message compose region in accordance with text entered by the first person; and

upon detecting a predefined gesture, replace at least a portion of text in the text box with a text entry suggestion selected by the first person.

55. The computer readable storage medium of claim 28, further including instructions which cause the device to:

while displaying the list of instant message conversations:

display an edit icon in the touch screen display;

upon detecting a selection of the edit icon, display a delete icon adjacent to each listed conversation and replace the edit icon with a done icon;

upon detecting a selection of one of the delete icons, delete a conversation adjacent to the selected delete icon; and

upon detecting a selection of the done icon, delete the delete icon adjacent to each listed conversation and replace the done icon with the edit icon.

56. The computer readable storage medium of claim 28, further including instructions which cause the device to:

while displaying the list of instant message conversations:

display an edit icon in the touch screen display;

upon detecting a selection of the edit icon, display a delete icon adjacent to each listed conversation;

upon detecting a selection of one of the delete icons, delete a conversation adjacent to the selected delete icon; and

upon detecting a selection of a portion of the touch screen display that is not occupied by any of the delete icons, delete the delete icon adjacent to each listed conversation.

57. The computer readable storage medium of claim 28, further including instructions which cause the device to:

while displaying the list of instant message conversations:

display an edit icon in the touch screen display;

upon detecting a selection of the edit icon, display a delete icon adjacent to each listed conversation and replace the edit icon with a done icon;

upon detecting a selection of one of the delete icons, display a confirmation icon associated with the selected delete icon;

upon detecting a selection of the confirmation icon, delete a conversation associated with the selected delete icon; and

upon detecting a selection of the done icon, delete the delete icon adjacent to each listed conversation and replace the done icon with the edit icon.

58. The computer readable storage medium of claim 57, further including instructions which cause the device to:

display the confirmation icon and the selected delete icon on opposite sides of the touch screen display.

59. The device of any one of claims 15 to 27 wherein the first scrolling gesture is substantially independent of a horizontal position of the first contact with the touch screen display; and

wherein the detecting of the second scrolling gesture is substantially independent of a horizontal position of the second contact with the touch screen display.

60. The computer readable storage medium of any one of claims 28 or 36 to 41 wherein the first scrolling gesture is substantially independent of a horizontal position of the first contact with the touch screen display; and

wherein the detection of the second scrolling gesture is substantially independent of a horizontal position of the second contact with the touch screen display.

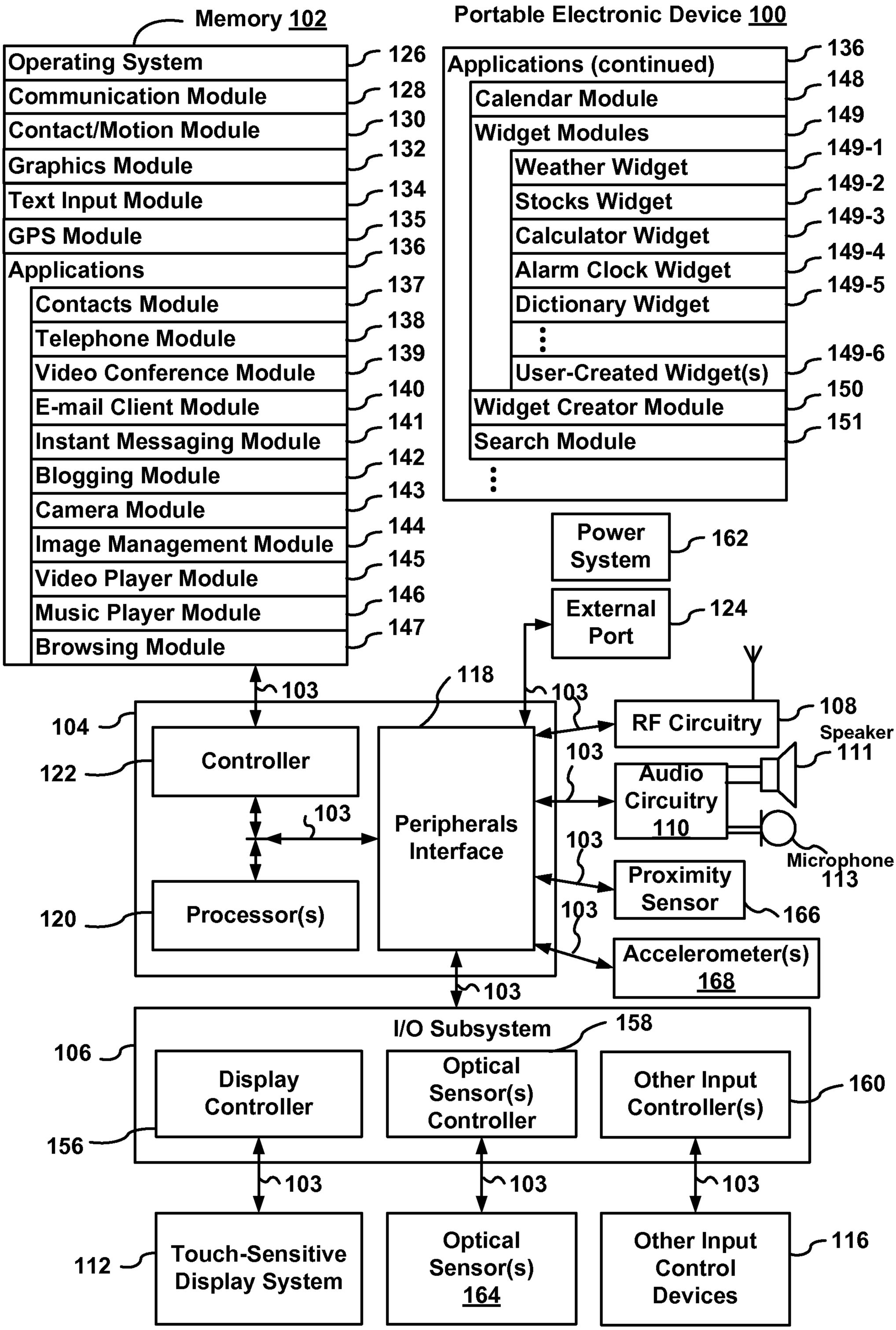
Memory 102
Operating System
126
Communication Module
128
Contact/Motion Module
130
Graphics Module
132
Text Input Module
134
GPS Module
135
Applications
136
Contacts Module
137
Telephone Module
138
Video Conference Module
139
E-mail Client Module
140
Instant Messaging Module
141
Blogging Module
142
Camera Module
143
Image Management Module
144
Video Player Module
145
Music Player Module
146
Browsing Module
147
Portable Electronic Device 100
Applications (continued)
136
Calendar Module
148
Widget Modules
149
Weather Widget
149-1
Stocks Widget
149-2
Calculator Widget
149-3
Alarm Clock Widget
149-4
Dictionary Widget
149-5
User-Created Widget(s)
149-6
Widget Creator Module
150
Search Module
151
Power System
162
External Port
124
RF Circuitry
108
Speaker
111
Audio Circuitry 110
Microphone
113
Proximity Sensor
166
Accelerometer(s) 168
103
118
104
Controller
122
Peripherals Interface
Processor(s)
120
I/O Subsystem
158
106
Display Controller
Optical Sensor(s) Controller
Other Input Controller(s)
160
156
Touch-Sensitive Display System
112
Optical Sensor(s) 164
Other Input Control Devices
116

Figure 1

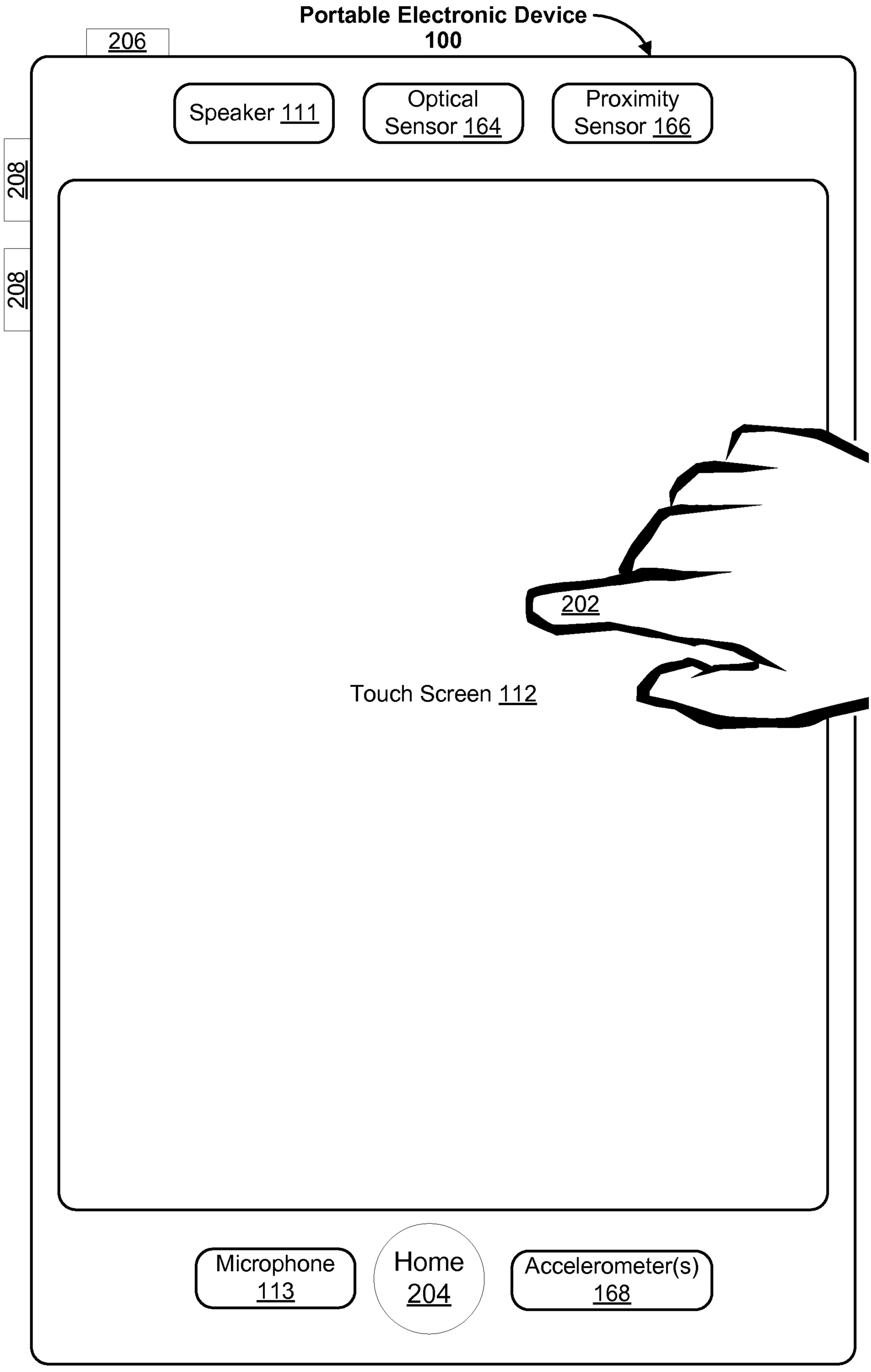
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
208
208
202
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168

Figure 2

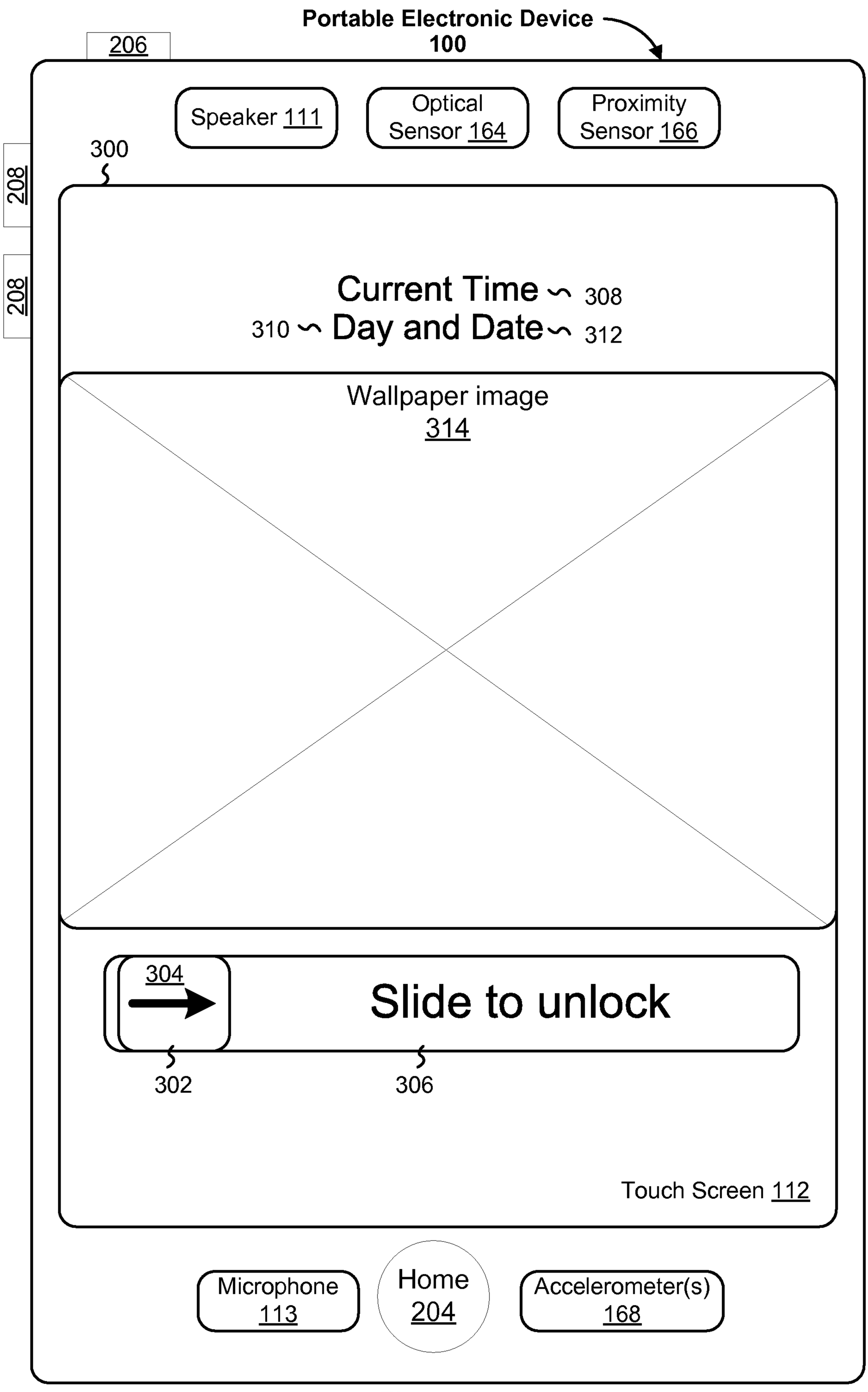
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
300
208
208
Current Time 308
310 Day and Date 312
Wallpaper image
314
304
Slide to unlock
302
306
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168

Figure 3

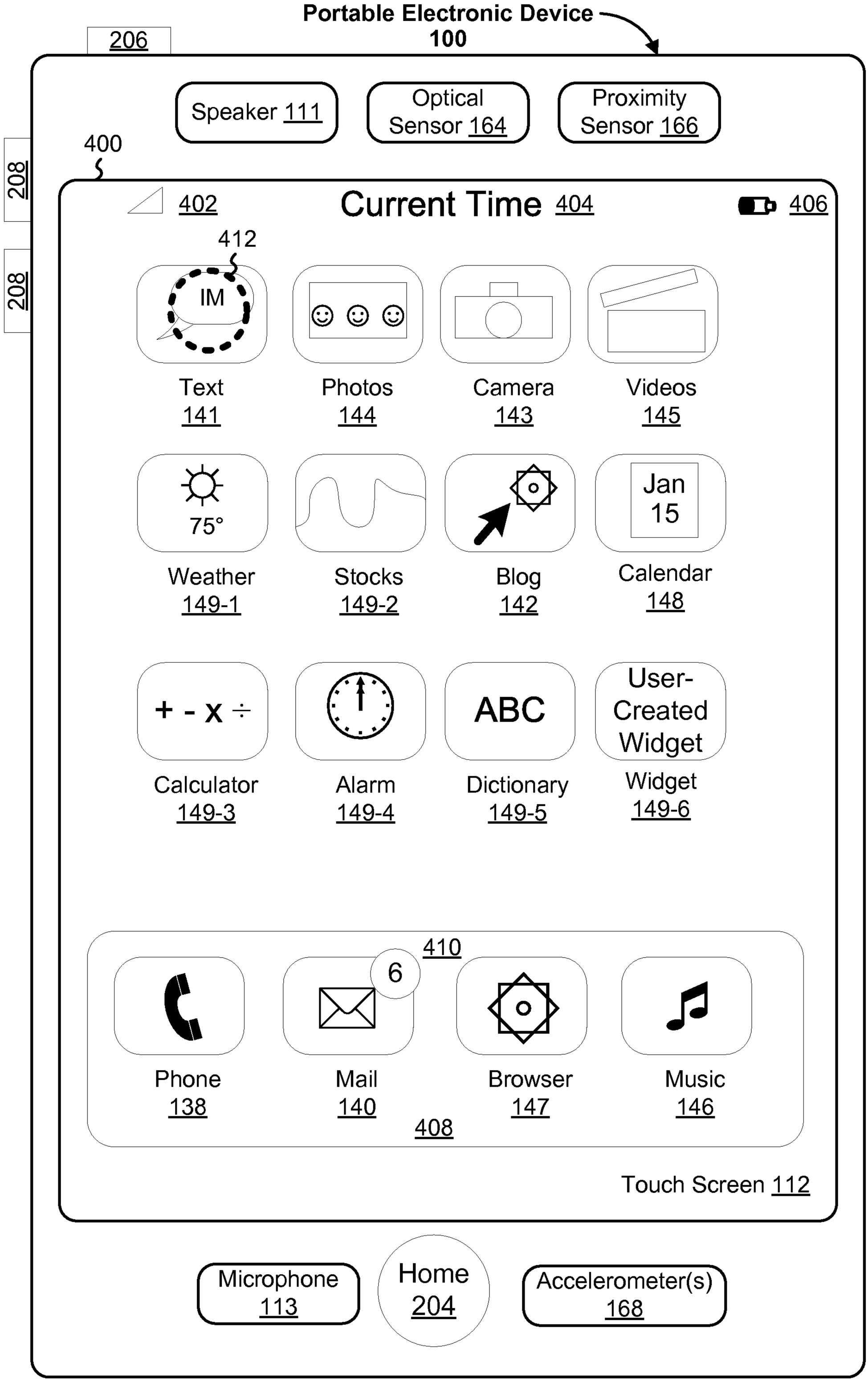
Portable Electronic Device
100
206
208
Speaker 111
Optical Sensor 164
Proximity Sensor 166
400
402
Current Time 404
406
412
IM
Text 141
Photos 144
Camera 143
Videos 145
75°
Weather 149-1
Stocks 149-2
Blog 142
Jan 15
Calendar 148
+ - x ÷
Calculator 149-3
Alarm 149-4
ABC
Dictionary 149-5
User-Created Widget
Widget 149-6
410
6
Phone 138
Mail 140
Browser 147
Music 146
408
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168

Figure 4

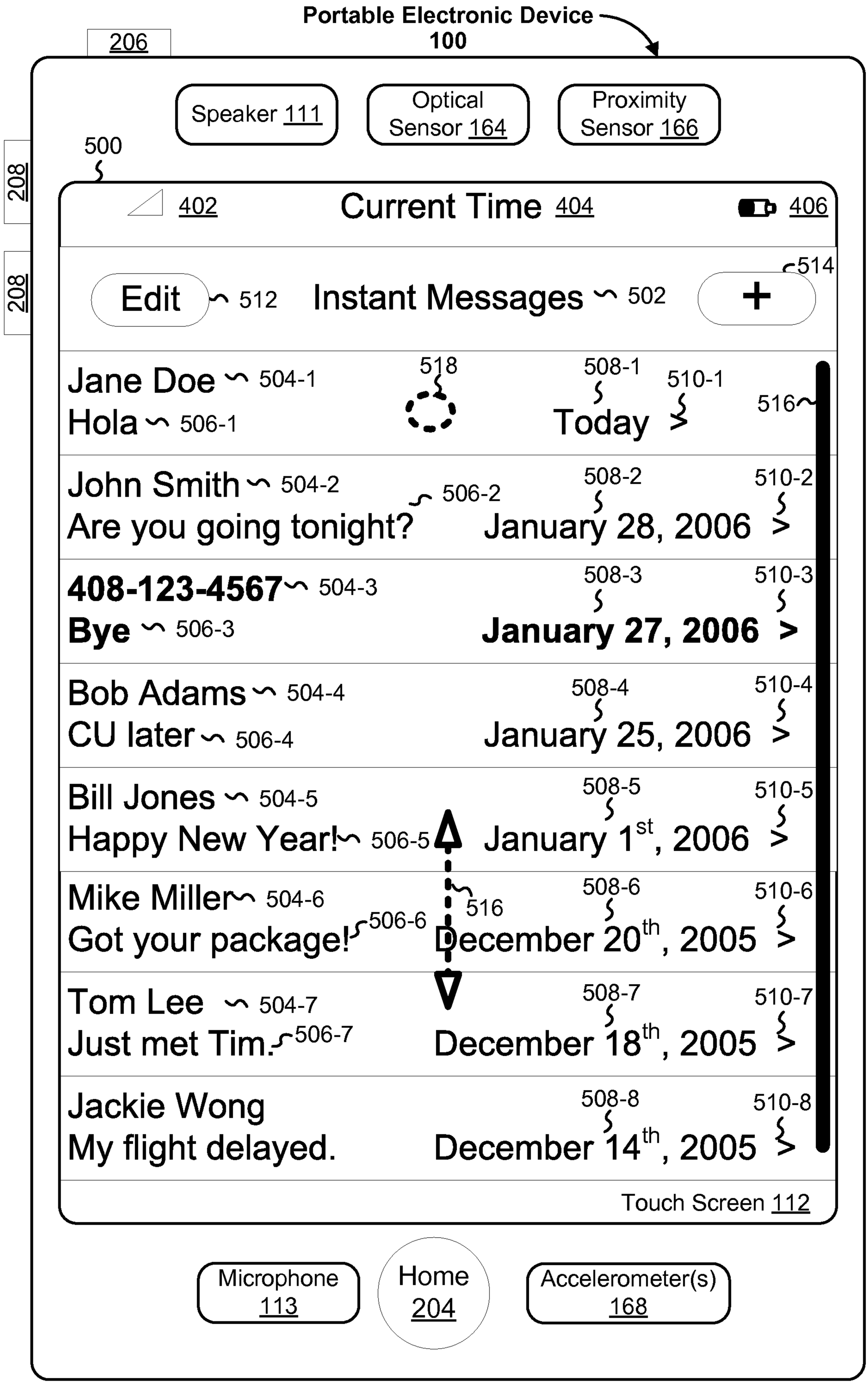
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
500
208
402
Current Time 404
406
208
Edit 512
Instant Messages 502
514
Jane Doe 504-1
Hola 506-1
518
508-1
510-1
Today
516
John Smith 504-2
Are you going tonight? 506-2
508-2
January 28, 2006
510-2
408-123-4567 504-3
Bye 506-3
508-3
January 27, 2006
510-3
Bob Adams 504-4
CU later 506-4
508-4
January 25, 2006
510-4
Bill Jones 504-5
Happy New Year! 506-5
508-5
January 1st, 2006
510-5
Mike Miller 504-6
Got your package! 506-6
516
508-6
December 20th, 2005
510-6
Tom Lee 504-7
Just met Tim. 506-7
508-7
December 18th, 2005
510-7
Jackie Wong
My flight delayed.
508-8
December 14th, 2005
510-8
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5

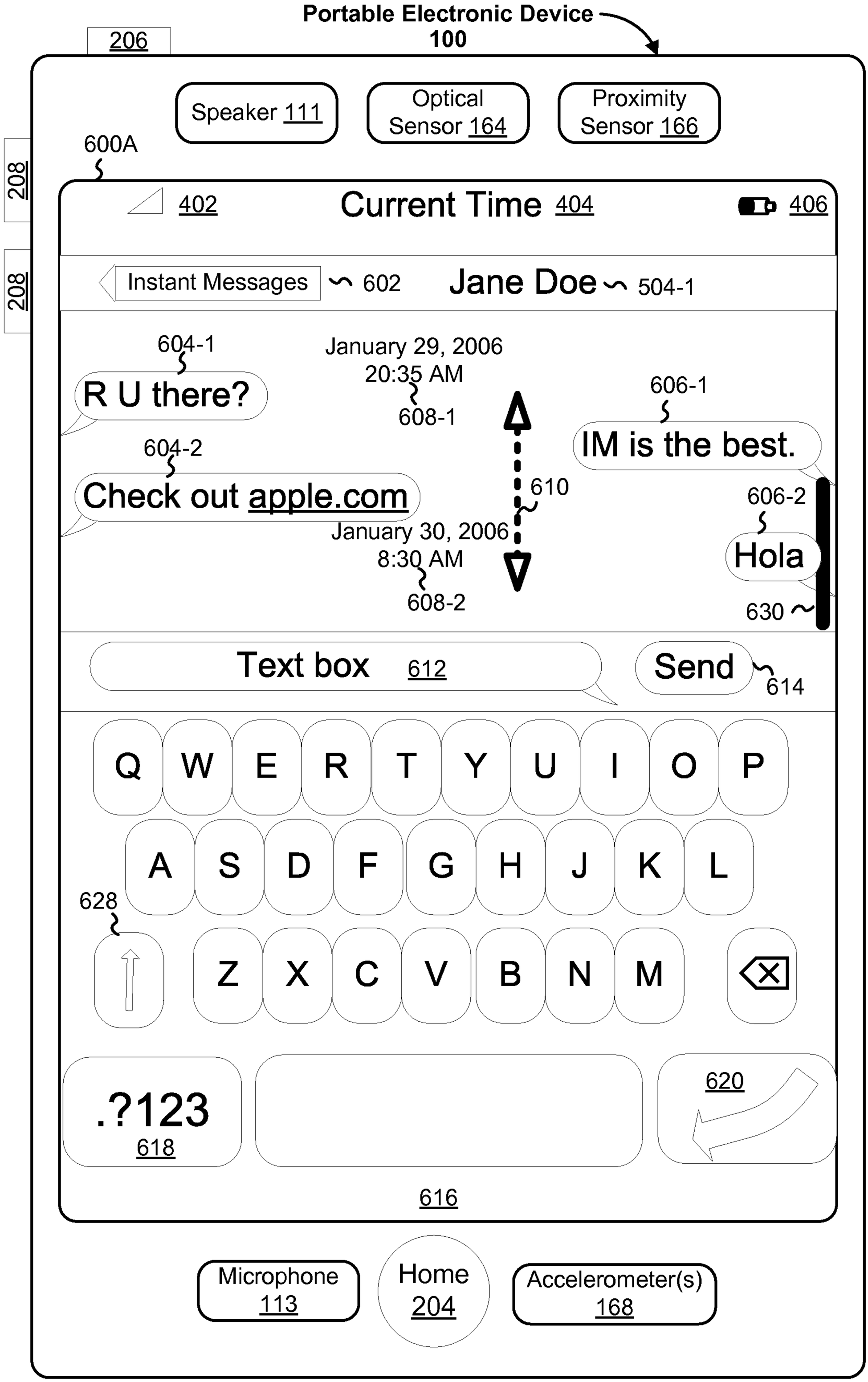
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
600A
208
402
Current Time 404
406
Instant Messages
602
Jane Doe
504-1
604-1
R U there?
January 29, 2006
20:35 AM
608-1
606-1
IM is the best.
604-2
Check out apple.com
610
606-2
January 30, 2006
8:30 AM
608-2
Hola
630
Text box 612
Send
614
Q W E R T Y U I O P
A S D F G H J K L
628
Z X C V B N M
.?123
618
620
616
Microphone 113
Home 204
Accelerometer(s) 168

Figure 6A

Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
600B
208
402
Current Time 404
406
Instant Messages
602
Jane Doe
504-1
R U there?
604-1
606-1
IM is the best.
Check out apple.com
604-2
January 30, 2006 8:30 AM
608-2
606-2
Hola
630
How was your vacat
612
Send
614
vacant
vacate
vacation
622
vacat
Q W E R T Y U I O P
A S D F G H J K L
628
Z X C V B N M
.?123
618
620
616
Microphone 113
Home 204
Accelerometer(s) 168

Figure 6B

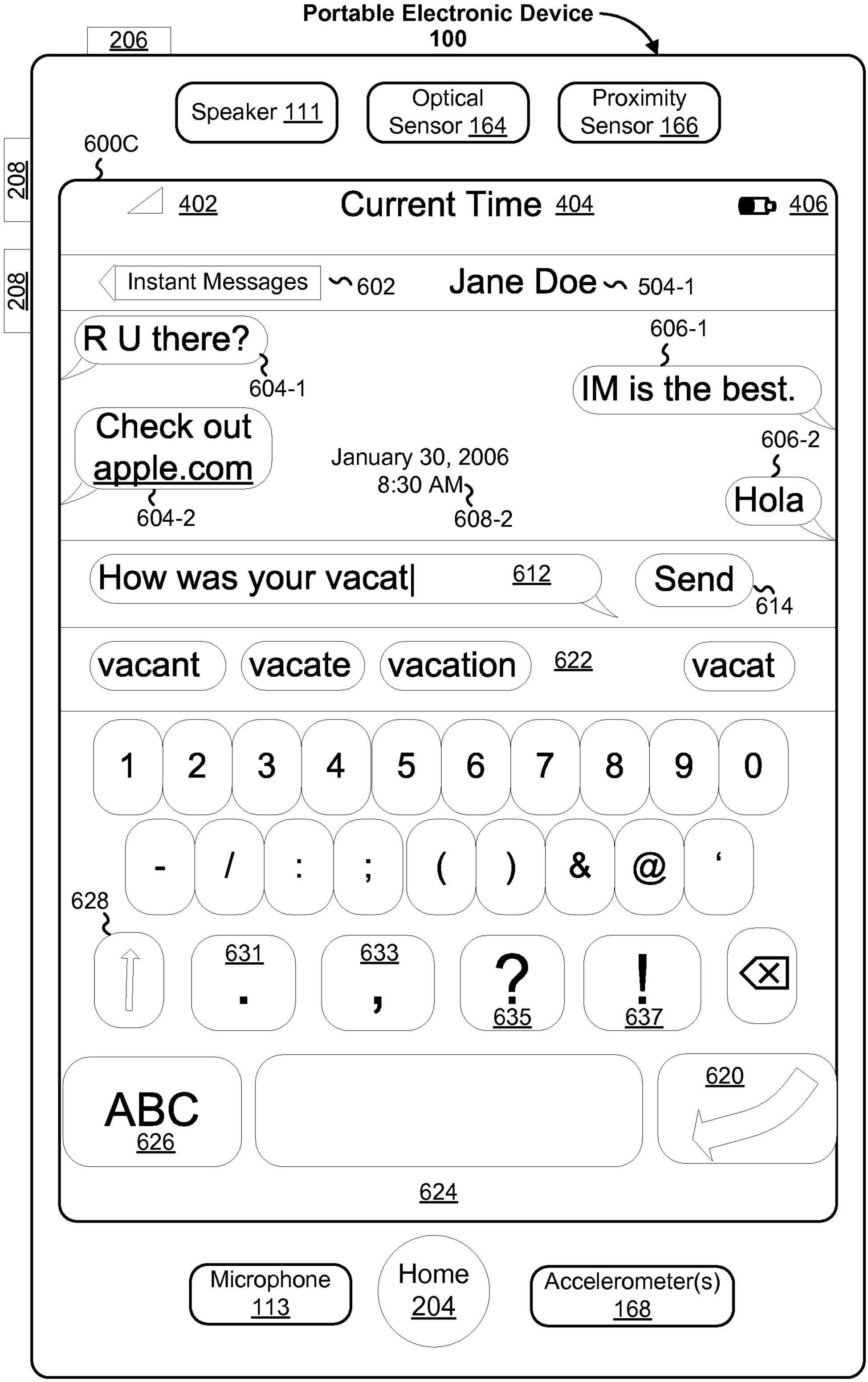
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
208
600C
402
Current Time 404
406
208
Instant Messages
602
Jane Doe
504-1
R U there?
604-1
606-1
IM is the best.
Check out apple.com
604-2
January 30, 2006
8:30 AM
608-2
606-2
Hola
How was your vacat
612
Send
614
vacant
vacate
vacation
622
vacat
1 2 3 4 5 6 7 8 9 0
- / : ; ( ) & @ ‘
628
631
.
633
,
?
635
!
637
620
ABC
626
624
Microphone 113
Home 204
Accelerometer(s) 168

Figure 6C

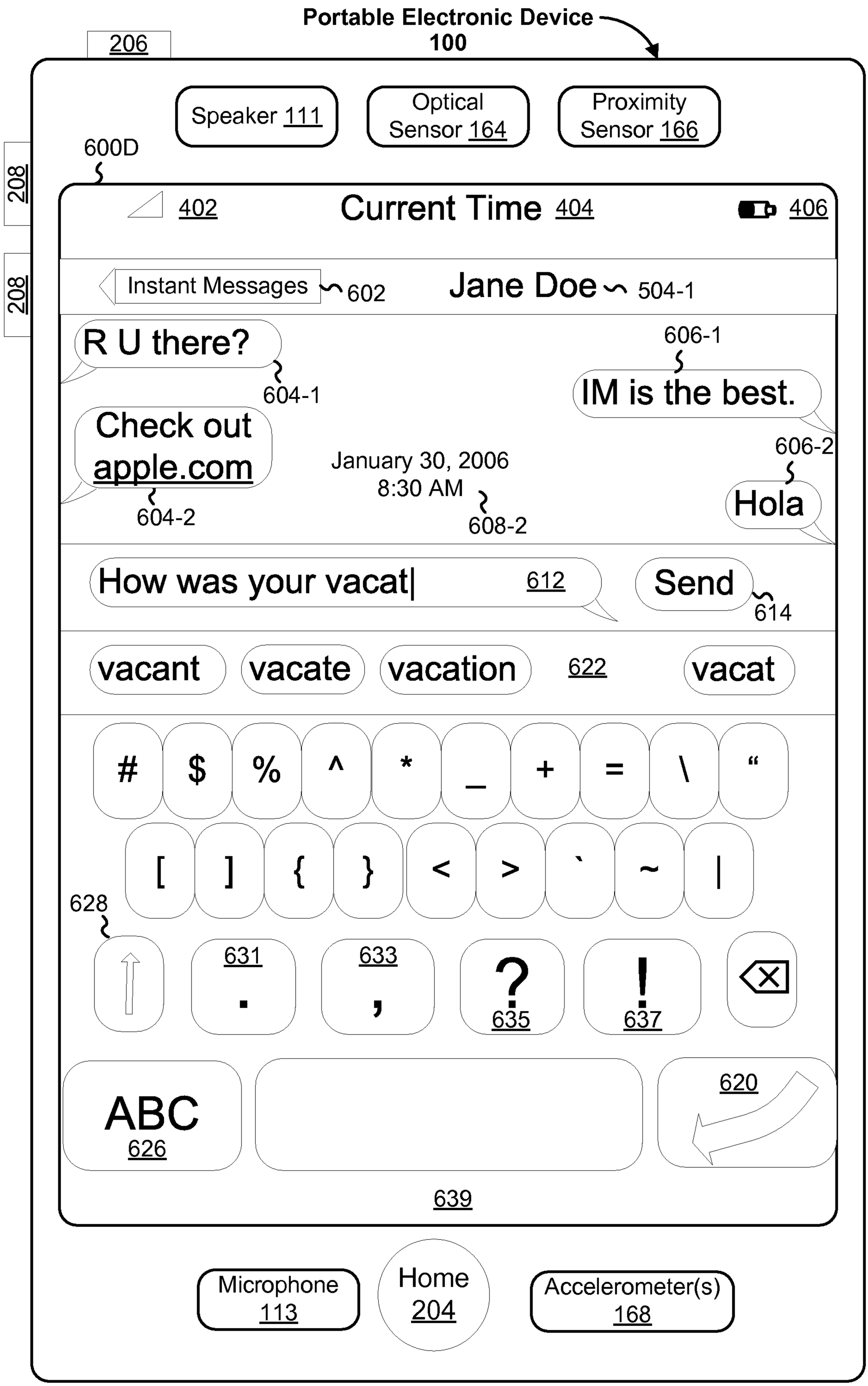
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
600D
208
402
Current Time 404
406
Instant Messages 602
Jane Doe 504-1
R U there?
604-1
606-1
IM is the best.
Check out apple.com
604-2
January 30, 2006
8:30 AM
608-2
606-2
Hola
How was your vacat
612
Send
614
vacant
vacate
vacation
622
vacat
628
631
633
635
637
620
ABC
626
639
Microphone 113
Home 204
Accelerometer(s) 168

Figure 6D

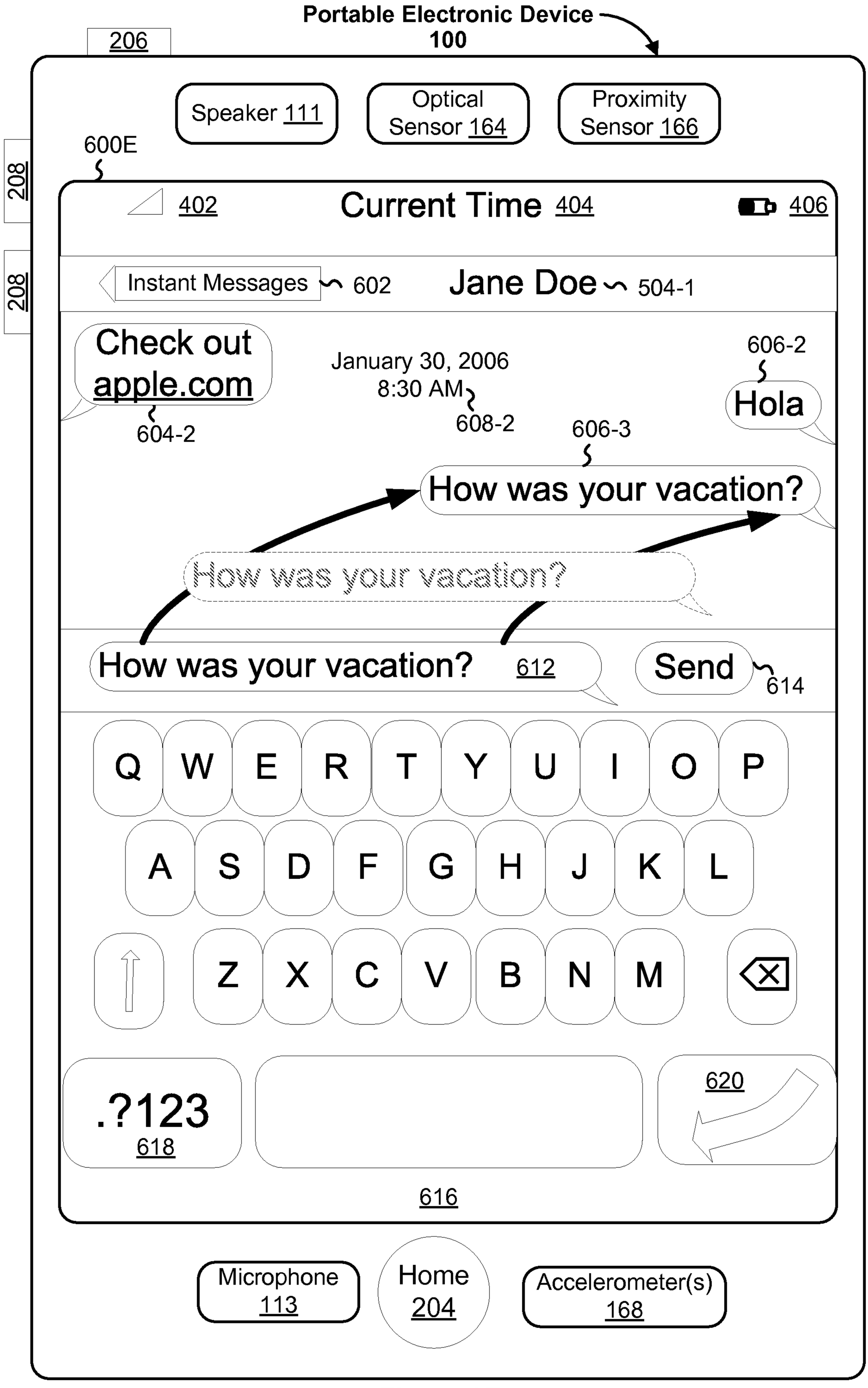
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
600E
208
402
Current Time 404
406
Instant Messages 602
Jane Doe 504-1
Check out apple.com
604-2
January 30, 2006
8:30 AM
608-2
606-2
Hola
606-3
How was your vacation?
How was your vacation?
How was your vacation? 612
Send 614
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
.?123
618
620
616
Microphone 113
Home 204
Accelerometer(s) 168

Figure 6E

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
600F
208
208
402
Current Time 404
406
New Message
636
Cancel
To: 632
634
+
Text box 612
Send
614
Q W E R T Y U I O P
A S D F G H J K L
628
Z X C V B N M
.?123
618
Space
Return
620
616
Microphone 113
Home 204
Accelerometer(s) 168

Figure 6F

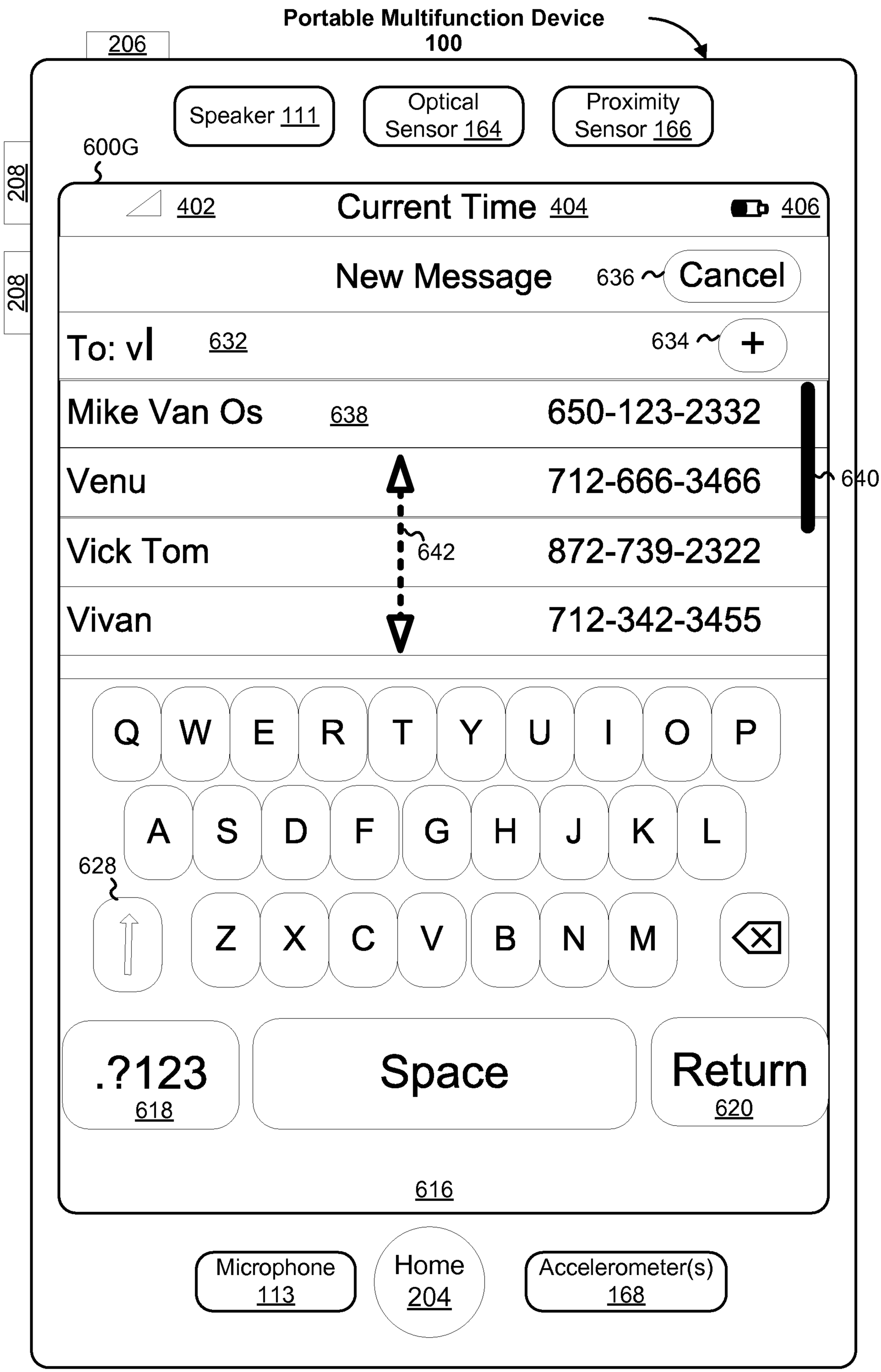
Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
600G
208
402
Current Time 404
406
New Message
636
Cancel
To: v
632
634
+
Mike Van Os
638
650-123-2332
Venu
712-666-3466
640
Vick Tom
642
872-739-2322
Vivan
712-342-3455
Q W E R T Y U I O P
A S D F G H J K L
628
Z X C V B N M
.?123
618
Space
Return
620
616
Microphone 113
Home 204
Accelerometer(s) 168

Figure 6G

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
600H
208
402
Current Time 404
406
New Message
636
Cancel
To: Mike Van Os 632
634
+
dinner 644
Can you make din 656
612
Send 614
Q W E R T Y U I O P
A S D F G H N K L
628
Z X C V B N M
.?123 618
dinner 646
Return 620
616
Microphone 113
Home 204
Accelerometer(s) 168

Figure 6H

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
600I
208
402
Current Time 404
406
New Message
636
Cancel
To: Mike Van Os 632
634
+
656
Can you make dinner!? I will pick Dan from the day care. 612
648-1
Send
614
Q W E R T Y U I O P
A S D F G H N K L
628
Z X C V B N M
.?123
618
Space
Return
620
616
Microphone 113
Home 204
Accelerometer(s) 168

Figure 6I

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
600J
208
208
402
Current Time 404
406
New Message
636
Cancel
To: Mike Van Os 632
634
+
657-1
650-2
you ma
657-2
Dan
ner ? I
day c
650-1
ke dinner? I will
pic rom the day care. 612
648-1
648-2
Send
614
Q W E R T Y U I O P
A S D F G H N K L
648-3
628
Z X C V B N M
.?123
618
Space
Return
620
616
Microphone
113
Home
204
Accelerometer(s)
168

Figure 6J

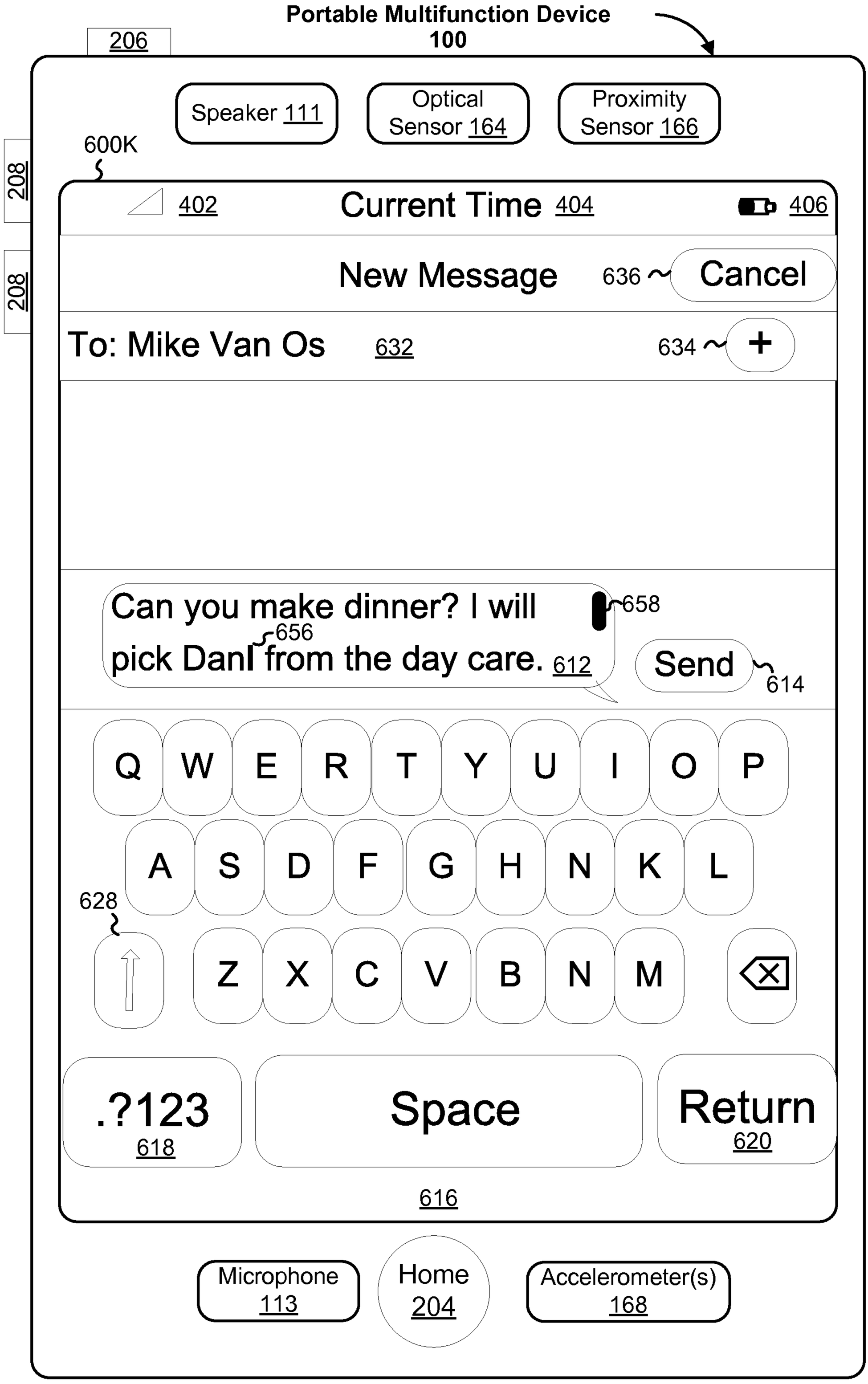
Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
600K
208
402
Current Time 404
406
New Message
636
Cancel
To: Mike Van Os 632
634
+
Can you make dinner? I will pick DanI 656 from the day care. 612
658
Send
614
Q W E R T Y U I O P
A S D F G H N K L
628
Z X C V B N M
.?123
618
Space
Return
620
616
Microphone 113
Home 204
Accelerometer(s) 168

Figure 6K

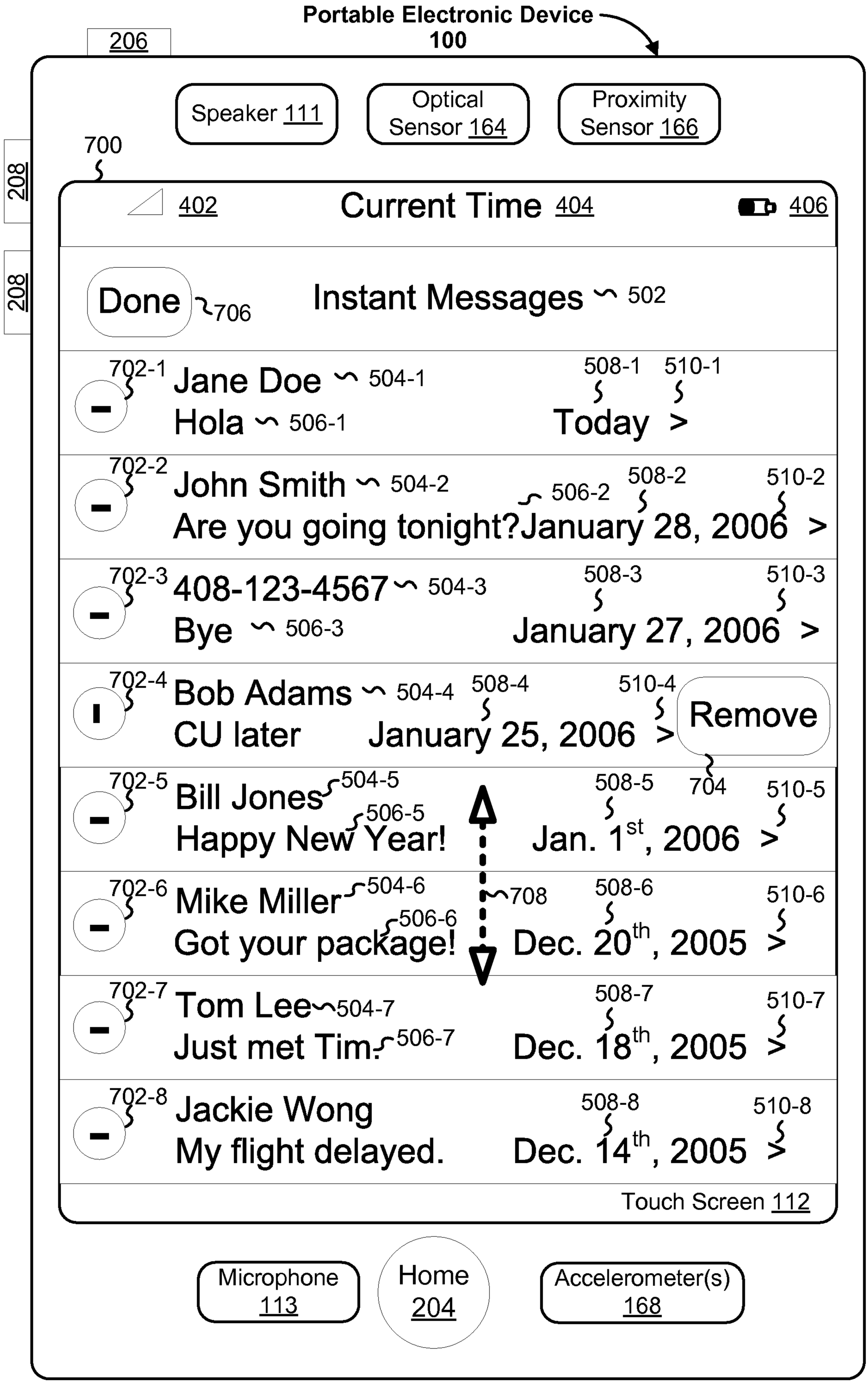
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
700
208
402
Current Time 404
406
208
Done 706
Instant Messages 502
702-1
Jane Doe 504-1
Hola 506-1
508-1
510-1
Today >
702-2
John Smith 504-2
Are you going tonight? 506-2
508-2
January 28, 2006
510-2 >
702-3
408-123-4567 504-3
Bye 506-3
508-3
January 27, 2006
510-3 >
702-4
Bob Adams 504-4
CU later
508-4
January 25, 2006
510-4 >
Remove
704
702-5
Bill Jones 504-5
Happy New Year! 506-5
508-5
Jan. 1st, 2006
510-5 >
702-6
Mike Miller 504-6
Got your package! 506-6
708
508-6
Dec. 20th, 2005
510-6 >
702-7
Tom Lee 504-7
Just met Tim! 506-7
508-7
Dec. 18th, 2005
510-7 >
702-8
Jackie Wong
My flight delayed.
508-8
Dec. 14th, 2005
510-8 >
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168

Figure 7

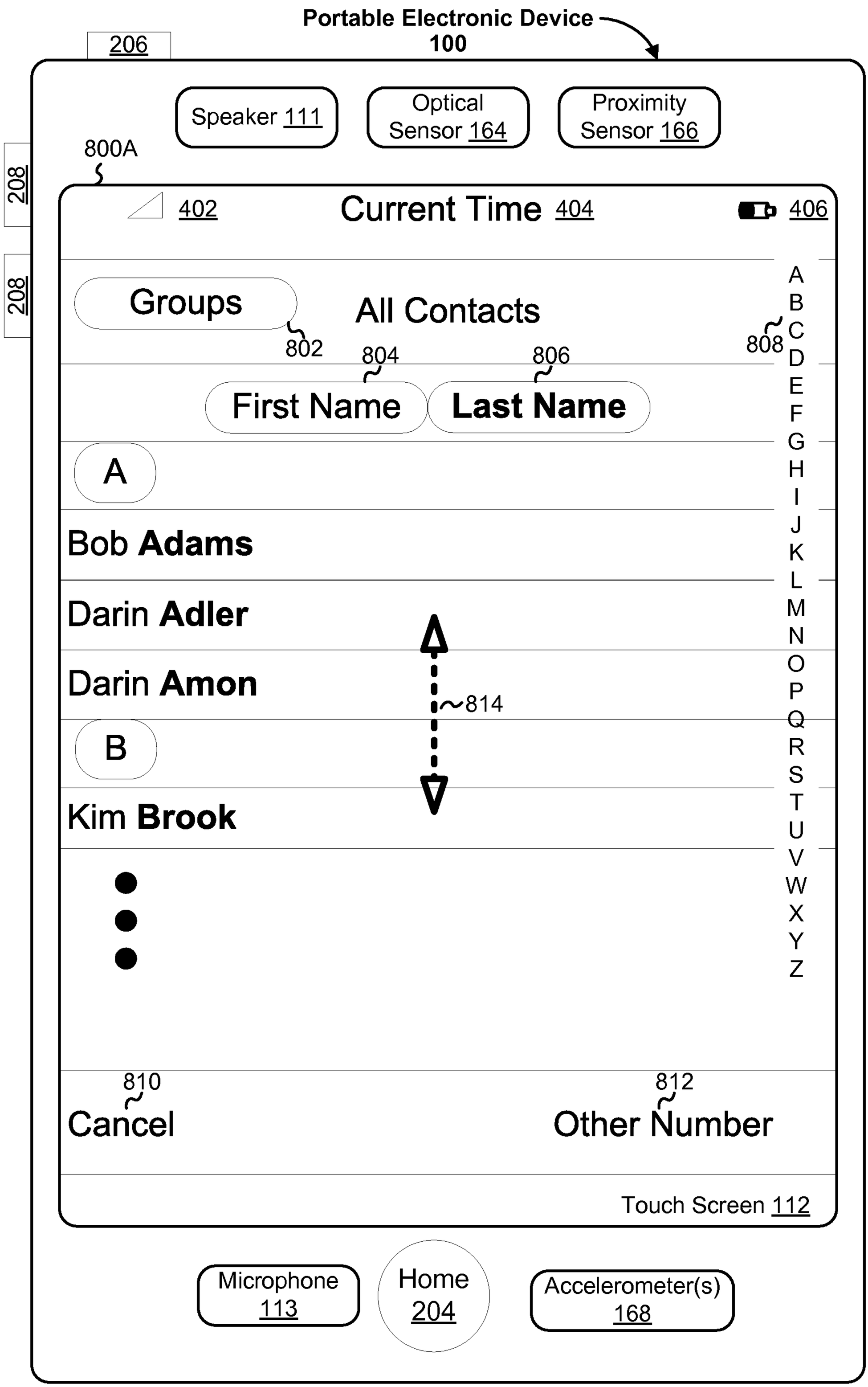
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
800A
208
402
Current Time 404
406
Groups
802
All Contacts
808
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
804
806
First Name
Last Name
A
Bob Adams
Darin Adler
Darin Amon
814
B
Kim Brook
810
Cancel
812
Other Number
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168

Figure 8A

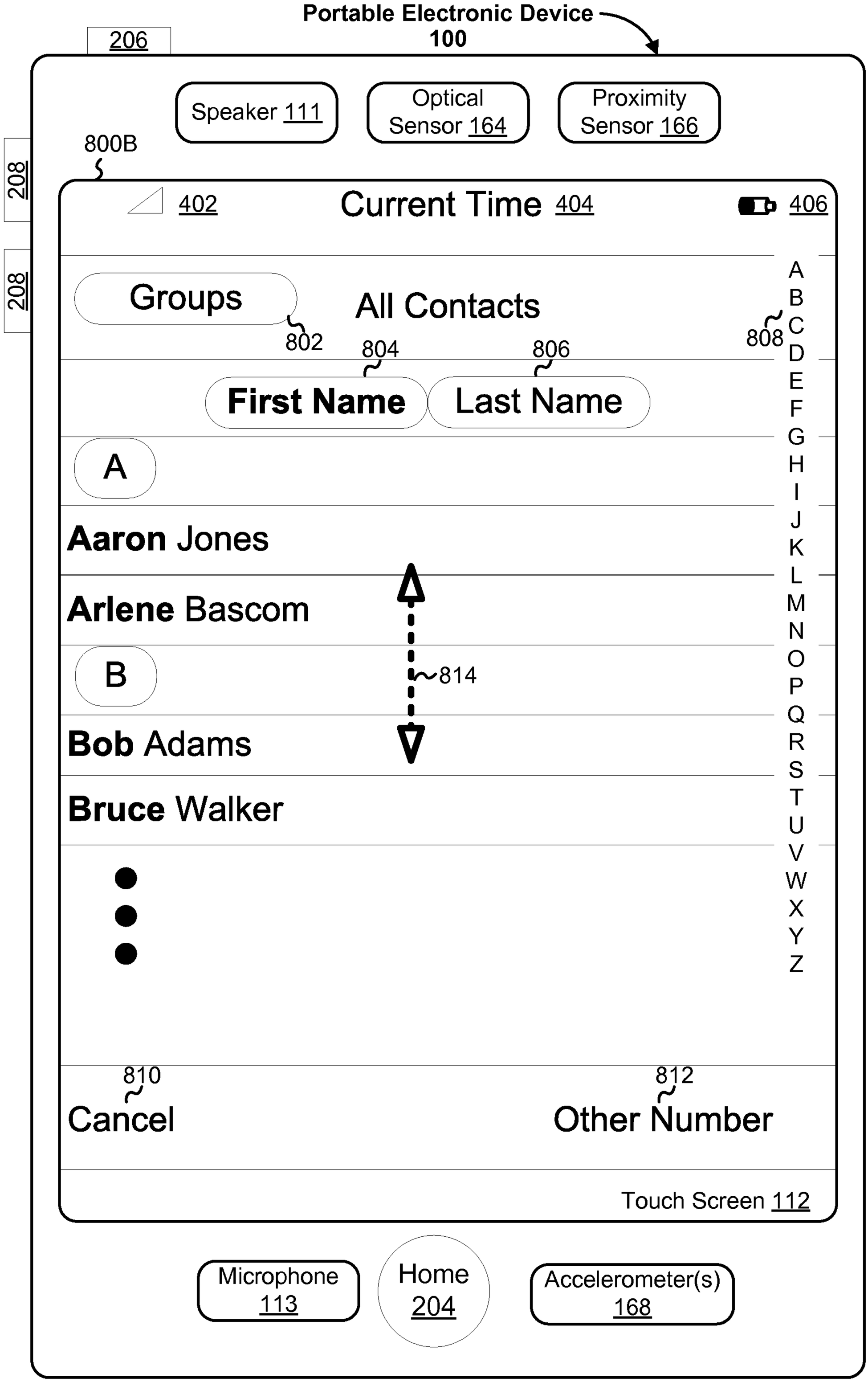
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
800B
208
402
Current Time 404
406
Groups
802
All Contacts
804
806
808
First Name
Last Name
A
Aaron Jones
Arlene Bascom
B
814
Bob Adams
Bruce Walker
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
810
Cancel
812
Other Number
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168

Figure 8B

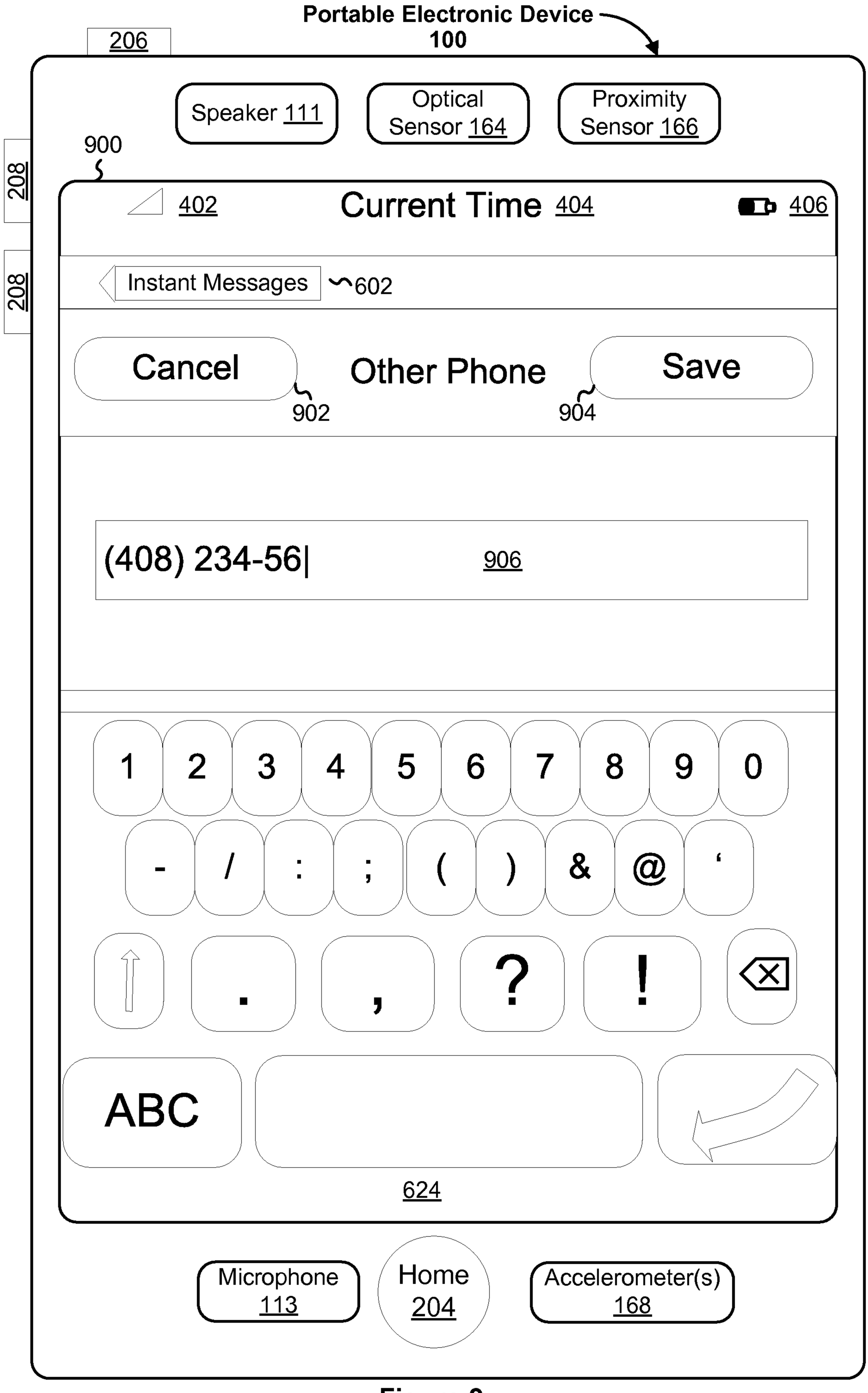
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
900
208
402
Current Time 404
406
208
Instant Messages
602
Cancel
902
Other Phone
Save
904
(408) 234-56|
906
1 2 3 4 5 6 7 8 9 0
- / : ; ( ) & @ ‘
. , ? !
ABC
624
Microphone 113
Home 204
Accelerometer(s) 168

Figure 9

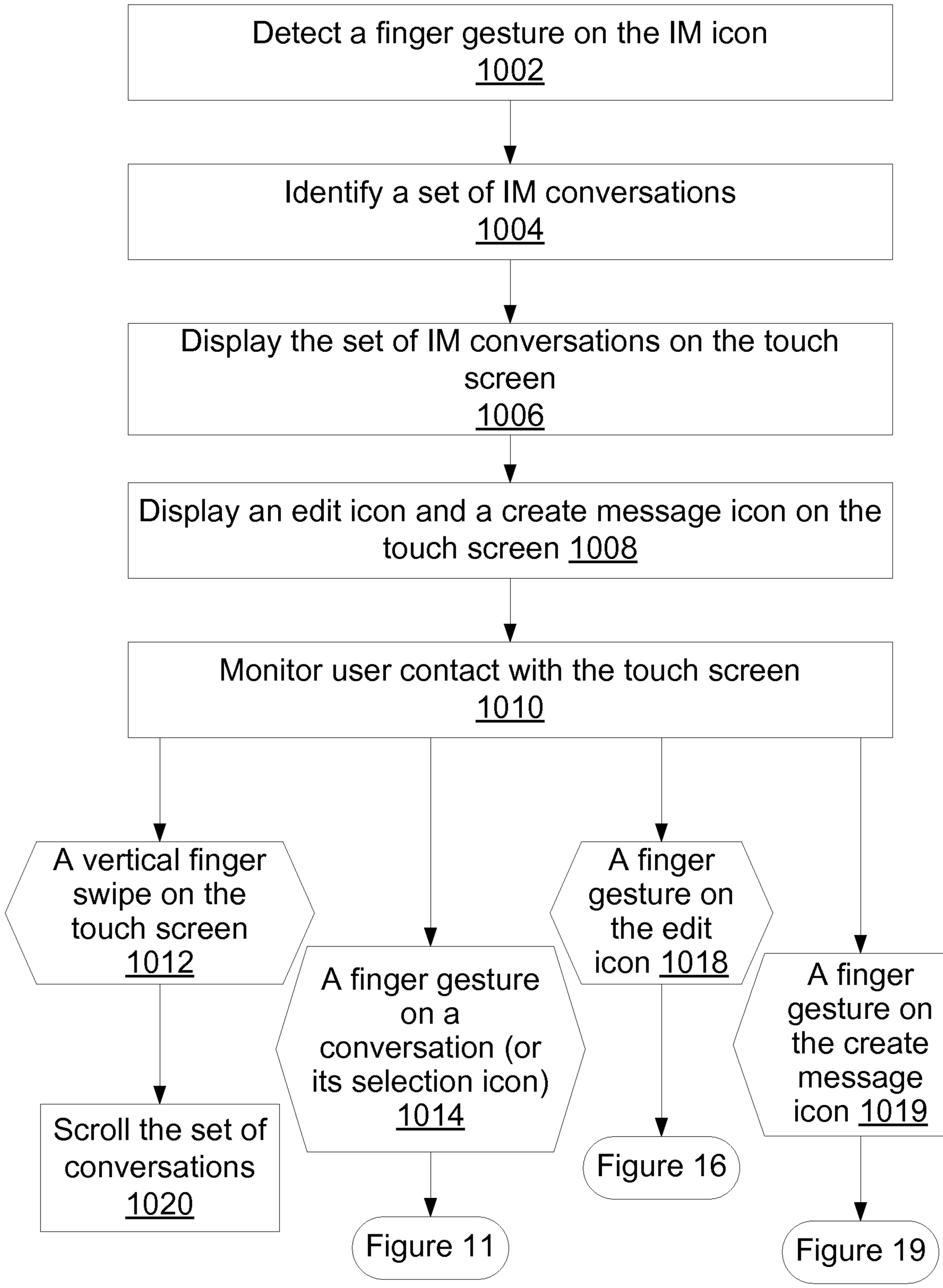
Detect a finger gesture on the IM icon 1002
Identify a set of IM conversations 1004
Display the set of IM conversations on the touch screen 1006
Display an edit icon and a create message icon on the touch screen 1008
Monitor user contact with the touch screen 1010
A vertical finger swipe on the touch screen 1012
A finger gesture on a conversation (or its selection icon) 1014
A finger gesture on the edit icon 1018
A finger gesture on the create message icon 1019
Scroll the set of conversations 1020
Figure 11
Figure 16
Figure 19

Figure 10

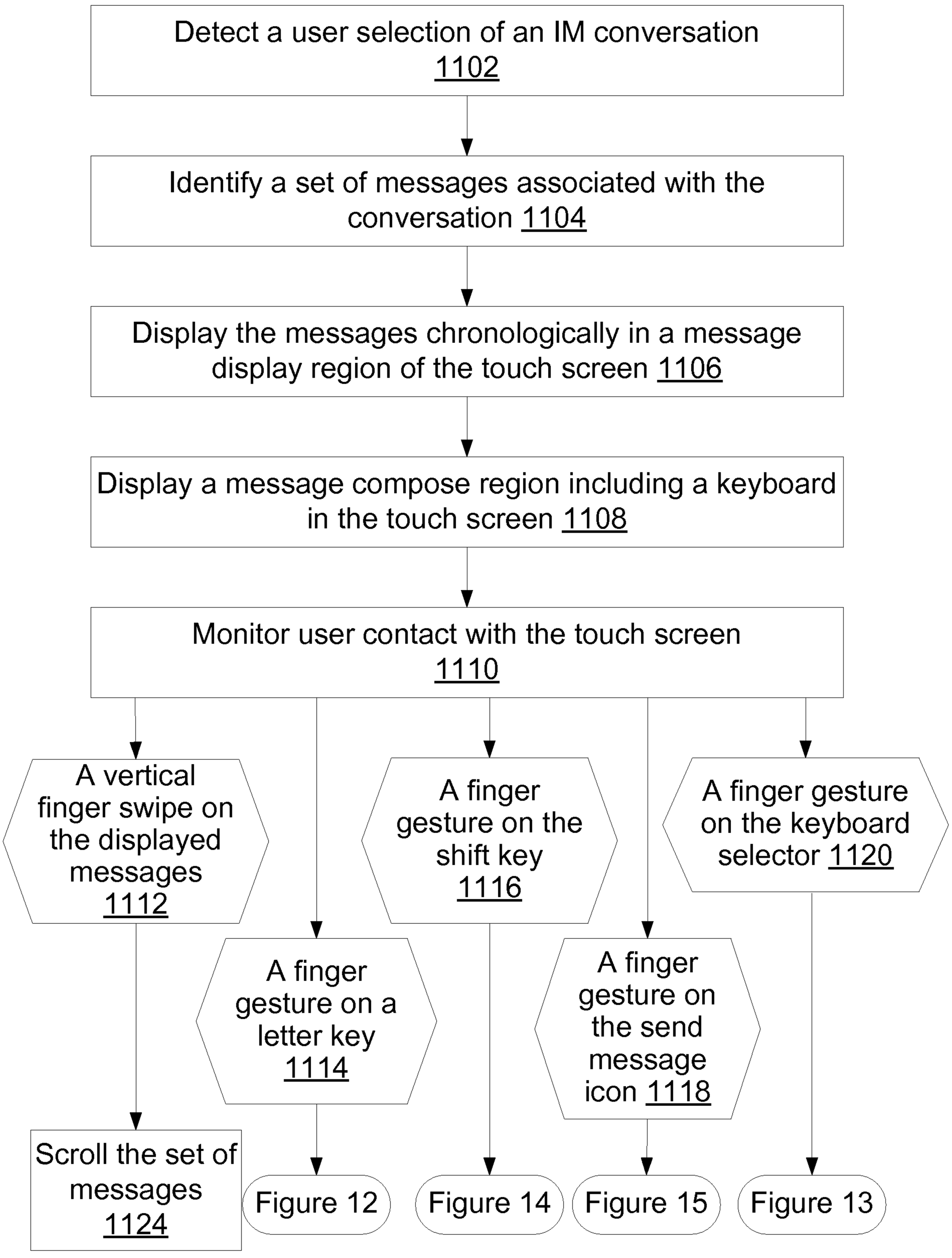
Detect a user selection of an IM conversation 1102
Identify a set of messages associated with the conversation 1104
Display the messages chronologically in a message display region of the touch screen 1106
Display a message compose region including a keyboard in the touch screen 1108
Monitor user contact with the touch screen 1110
A vertical finger swipe on the displayed messages 1112
A finger gesture on a letter key 1114
A finger gesture on the shift key 1116
A finger gesture on the send message icon 1118
A finger gesture on the keyboard selector 1120
Scroll the set of messages 1124
Figure 12
Figure 14
Figure 15
Figure 13

Figure 11

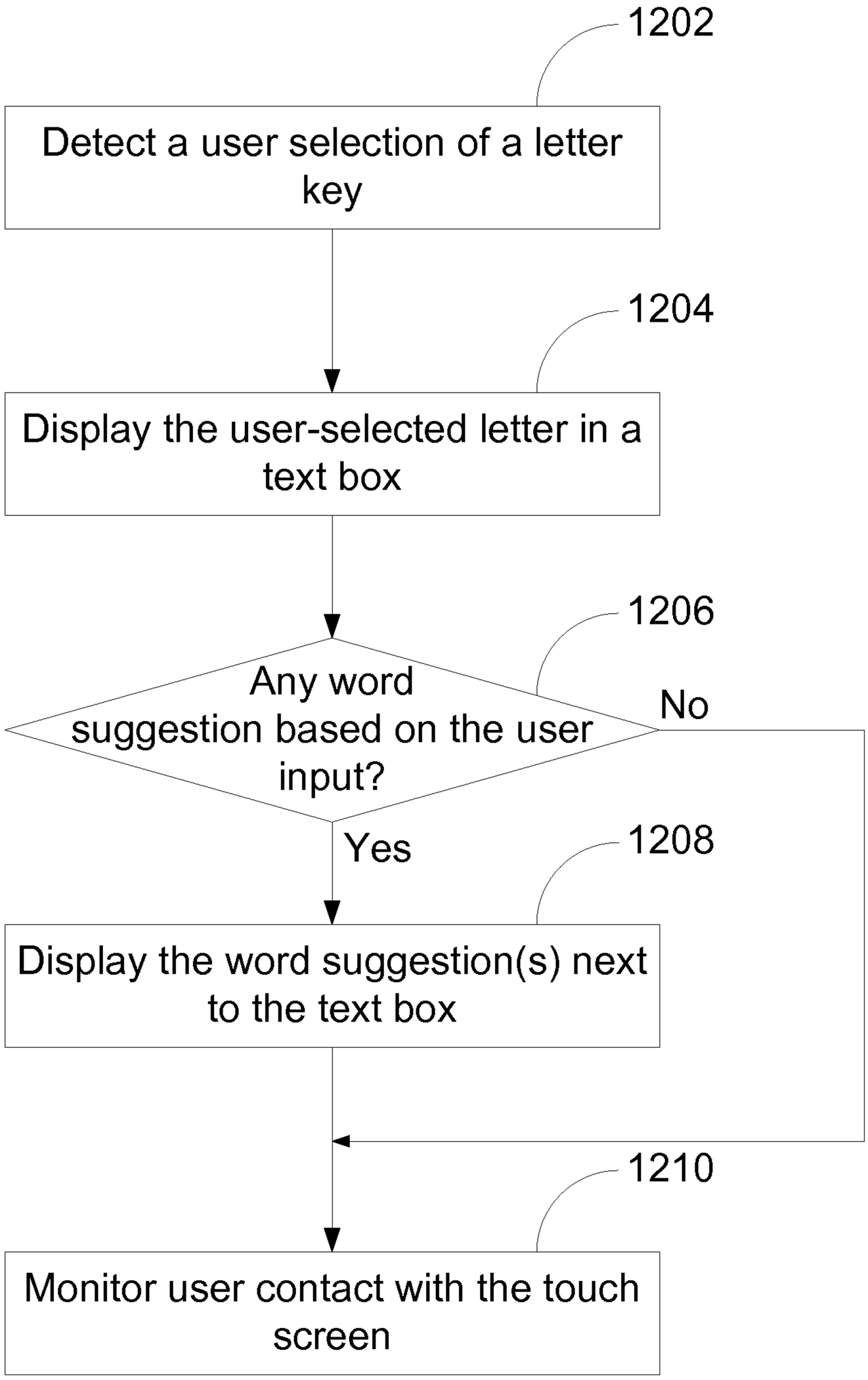
1202
Detect a user selection of a letter key
1204
Display the user-selected letter in a text box
1206
Any word suggestion based on the user input?
No
Yes
1208
Display the word suggestion(s) next to the text box
1210
Monitor user contact with the touch screen

Figure 12

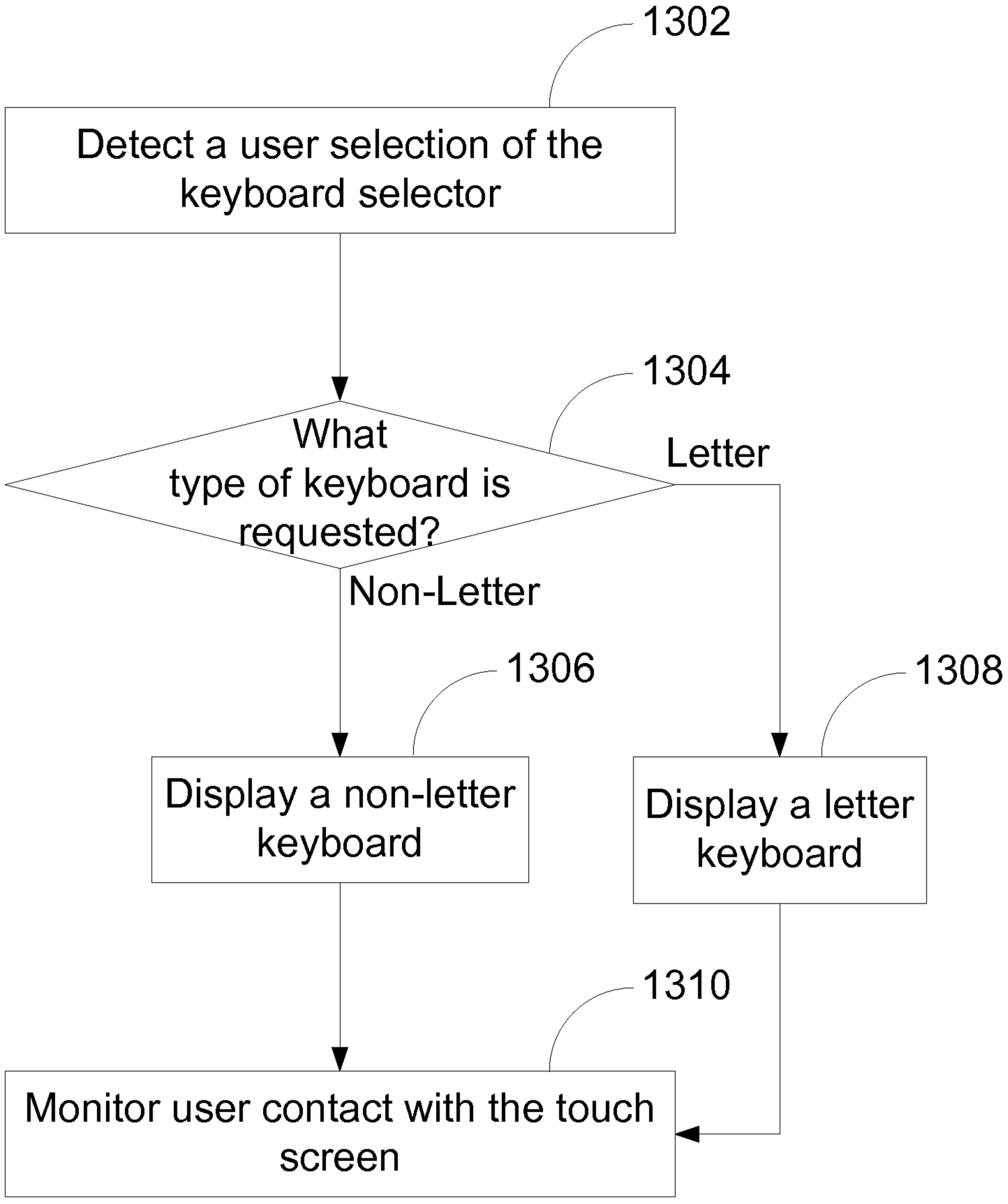
1302
Detect a user selection of the keyboard selector
1304
What type of keyboard is requested?
Letter
Non-Letter
1306
Display a non-letter keyboard
1308
Display a letter keyboard
1310
Monitor user contact with the touch screen

Figure 13

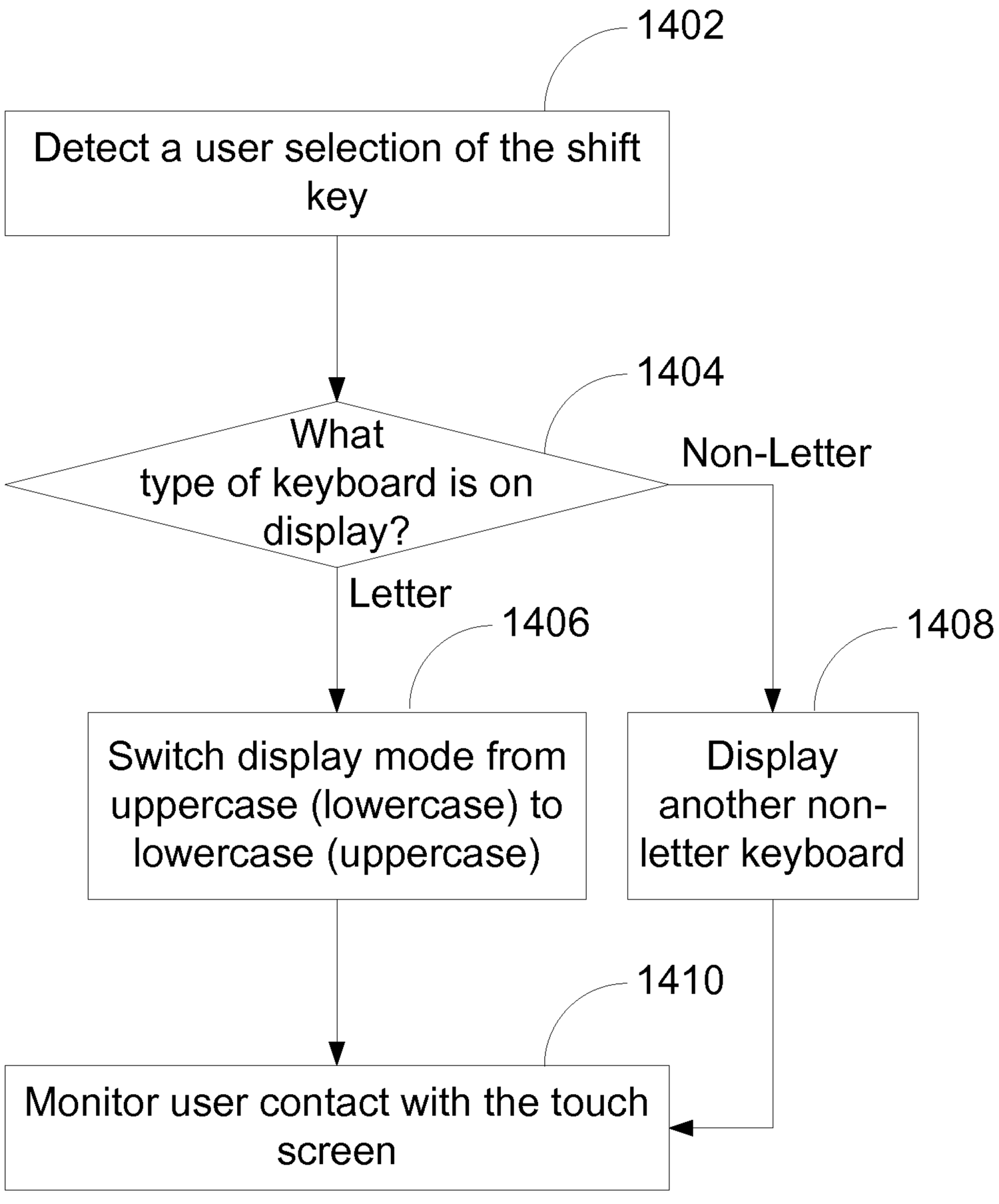
1402
Detect a user selection of the shift key
1404
What type of keyboard is on display?
Non-Letter
Letter
1406
1408
Switch display mode from uppercase (lowercase) to lowercase (uppercase)
Display another non-letter keyboard
1410
Monitor user contact with the touch screen

Figure 14

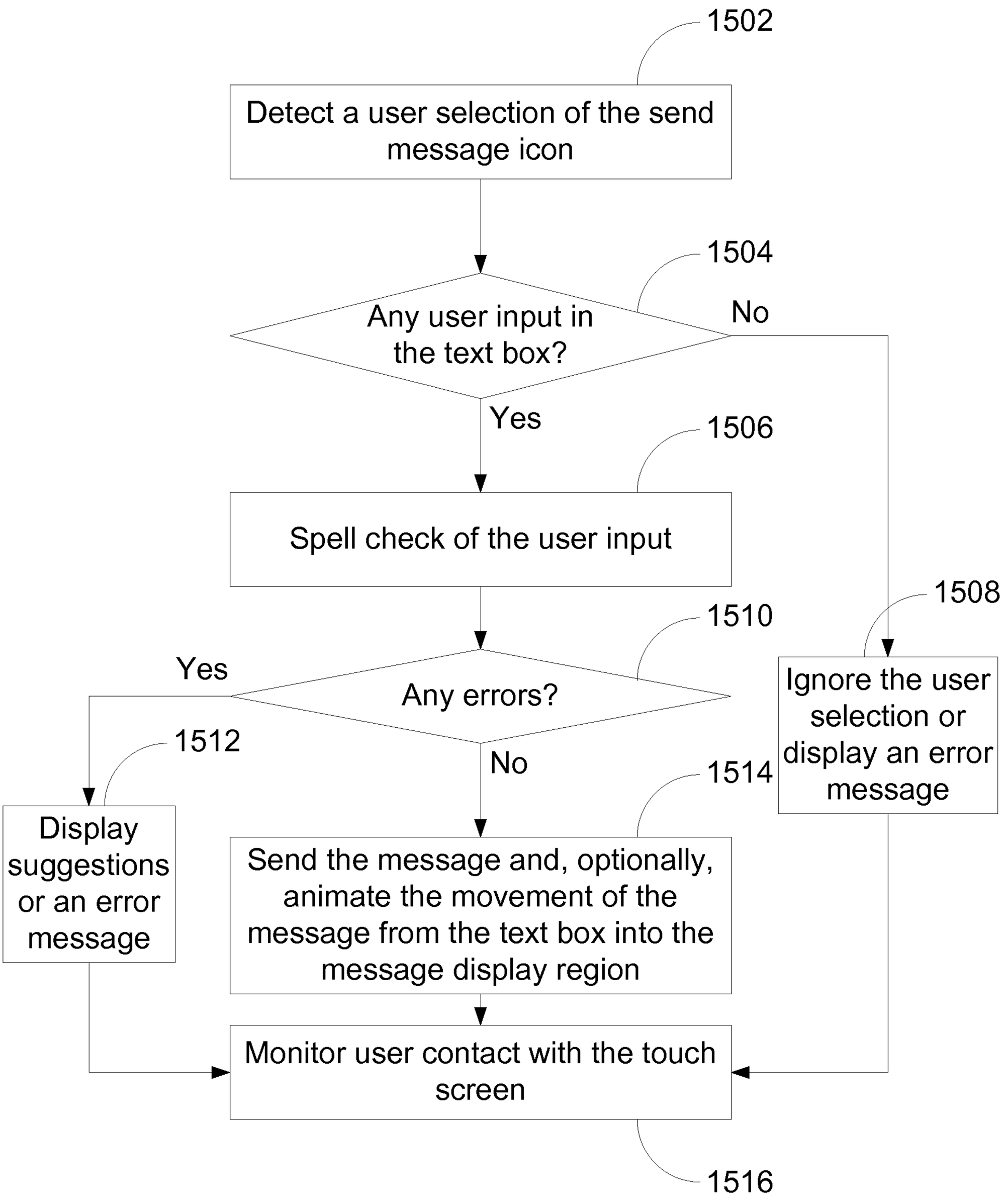
1502
Detect a user selection of the send message icon
1504
Any user input in the text box?
No
Yes
1506
Spell check of the user input
1508
1510
Any errors?
Yes
No
Ignore the user selection or display an error message
1512
Display suggestions or an error message
1514
Send the message and, optionally, animate the movement of the message from the text box into the message display region
Monitor user contact with the touch screen
1516

Figure 15

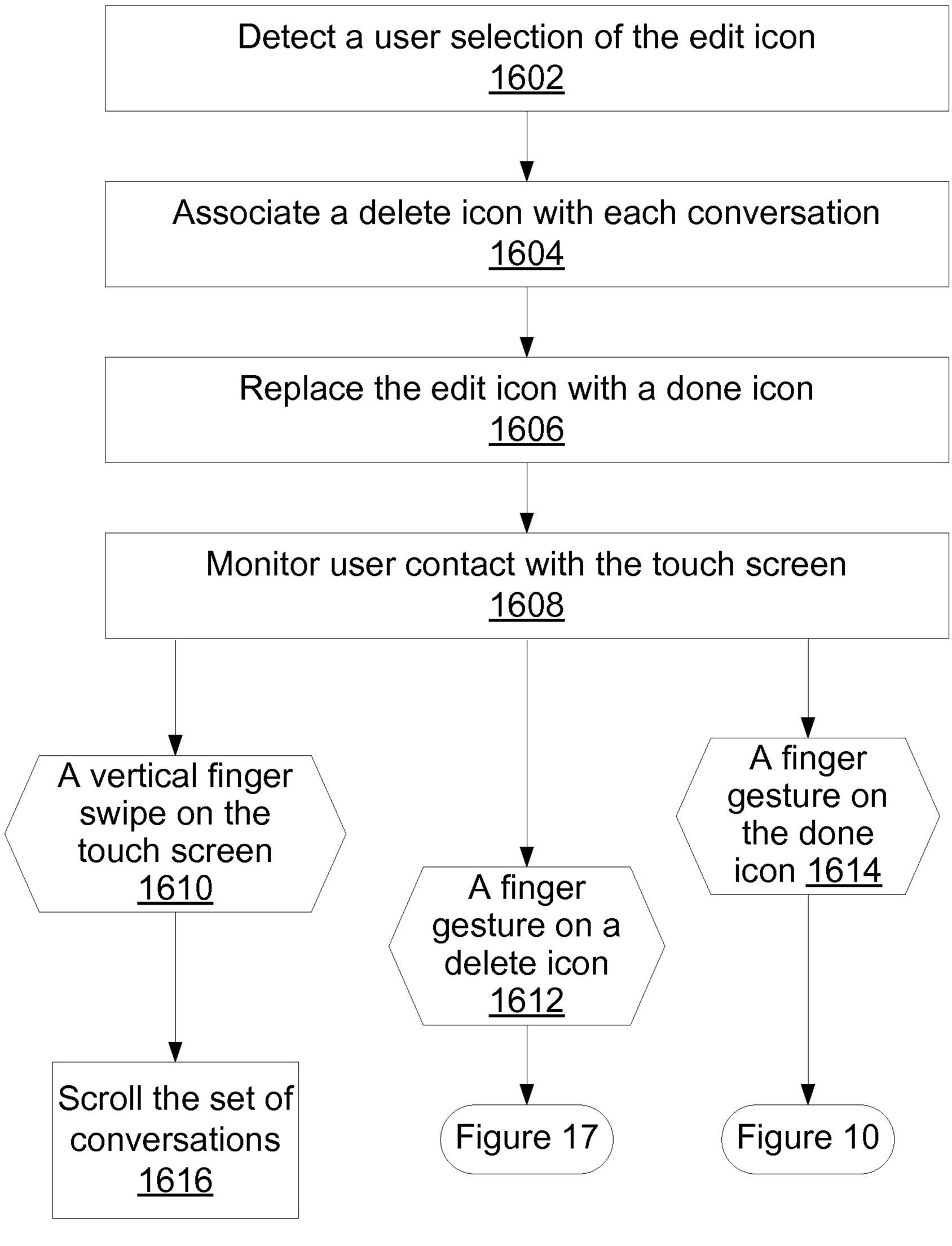
Detect a user selection of the edit icon 1602
Associate a delete icon with each conversation 1604
Replace the edit icon with a done icon 1606
Monitor user contact with the touch screen 1608
A vertical finger swipe on the touch screen 1610
A finger gesture on a delete icon 1612
A finger gesture on the done icon 1614
Scroll the set of conversations 1616
Figure 17
Figure 10

Figure 16

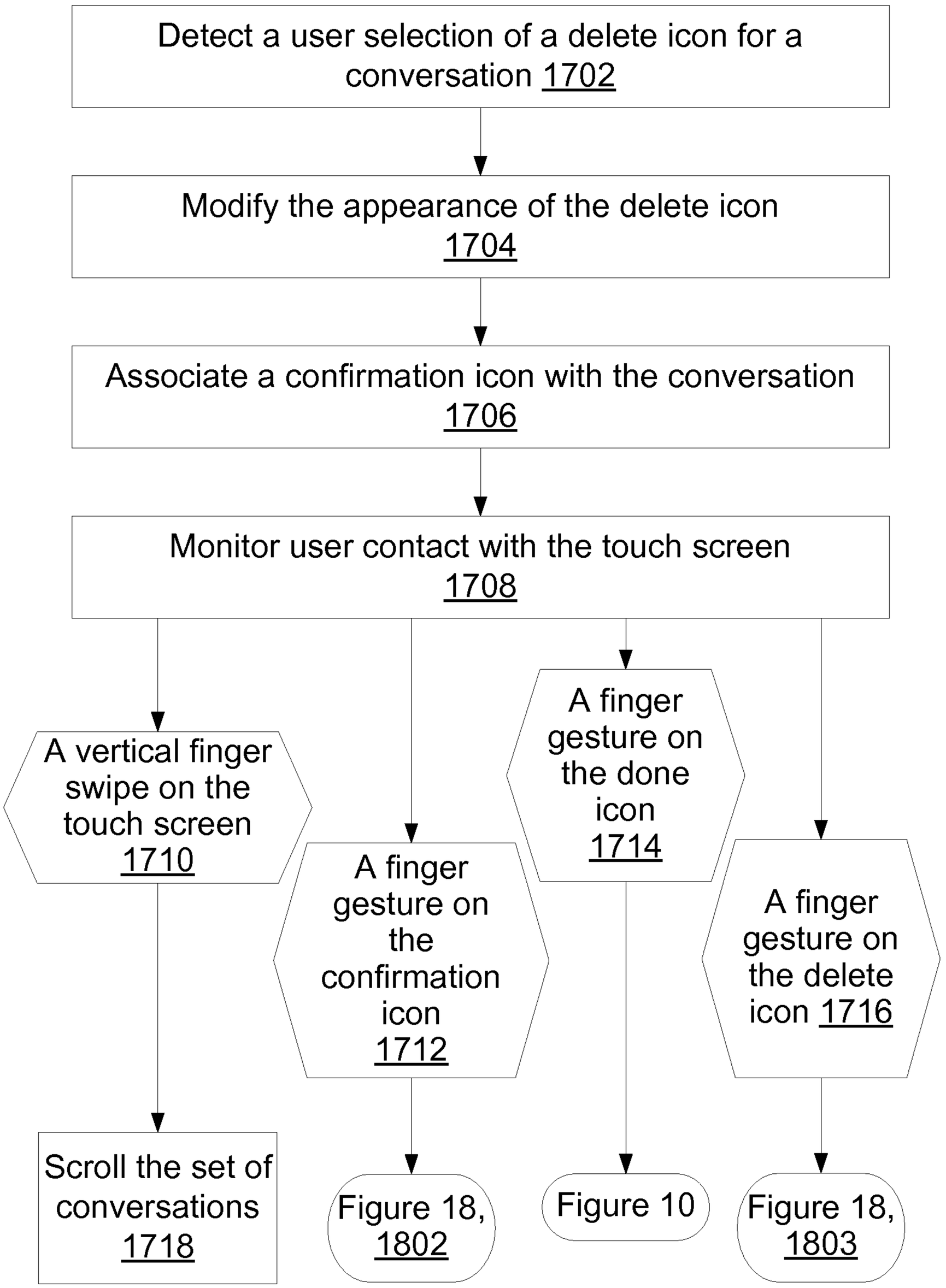
Detect a user selection of a delete icon for a conversation 1702
Modify the appearance of the delete icon 1704
Associate a confirmation icon with the conversation 1706
Monitor user contact with the touch screen 1708
A vertical finger swipe on the touch screen 1710
A finger gesture on the confirmation icon 1712
A finger gesture on the done icon 1714
A finger gesture on the delete icon 1716
Scroll the set of conversations 1718
Figure 18, 1802
Figure 10
Figure 18, 1803

Figure 17

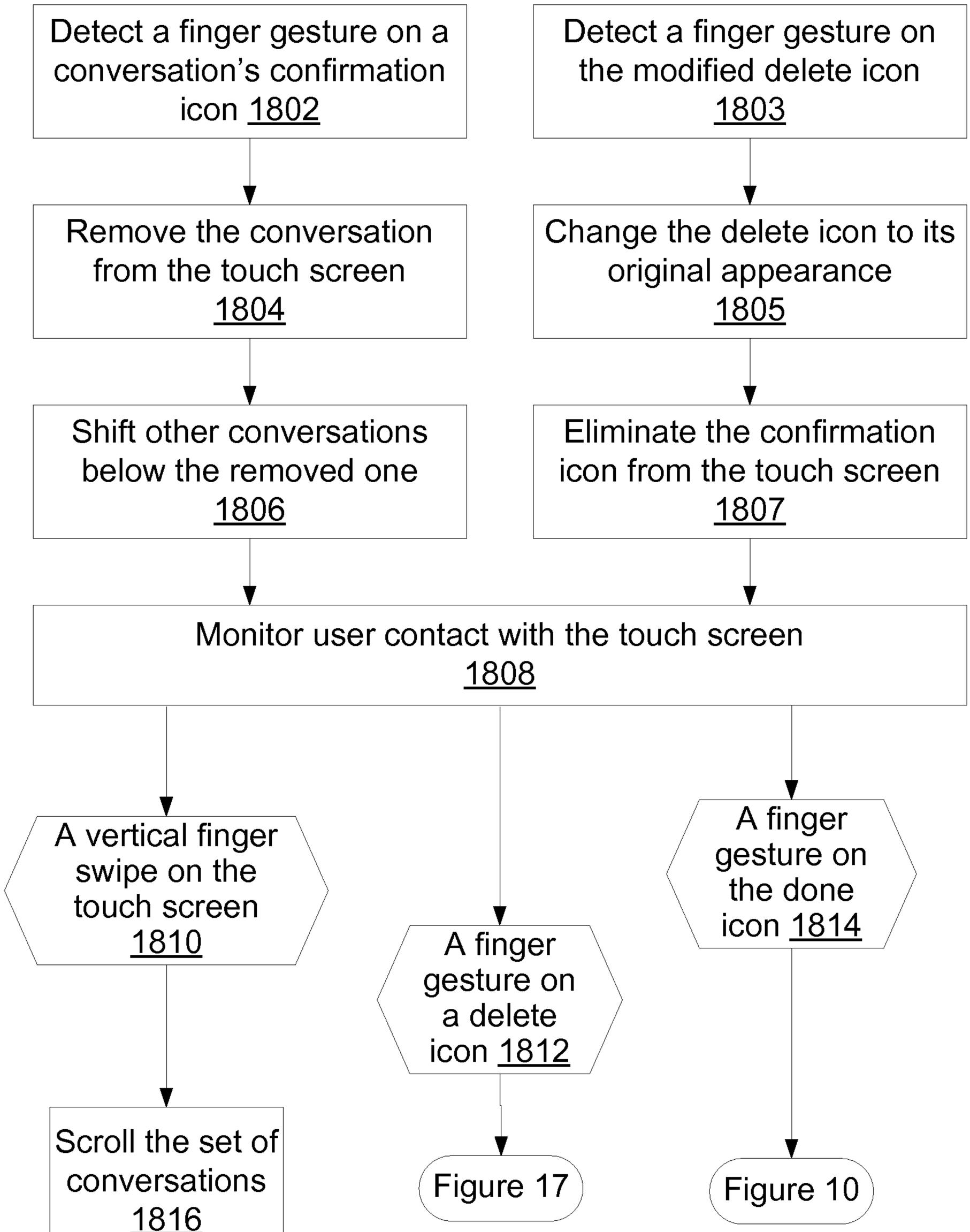
Detect a finger gesture on a conversation's confirmation icon 1802
Detect a finger gesture on the modified delete icon 1803
Remove the conversation from the touch screen 1804
Change the delete icon to its original appearance 1805
Shift other conversations below the removed one 1806
Eliminate the confirmation icon from the touch screen 1807
Monitor user contact with the touch screen 1808
A vertical finger swipe on the touch screen 1810
A finger gesture on a delete icon 1812
A finger gesture on the done icon 1814
Scroll the set of conversations 1816
Figure 17
Figure 10

Figure 18

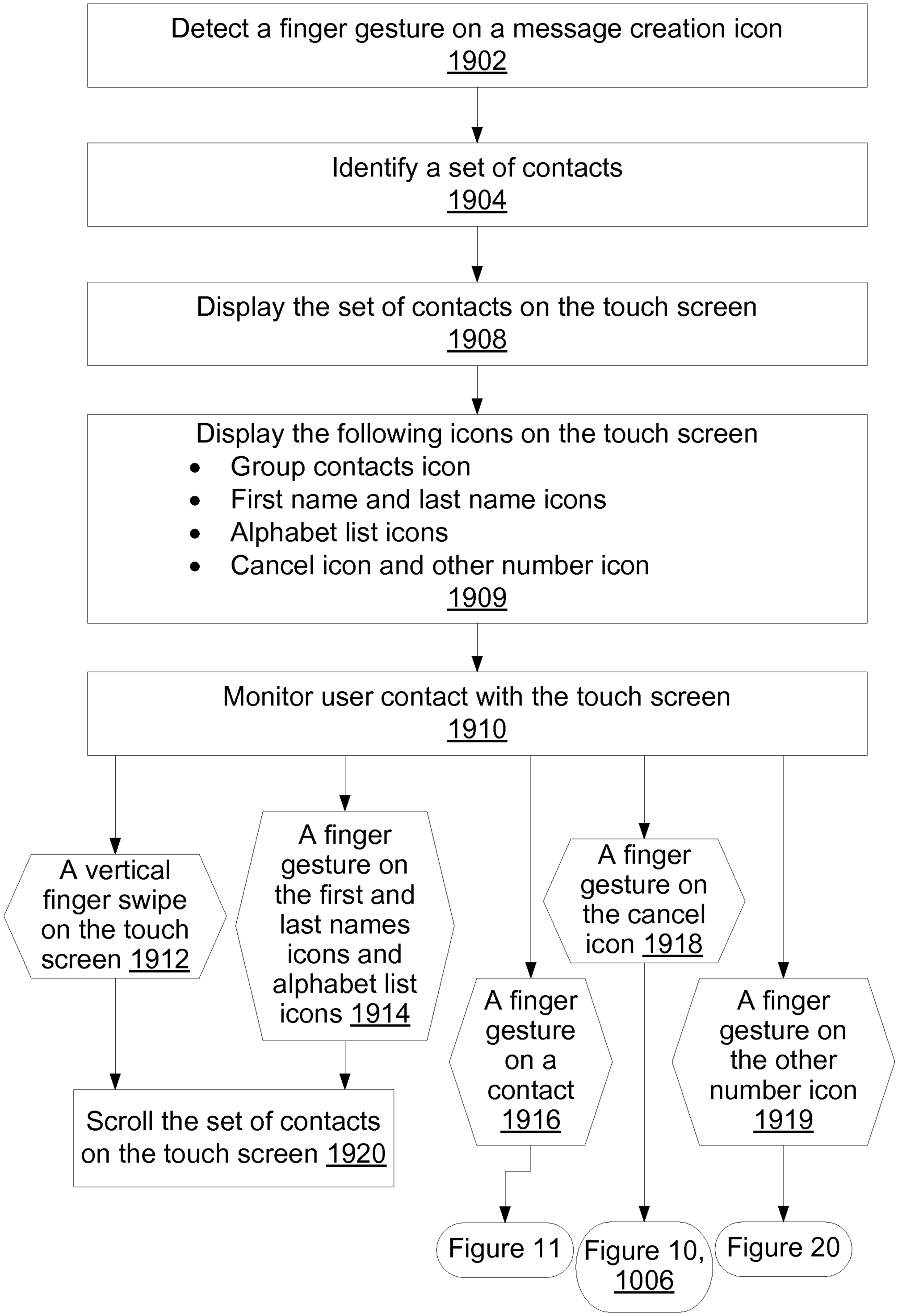
Detect a finger gesture on a message creation icon 1902
Identify a set of contacts 1904
Display the set of contacts on the touch screen 1908
Display the following icons on the touch screen
Group contacts icon
First name and last name icons
Alphabet list icons
Cancel icon and other number icon 1909
Monitor user contact with the touch screen 1910
A vertical finger swipe on the touch screen 1912
A finger gesture on the first and last names icons and alphabet list icons 1914
A finger gesture on a contact 1916
A finger gesture on the cancel icon 1918
A finger gesture on the other number icon 1919
Scroll the set of contacts on the touch screen 1920
Figure 11
Figure 10, 1006
Figure 20

Figure 19

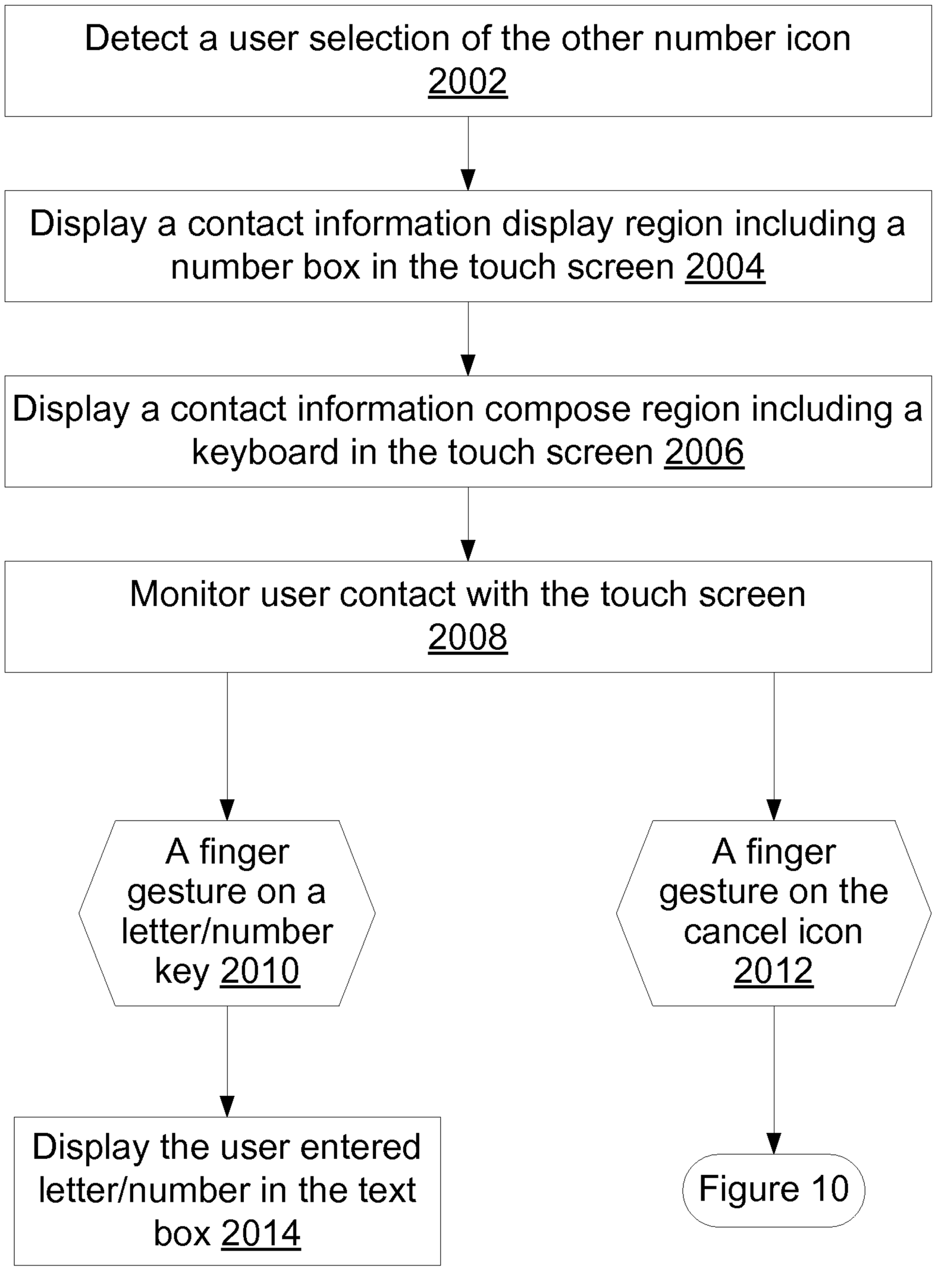
Detect a user selection of the other number icon 2002
Display a contact information display region including a number box in the touch screen 2004
Display a contact information compose region including a keyboard in the touch screen 2006
Monitor user contact with the touch screen 2008
A finger gesture on a letter/number key 2010
A finger gesture on the cancel icon 2012
Display the user entered letter/number in the text box 2014
Figure 10

Figure 20

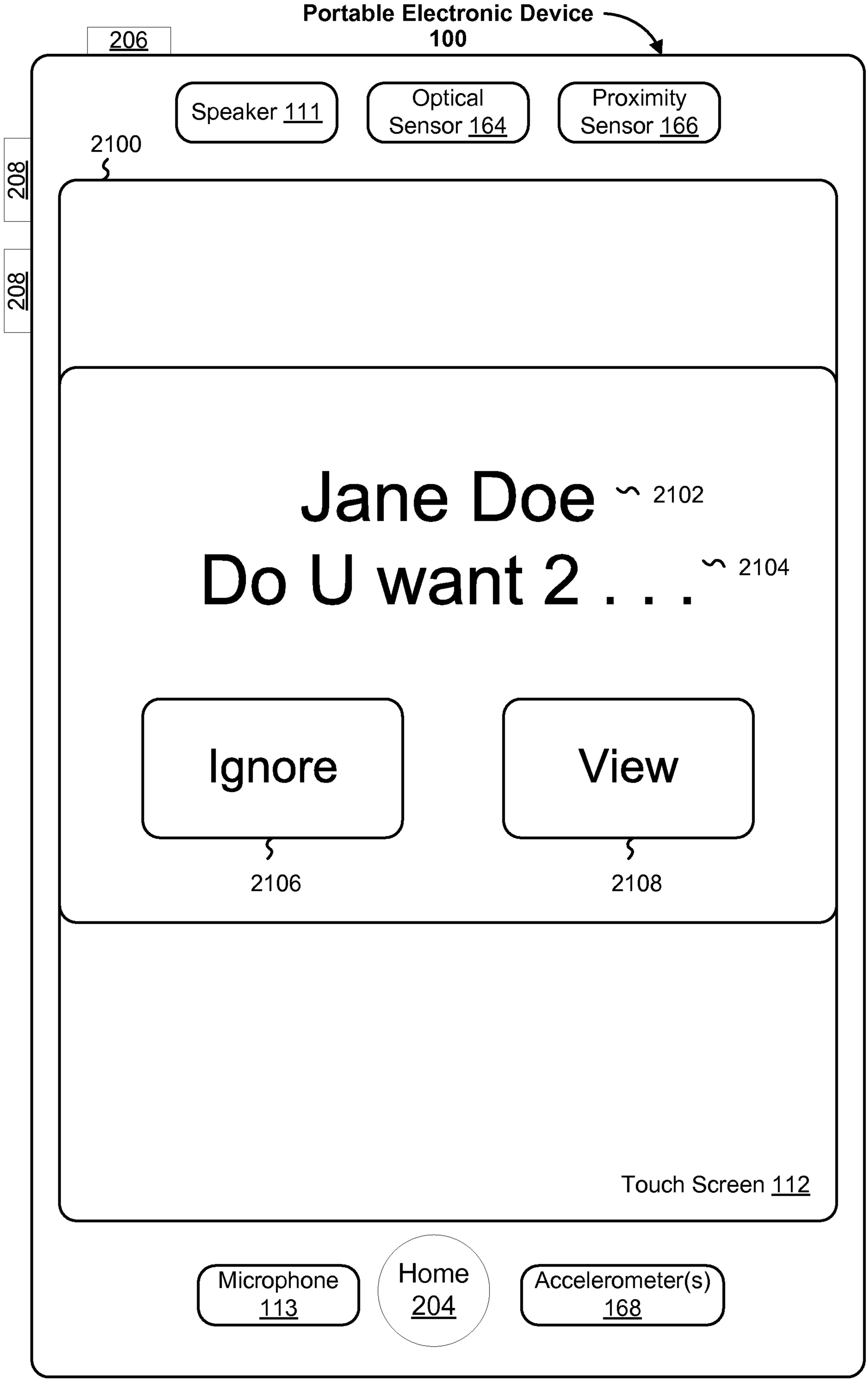
Portable Electronic Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
2100
208
208
Jane Doe
2102
Do U want 2 . . .
2104
Ignore
View
2106
2108
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168

Figure 21

Portable Electronic Device
100

206

Speaker 111

Optical Sensor 164

Proximity Sensor 166

208

500

208

402 Current Time 404 406

Edit 512 Instant Messages 502 + 514

Jane Doe 504-1
Hola 506-1
518
508-1 Today
510-1
516

John Smith 504-2
506-2 Are you going tonight?
508-2 January 28, 2006
510-2

408-123-4567 504-3
Bye 506-3
508-3 **January 27, 2006**
510-3

Bob Adams 504-4
CU later 506-4
508-4 January 25, 2006
510-4

Bill Jones 504-5
Happy New Year! 506-5
508-5 January 1st, 2006
510-5

Mike Miller 504-6
Got your package! 506-6
516
508-6 December 20th, 2005
510-6

Tom Lee 504-7
Just met Tim. 506-7
508-7 December 18th, 2005
510-7

Jackie Wong
My flight delayed.
508-8 December 14th, 2005
510-8

Touch Screen 112

Microphone 113

Home 204

Accelerometer(s) 168