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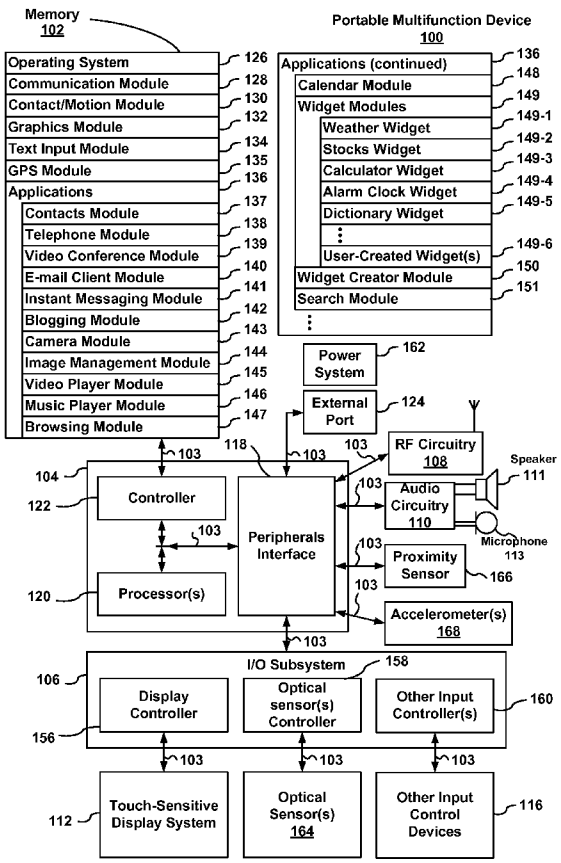
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(54) Title: PORTABLE MULTIFUNCTION DEVICE, METHOD, AND GRAPHICAL USER INTERFACE FOR PROVIDING MAPS AND DIRECTIONS



(57) Abstract: A portable multifunction device, method, and graphical user interface for providing maps and directions is disclosed.

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Portable Multifunction Device, Method, and Graphical User Interface for Providing Maps and Directions

TECHNICAL FIELD

[0001] The disclosed embodiments relate generally to portable electronic devices, and more particularly, to portable devices that provide maps and directions.

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. 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 push buttons, overloading the functions of 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.

[0003] 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.

[0004] For example, mapping applications are available for mobile phones (e.g., Google maps for mobile, available at www.google.com/gmm). But navigating in such applications using physical push buttons (e.g., the number keys on a hard keyboard) or touch screens in existing mobile phones is cumbersome for most users. Thus, at present, relatively few people use mapping applications in mobile phones and other portable devices.

[0005] Accordingly, there is a need for portable electronic devices with more transparent and intuitive user interfaces for providing maps and directions. Such interfaces increase the effectiveness, efficiency and user satisfaction with portable devices.

SUMMARY

[0006] 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") 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-sensitive display. In some embodiments, in addition to providing maps and directions, the functions may include telephoning, video conferencing, e-mailing, instant messaging, blogging, digital photographing, digital videoing, web browsing, digital music playing, and/or digital video playing. Instructions for performing these functions may be included in a computer program product configured for execution by one or more processors.

[0007] In some embodiments, a device having a touch screen display is configured to display a map application, which is configured to separately display a list of bookmarked locations, a list of recent queries by a user, and a list of contacts for the user. In response to detecting a finger gesture on an input icon associated with a search term input area, the map application displays at least one of the list of bookmarked locations, the list of recent queries by a user, and the list of contacts for the user. In response to detecting a finger gesture on a bookmarked location in the list of bookmarked locations, an area corresponding to the bookmarked location is displayed on a digital map. In response to detecting a finger gesture on a recent query in the list of recent queries by the user, one or more results corresponding to the recent query are displayed on a digital map. And in response to detecting a finger gesture on a contact in the list of contacts, an area associated with the contact is displayed on a digital map.

[0008] In another aspect of the invention, a device having a touch screen display is configured to display a map application. The map application is configured to simultaneously display a bookmark list display icon, a recent query list display icon, and a contact list display icon, and is also configured to separately display a list of bookmarked

locations, a list of recent queries by a user, and a list of contacts for the user. In response to detecting a finger gesture on the bookmark list display icon the map application displays the list of bookmarked locations. In response to detecting a finger gesture on a bookmarked location in the list of bookmarked locations, the map application displays an area corresponding to the bookmarked location on a digital map. In response to detecting a finger gesture on the recent query list display icon, the map application displays the list of recent queries by the user. And in response to detecting a finger gesture on a recent query in the list of recent queries by the user, the map application displays one or more results corresponding to the recent query on a digital map.

[0009] In yet another aspect of the invention, a portable computing device having a touch screen display is configured to operate as follows. In response to detecting a finger gesture on a route search initiation icon, it sends a first location and a second location to a remote computer, receives routing information between the first location and the second location, and displays at least some of the routing information between the first location and the second location on a digital map. In response to detecting a finger gesture on a list icon, it displays an itemized list of the routing information, and in response to detecting a finger gesture on a particular item in the itemized list of the routing information, the device shows a corresponding portion of routing information on the digital map.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] 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.

[0011] Figures 1A and 1B are block diagrams illustrating portable multifunction devices with touch-sensitive displays in accordance with some embodiments.

[0012] Figure 2 illustrates a portable multifunction device having a touch screen in accordance with some embodiments.

[0013] Figure 3 illustrates an exemplary user interface for unlocking a portable electronic device in accordance with some embodiments.

[0014] Figures 4A and 4B illustrate exemplary user interfaces for a menu of applications on a portable multifunction device in accordance with some embodiments.

[0015] Figures 5A-5AA illustrate exemplary user interfaces for a map application in accordance with some embodiments.

DESCRIPTION OF EMBODIMENTS

[0016] 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.

[0017] It will also be understood that, although the terms first, second, etc. may be used herein to describe various elements, these elements should not be limited by these terms. These terms are only used to distinguish one element from another. For example, a first gesture could be termed a second gesture, and, similarly, a second gesture could be termed a first gesture, without departing from the scope of the present invention.

[0018] The terminology used in the description of the invention herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used in the description of the invention and the appended claims, the singular forms “a”, “an” and “the” are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will also be understood that the term "and/or" as used herein refers to and encompasses any and all possible combinations of one or more of the associated listed items. It will be further understood that the terms "comprises" and/or "comprising," when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

[0019] Embodiments of a portable multifunction 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.

[0020] 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 multifunction 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, that 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.

[0021] The device supports a variety of applications, such as a telephone application, a video conferencing application, an e-mail application, an instant messaging 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.

[0022] 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.

[0023] 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 Applications 11/459,606, "Keyboards For Portable Electronic Devices," filed July 24, 2006, and 11/459,615, "Touch Screen Keyboards For Portable Electronic Devices," filed July 24, 2006, the contents of which are hereby incorporated by reference in their entirety. 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 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, one or more keyboard embodiments may be tailored to a respective user 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.

[0024] Attention is now directed towards embodiments of the device. Figures 1A and 1B are block diagrams illustrating portable multifunction devices 100 with touch-sensitive displays 112 in accordance with some embodiments. The touch-sensitive display 112 is sometimes called a "touch screen" for convenience, and may also be known as or called a touch-sensitive display system. 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.

[0025] It should be appreciated that the device 100 is only one example of a portable multifunction 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 Figures 1A and 1B may be implemented in hardware, software or a combination of both hardware and software, including one or more signal processing and/or application specific integrated circuits.

[0026] 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.

[0027] 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.

[0028] 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.

[0029] 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.

[0030] 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 (e.g. 212, Figure 2). 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).

[0031] 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 2). 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 Application 11/322,549, "Unlocking a Device by Performing Gestures on an Unlock Image," filed December 23, 2005, which is hereby incorporated by reference in its entirety. 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.

[0032] 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.

[0033] A 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.

[0034] 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.

[0035] 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 2002/0015024A1, each of which is hereby incorporated by reference in its entirety. However, a touch screen 112 displays visual output from the portable device 100, whereas touch sensitive tablets do not provide visual output.

[0036] A touch-sensitive display in some embodiments of the touch screen 112 may be as described in the following applications: (1) U.S. Patent Application No. 11/381,313, "Multipoint Touch Surface Controller," filed May 2, 2006; (2) U.S. Patent Application No. 10/840,862, "Multipoint Touchscreen," filed May 6, 2004; (3) U.S. Patent Application No. 10/903,964, "Gestures For Touch Sensitive Input Devices," filed July 30, 2004; (4) U.S.

Patent Application No. 11/048,264, "Gestures For Touch Sensitive Input Devices," filed January 31, 2005; (5) U.S. Patent Application No. 11/038,590, "Mode-Based Graphical User Interfaces For Touch Sensitive Input Devices," filed January 18, 2005; (6) U.S. Patent Application No. 11/228,758, "Virtual Input Device Placement On A Touch Screen User Interface," filed September 16, 2005; (7) U.S. Patent Application No. 11/228,700, "Operation Of A Computer With A Touch Screen Interface," filed September 16, 2005; (8) U.S. Patent Application No. 11/228,737, "Activating Virtual Keys Of A Touch-Screen Virtual Keyboard," filed September 16, 2005; and (9) U.S. Patent Application No. 11/367,749, "Multi-Functional Hand-Held Device," filed March 3, 2006. All of these applications are incorporated by reference herein in their entirety.

[0037] The touch screen 112 may have a resolution in excess of 100 dpi. In an exemplary embodiment, the touch screen has a resolution of approximately 160 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.

[0038] 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.

[0039] 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.

[0040] 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 devices.

[0041] The device 100 may also include one or more optical sensors 164. Figures 1A and 1B show 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 (also called a camera module), 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.

[0042] The device 100 may also include one or more proximity sensors 166. Figures 1A and 1B show 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 Application Nos. 11/241,839, "Proximity Detector In Handheld Device," filed September 30, 3005; 11/240,788, "Proximity Detector In Handheld Device," filed September 30, 3005; 11/620,702, "Using Ambient Light Sensor To Augment Proximity Sensor Output"; 11/586,862, "Automated Response To And Sensing Of User Activity In Portable Devices," filed October 24, 2006; and 11/638,251, "Methods And Systems For Automatic Configuration Of Peripherals," which are hereby incorporated by reference in their entirety. 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.

[0043] The device 100 may also include one or more accelerometers 168. Figures 1A and 1B show 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. 20060017692, "Methods And Apparatuses For Operating A Portable Device Based On An Accelerometer," both of which are which are incorporated by reference in their entirety. 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.

[0044] 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.

[0045] 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.

[0046] 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.

[0047] 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.

[0048] 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.

[0049] 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).

[0050] 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).

[0051] 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;
- search module 151;
- video and music player module 152, which merges video player module 145 and music player module 146;

- notes module 153;
- map module 154; and/or
- online video module 155.

[0052] Examples of other applications 136 that may be stored in memory 102 include other word processing applications, JAVA-enabled applications, encryption, digital rights management, voice recognition, and voice replication.

[0053] In conjunction with touch screen 112, display controller 156, contact module 130, graphics module 132, and text input module 134, the contacts module 137 may be used to manage an address book or contact list, including: adding name(s) to the address book; deleting name(s) from the address book; associating telephone number(s), e-mail address(es), physical address(es) or other information with a name; associating an image with a name; categorizing and sorting names; providing telephone numbers or e-mail addresses to initiate and/or facilitate communications by telephone 138, video conference 139, e-mail 140, or IM 141; and so forth.

[0054] In conjunction with RF circuitry 108, audio circuitry 110, speaker 111, microphone 113, touch screen 112, display controller 156, contact module 130, graphics module 132, and text input module 134, the telephone module 138 may be used to enter a sequence of characters corresponding to a telephone number, access one or more telephone numbers in the address book 137, modify a telephone number that has been entered, dial a respective telephone number, conduct a conversation and disconnect or hang up when the conversation is completed. As noted above, the wireless communication may use any of a plurality of communications standards, protocols and technologies.

[0055] In conjunction with RF circuitry 108, audio circuitry 110, speaker 111, microphone 113, touch screen 112, display controller 156, optical sensor 164, optical sensor controller 158, contact module 130, graphics module 132, text input module 134, contact list 137, and telephone module 138, the videoconferencing module 139 may be used to initiate, conduct, and terminate a video conference between a user and one or more other participants.

[0056] In conjunction with RF circuitry 108, touch screen 112, display controller 156, contact module 130, graphics module 132, and text input module 134, the e-mail client module 140 may be used to create, send, receive, and manage e-mail. In conjunction with

image management module 144, the e-mail module 140 makes it very easy to create and send e-mails with still or video images taken with camera module 143.

[0057] 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 received instant messages. 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., messages sent using XMPP, SIMPLE, or IMPS).

[0058] In conjunction with RF circuitry 108, touch screen 112, display controller 156, contact module 130, graphics module 132, text input module 134, image management module 144, and browsing module 147, the blogging module 142 may be used to send text, still images, video, and/or other graphics to a blog (e.g., the user's blog).

[0059] In conjunction with touch screen 112, display controller 156, optical sensor(s) 164, optical sensor controller 158, contact module 130, graphics module 132, and image management module 144, the camera module 143 may be used to capture still images or video (including a video stream) and store them into memory 102, modify characteristics of a still image or video, or delete a still image or video from memory 102.

[0060] In conjunction with touch screen 112, display controller 156, contact module 130, graphics module 132, text input module 134, and camera module 143, the image management module 144 may be used to arrange, modify or otherwise manipulate, label, delete, present (e.g., in a digital slide show or album), and store still and/or video images.

[0061] In conjunction with touch screen 112, display controller 156, contact module 130, graphics module 132, audio circuitry 110, and speaker 111, the video player module 145 may be used to display, present or otherwise play back videos (e.g., on the touch screen or on an external, connected display via external port 124).

[0062] In conjunction with touch screen 112, display system controller 156, contact module 130, graphics module 132, audio circuitry 110, speaker 111, RF circuitry 108, and browser module 147, the music player module 146 allows the user to download and play back recorded music and other sound files stored in one or more file formats, such as MP3 or AAC files. In some embodiments, the device 100 may include the functionality of an MP3 player, such as an iPod (trademark of Apple Computer, Inc.).

[0063] In conjunction with RF circuitry 108, touch screen 112, display system controller 156, contact module 130, graphics module 132, and text input module 134, the browser module 147 may be used to browse the Internet, including searching, linking to, receiving, and displaying web pages or portions thereof, as well as attachments and other files linked to web pages.

[0064] In conjunction with RF circuitry 108, touch screen 112, display system controller 156, contact module 130, graphics module 132, text input module 134, e-mail module 140, and browser module 147, the calendar module 148 may be used to create, display, modify, and store calendars and data associated with calendars (e.g., calendar entries, to do lists, etc.).

[0065] In conjunction with RF circuitry 108, touch screen 112, display system controller 156, contact module 130, graphics module 132, text input module 134, and browser module 147, the widget modules 149 are mini-applications that may be downloaded and used by a user (e.g., weather widget 149-1, stocks widget 149-2, calculator widget 149-3, alarm clock widget 149-4, and dictionary widget 149-5) or created by the user (e.g., user-created widget 149-6). In some embodiments, a widget includes an HTML (Hypertext Markup Language) file, a CSS (Cascading Style Sheets) file, and a JavaScript file. In some embodiments, a widget includes an XML (Extensible Markup Language) file and a JavaScript file (e.g., Yahoo! Widgets).

[0066] In conjunction with RF circuitry 108, touch screen 112, display system controller 156, contact module 130, graphics module 132, text input module 134, and browser module 147, the widget creator module 150 may be used by a user to create widgets (e.g., turning a user-specified portion of a web page into a widget).

[0067] In conjunction with touch screen 112, display system controller 156, contact module 130, graphics module 132, and text input module 134, the search module 151 may be

used to search for text, music, sound, image, video, and/or other files in memory 102 that match one or more search criteria (e.g., one or more user-specified search terms).

[0068] In conjunction with touch screen 112, display controller 156, contact module 130, graphics module 132, and text input module 134, the notes module 153 may be used to create and manage notes, to do lists, and the like.

[0069] In conjunction with RF circuitry 108, touch screen 112, display system controller 156, contact module 130, graphics module 132, text input module 134, GPS module 135, and browser module 147, the map module 154 may be used to receive, display, modify, and store maps and data associated with maps (e.g., driving directions; data on stores and other points of interest at or near a particular location; and other location-based data).

[0070] In conjunction with touch screen 112, display system controller 156, contact module 130, graphics module 132, audio circuitry 110, speaker 111, RF circuitry 108, text input module 134, e-mail client module 140, and browser module 147, the online video module 155 allows the user to access, browse, receive (e.g., by streaming and/or download), play back (e.g., on the touch screen or on an external, connected display via external port 124), send an e-mail with a link to a particular online video, and otherwise manage online videos in one or more file formats, such as H.264. In some embodiments, instant messaging module 141, rather than e-mail client module 140, is used to send a link to a particular online video. Embodiments of user interfaces and associated processes using online video module 155 are described further below.

[0071] Each of the above identified modules and applications 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. For example, video player module 145 may be combined with music player module 146 into a single module (e.g., video and music player module 152, Figure 1B). 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.

[0072] 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 push buttons, dials, and the like) on the device 100 may be reduced.

[0073] 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.

[0074] Figure 2 illustrates a portable multifunction device 100 having a touch screen 112 in accordance with some embodiments. The touch screen may display one or more graphics within user interface (UI) 200. 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). 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.

[0075] 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.

[0076] 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, volume adjustment button(s) 208, a Subscriber Identity Module (SIM) card slot 210, a head set jack 212, and a docking/charging external port 124. 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.

[0077] Attention is now directed towards embodiments of user interfaces ("UI") and associated processes that may be implemented on a portable multifunction device 100.

[0078] 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.

[0079] 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 Applications 11/322,549, "Unlocking A Device By Performing Gestures On An Unlock Image," filed December 23, 2005, and 11/322,550, "Indication Of Progress Towards Satisfaction Of A User Input Condition," filed December 23, 2005, which are hereby incorporated by reference in their entirety.

[0080] Figures 4A and 4B illustrate exemplary user interfaces for a menu of applications on a portable multifunction device in accordance with some embodiments. In

some embodiments, user interface 400A includes the following elements, or a subset or superset thereof:

- Signal strength indicator(s) 402 for wireless communication(s), such as cellular and Wi-Fi signals;
- Time 404;
- Battery status indicator 406;
- Tray 408 with icons for frequently used applications, such as:
    - Phone 138, which may include an indicator 414 of the number of missed calls or voicemail messages;
    - 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.

[0081] In some embodiments, user interface 400B includes the following elements, or a subset or superset thereof:

- 402, 404, 406, 141, 148, 144, 143, 149-3, 149-2, 149-1, 149-4, 410, 414, 138, 140, and 147, as described above;
- Map 154;
- Notes 153;
- Settings 412, which provides access to settings for the device 100 and its various applications 136, as described further below;
- Video and music player module 152, also referred to as iPod (trademark of Apple Computer, Inc.) module 152; and
- Online video module 155, also referred to as YouTube (trademark of Google, Inc.) module 155.

[0082] In some embodiments, UI 400A or 400B 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).

[0083] In some embodiments, UI 400A or 400B 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 400A or 400B. In other embodiments, activating the icon for user-created widget 149-6 may lead to another UI that contains the user-created widgets or icons corresponding to the user-created widgets.

[0084] In some embodiments, a user may rearrange the icons in UI 400A or 400B, e.g., using processes described in U.S. Patent Application No. 11/459,602, "Portable Electronic Device With Interface Reconfiguration Mode," filed July 24, 2006, which is hereby incorporated by reference in its entirety. For example, a user may move application icons in and out of tray 408 using finger gestures.

[0085] In some embodiments, UI 400A or 400B 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 Application 11/322,552, "Account Information Display For Portable Communication Device," filed December 23, 2005, which is hereby incorporated by reference in its entirety.

[0086] Figures 5A-5AA illustrate exemplary user interfaces for a map application in accordance with some embodiments.

[0087] In some embodiments, a computer-implemented method is performed at a portable electronic device (e.g., 100) with a touch screen display 112.

[0088] In some embodiments, in response to detecting a finger gesture 5230 (e.g., a finger tap gesture) on a search icon 5232 (Figure 5C), the device displays a search term input area 5202 (e.g., text input box, Figure 5A) for entering one or more search terms.

[0089] In some embodiments, in response to detecting a finger gesture 5234 (e.g., a finger tap gesture) on the search term input area, the device displays a keyboard 5236 for entering the one or more search terms.

[0090] In some embodiments, in response to detecting a finger gesture 5238 (e.g., a finger tap gesture) on an input icon 5204 (Figure 5A) associated with the search term input area 5202, the device displays a list 5240 (Figure 5F) of bookmarked locations 5242. In response to detecting a finger gesture 5244 (e.g., a finger tap gesture) on a bookmarked location (e.g., 5242-3) in the list 5240 of bookmarked locations, an area corresponding to the bookmarked location is displayed on a digital map (not shown).

[0091] In some embodiments, in response to detecting a finger gesture 5238 (e.g., a finger tap gesture) on an input icon 5204 associated with the search term input area 5202, the device displays a list 5246 (Figure 5H) of recent queries 5248 by a user. In response to detecting a finger gesture 5250 (e.g., a finger tap gesture) on a recent query (e.g., 5248-6) in the list 5246 of recent queries by a user, results corresponding to the recent query are displayed on a digital map (not shown).

[0092] In some embodiments, in response to detecting a finger gesture 5238 (e.g., a finger tap gesture) on an input icon 5204 (Figure 5A) associated with the search term input area 5202, the device displays a list 5252 (Figure 5J) of contacts 5254. In response to detecting a finger gesture 5256 (e.g., a finger tap gesture) on a contact (e.g., 5254-3) in the

list of contacts, an area associated with the contact (e.g., an area that includes an address associated with the contact 5254-3 in the contact list) is displayed on a digital map (not shown).

[0093] In some embodiments, in response to detecting a finger gesture 5238 (e.g., a finger tap gesture) on an input icon 5204 (Figure 5A) associated with the search term input area 5202, the device displays either:

- a list 5240 (Figure 5F) of bookmarked locations 5242, wherein in response to detecting a finger gesture 5244 (e.g., a finger tap gesture) on a bookmarked location (e.g., 5242-3) in the list 5240 of bookmarked locations, an area corresponding to the bookmarked location is displayed on a digital map (not shown);
- a list 5246 (Figure 5H) of recent queries 5248 by a user, wherein in response to detecting a finger gesture 5250 (e.g., a finger tap gesture) on a recent query (e.g., 5248-6) in the list 5246 of recent queries by a user, results corresponding to the recent query are displayed on a digital map (not shown); or
- a list 5252 (Figure 5J) of contacts 5254, wherein in response to detecting a finger gesture 5256 (e.g., a finger tap gesture) on a contact (e.g., 5254-3) in the list of contacts, an area associated with the contact (e.g., an area that includes an address associated with the contact 5254-3 in the contact list) is displayed on a digital map (not shown).

In some embodiments, the list (i.e., 5240, 5246, or 5252) which is displayed in response to finger gesture 5238 (e.g., a finger tap gesture) on input icon 5204 corresponds to the list (i.e., 5240, 5246, or 5252) that was most recently displayed prior to finger gesture 5238.

[0094] In some embodiments, in response to detecting a finger gesture 5258 (e.g., a finger tap gesture) on a search initiation icon 5260 (Figure 5B), the device: sends one or more entered search terms 5262 (e.g., Cupertino Starbucks) to a remote computer (e.g., a map application server), receives one or more search results, and displays at least some of the search results 5264 on a digital map 5266 (Figure 5C). In some embodiments, the digital map comprises a graphic image, a satellite image, or a hybrid combination of a graphic image and a satellite image. For example, the search results may be displayed on a graphical map if map icon 5206 is selected (Figure 5C), whereas the search results may be displayed on a satellite image if satellite icon 5208 is selected.

[0095] In some embodiments, in response to detecting a single finger tap gesture 5268 (Figure 5C) on the digital map, the device magnifies the area near the single finger tap gesture 5268. In some embodiments, the tap gesture is a single tap. In some embodiments, the tap gesture is a double tap. In some embodiments, the magnification includes a zoom-in animation.

[0096] In some embodiments, in response to detecting a finger down gesture 5270 and a finger drag gesture 5272 on the digital map 5266 (Figure 5C), the device translates the digital map 5266 on the touch screen display in accordance with the finger drag gesture 5272.

[0097] In some embodiments, in response to detecting a two finger tap gesture 5274 (Figure 5C) on the digital map, the device demagnifies the area near the two finger tap gesture 5274. In some embodiments, the tap gesture is a single tap. In some embodiments, the tap gesture is a double tap. In some embodiments, the demagnification includes a zoom-out animation.

[0098] In some embodiments, a first respective icon (e.g., 5264-3, Figure 5C) is displayed for a respective search result, wherein in response to detecting a finger gesture 5280 on the first respective icon, a second respective icon 5276 for the respective search result is displayed. In some embodiments, in response to detecting a finger gesture 5282 on the second respective icon, an interface 5200L (Figure 5D) for the respective search result is displayed.

[0099] In some embodiments, a first respective icon (e.g., 5264-3, Figure 5C) is displayed for a respective search result, wherein in response to detecting a finger gesture 5280 on the first respective icon, a second respective icon 5276 and a third respective icon 5278 for the respective search result are displayed. In some embodiments, in response to detecting a finger gesture 5280 on the second respective icon, the second respective icon and the third respective icon cease to be displayed. In some embodiments, in response to detecting a finger gesture 5284 on the third respective icon, an interface 5200L (Figure 5D) for the respective search result is displayed.

[00100] In some embodiments, a respective icon (e.g., 5278) is displayed for a respective search result, wherein in response to detecting a finger gesture 5284 on the respective icon, an interface 5200L (Figure 5D) is displayed for the respective search result.

[00101] In some embodiments, the interface 5200L (Figure 5D) for the respective search result includes:

[00102] a name for the respective search result;

[00103] a local map of the respective search result;

[00104] an electronic address for the respective search result (e.g., a URL);

[00105] a physical address for the respective search result;

[00106] a phone number associated with the respective search result, which when activated by a finger gesture initiates a phone call to the phone number;

[00107] an icon that when activated by a finger gesture enters the physical address as an end point in a request for directions (e.g., "Directions to here" icon);

[00108] an icon that when activated by a finger gesture enters the physical address as a starting point in a request for directions (e.g., "Directions from here" icon);

[00109] an icon that when activated by a finger gesture initiates creation of a bookmark for the respective search result (e.g., "Add to bookmarks" icon initiates creation of a bookmark via interface 5200M, Figure 5E);

[00110] an icon that when activated by a finger gesture initiates creation of a contact list entry for the respective search result (e.g., "Create new contact" icon); and/or

[00111] an icon that when activated by a finger gesture initiates addition of the respective search result to an existing contact (e.g., "Add to existing contact" icon);

[00112] In some embodiments, a bookmarks user interface 5200N (Figure 5F) includes a list 5240 of locations bookmarked by a user. In some embodiments, in response to detecting a finger gesture 5286 on a configuration icon 5290 (e.g., Edit icon, Figure 5F) for a list of bookmarks, the device displays respective deletion icons and/or respective moving-affordance icons for respective bookmarks in the list of bookmarks (Figure 5G). Use of the deletion and moving-affordance icons is described in U.S. Provisional Patent Application Nos. 60/883,814, “Deletion Gestures on a Portable Multifunction Device,” filed January 7, 2007, and 60/883,808, “System and Method for Managing Lists," filed January 7, 2007, which applications are incorporated by reference herein in their entirety.

[00113] In some embodiments, a user interface 5200P (Figure 5H) includes a list of recent location, search, and/or route queries (collectively, a list of recent queries) by a user. In

some embodiments, in response to a finger gesture (e.g., a finger tap gesture) on a recent location query, the location is displayed on a digital map or entered as a start or end point in a route search query, depending on context. In some embodiments, in response to a finger gesture (e.g., a finger tap gesture) on a recent search query, the results of the recent search query are displayed on a digital map. In some embodiments, in response to a finger gesture (e.g., a finger tap gesture) on a recent route query, at least a portion of the corresponding routing instructions (e.g., driving directions) are displayed.

[00114] In some embodiments, a contacts UI 5200P (Figure 5J) includes a list of individual contacts 5254 and an icon 5298 that when activated by a finger gesture 5201 displays a list of groups of contacts (e.g., UI 5200S, Figure 5K) In some embodiments, in response to detecting a finger gesture 5256 on a contact in the list of contacts, an area associated with the contact (e.g., an area that includes an address associated with the contact in the contact list) is displayed on a digital map.

[00115] In some embodiments, a respective icon (e.g., icon 5203, Figure 5M) is displayed for a contact, wherein in response to detecting a finger gesture 5205 on the respective icon, an interface 5200V (figure 5N) is displayed for the contact.

[00116] In some embodiments, the interface 5200V for the contact includes:

[00117] a name for the contact (e.g., Craig Buhler);

[00118] a physical address for the contact;

[00119] an image associated with the contact;

[00120] an electronic address for the contact (e.g., a URL);

[00121] a phone number associated with the contact;

[00122] an icon that when activated by a finger gesture enters the physical address for the contact as an end point in a request for directions (e.g., "Directions to here" icon);

[00123] an icon that when activated by a finger gesture enters the physical address for the contact as a starting point in a request for directions (e.g., "Directions from here" icon); and/or

[00124] an icon that when activated by a finger gesture initiates creation of a bookmark for the contact (e.g., "Add to bookmarks" icon initiates creation of a bookmark via interface 5200W, Figure 5O).

[00125] In some embodiments, in response to finger contacts on icons 5292, 5294, and 5296 in the user interfaces for bookmarks (UI 5200N, Figure 5F), recent queries (UI 5200P, Figure 5H), and contacts (UI 5200R, Figure 5J), the device displays the corresponding user interface, which makes navigating between these interfaces simple and intuitive.

[00126] In some embodiments, in response to detecting a finger gesture on a route search icon 5207 (Figure 5A), the device displays an endpoints area 5209 (Figure 5P) comprising:

a first area 5213 for entering a first location;

a second area 5215 for entering a second location;

and an icon 5211 for swapping information in the first area 5213 with information in the second area 5215.

[00127] In some embodiments, in response to detecting a finger gesture 5239 (Figure 5Q) (e.g., a finger tap gesture) on the first area ("Start:"), the device displays a keyboard for entering the first location (Figure 5Q). In some embodiments, in response to detecting a finger gesture 5241 (e.g., a finger tap gesture) on the second area ("End:"), the device displays a keyboard for entering the second location.

[00128] In some embodiments, in response to detecting a finger gesture 5217 (Figure 5P) (e.g., a finger tap gesture) on an input icon 5219 associated with the first area 5213, the device displays:

a list 5240 (Figure 5F) of bookmarked locations, wherein in response to detecting a finger gesture (e.g., 5244) on a bookmarked location (e.g., 5242-3) in the list of bookmarked locations, an address or name corresponding to the bookmarked location (e.g., 5242-3) is entered in the first area;

a list 5246 (Figure 5H) of recent searches, wherein in response to detecting a finger gesture on a location in the list of recent searches, an address corresponding to the location is entered in the first area; or

a list 5252 (Figure 5J) of contacts, wherein in response to detecting an finger gesture on a contact 5254 in the list of contacts, an address associated with the contact (e.g., an address associated with the contact in the contact list) is entered in the first area.

[00129] In some embodiments, in response to detecting a finger gesture 5221 (Figure 5P) (e.g., a finger tap gesture) on an input icon 5223 associated with the second area 5215, the device displays:

a list 5240 (Figure 5F) of bookmarked locations, wherein in response to detecting a finger gesture (e.g., 5244) on a bookmarked location (e.g., 5242-3) in the list of bookmarked locations, an address or name corresponding to the bookmarked location (e.g., 5242-3) is entered in the second area;

a list 5246 (Figure 5H) of recent searches, wherein in response to detecting a finger gesture on a location in the list of recent searches, an address corresponding to the location is entered in the second area; or

a list 5252 (Figure 5J) of contacts, wherein in response to detecting an finger gesture on a contact 5254 in the list of contacts, an address associated with the contact (e.g., an address associated with the contact in the contact list) is entered in the second area.

[00130] In some embodiments, in response to detecting a finger gesture 5225 (Figure 5R) on a route search initiation icon 5227, the device: sends the first location (e.g., 2 Infinite Loop, Cupertino, CA) and the second location (e.g., 100 Main St., Seattle, WA) to a remote computer (e.g., a map application server, such as Google maps); receives routing information between the first location and the second location; and displays at least some of the routing information between the first location and the second location on a digital map (e.g., Figures 5S-5AA)

[00131] In some embodiments, the received routing information includes all of the digital map information needed to display the waypoints in the route between the first location and the second location. In some embodiments, the received routing information is stored (e.g., cached) so that the device can display the routing information even if the device loses access to the remote computer.

[00132] In some embodiments, in response to detecting a finger gesture 5231 (e.g., a finger tap gesture) on a start icon 5229, the device displays the first location and the first portion of the routing information (Figure 5T). Similarly, in some embodiments, in response to detecting a finger gesture (e.g., a finger tap gesture) on a next waypoint icon 5237, the device displays the next waypoint and the corresponding map information (Figures 5T-5Z). In some embodiments, in response to detecting a finger gesture (e.g., a finger tap gesture) on

a previous waypoint icon 5239, the device displays the previous waypoint and the corresponding map information.

[00133] In some embodiments, if the distance to the next waypoint is large relative to the area displayed around a waypoint on the digital map, the user interface may zoom out, display an animated movement to the next waypoint, and then zoom back in to the next waypoint, as illustrated in Figures 5U-5Y.

[00134] In some embodiments, in response to detecting a finger gesture 5235 (e.g., a finger tap gesture) on a list icon 5233, the device displays an itemized list of the routing information (e.g., turn-by-turn driving directions), as shown in UI 5200II (Figure 5AA). In some embodiments, in response to detecting a finger gesture 5237 (e.g., a finger tap gesture) on a particular item in the list, the corresponding portion of routing information is shown on a digital map (e.g., UI 5200LL, Figure 5U).

[00135] 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.

What is claimed is:

1. A computer-implemented method, comprising:

at a computing device with a touch screen display,

displaying a map application, wherein the map application is configured to separately display a list of bookmarked locations, a list of recent queries by a user, and a list of contacts for the user; and

in response to detecting a finger gesture on an input icon associated with a search term input area, displaying one of:

the list of bookmarked locations, wherein in response to detecting a finger gesture on a bookmarked location in the list of bookmarked locations, an area corresponding to the bookmarked location is displayed on a digital map;

the list of recent queries by the user, wherein in response to detecting a finger gesture on a recent query in the list of recent queries by the user, one or more results corresponding to the recent query are displayed on a digital map; and

the list of contacts for the user, wherein in response to detecting a finger gesture on a contact in the list of contacts, an area associated with the contact is displayed on a digital map.

2. The computer-implemented method of claim 1, wherein:

the list of bookmarked locations is displayed in response to detecting the finger gesture on the input icon associated with the search term input area if the list of bookmarked locations was displayed more recently than the list of recent queries by the user and the list of contacts prior to the finger gesture on the input icon associated with the search term input area;

the list of recent queries by the user is displayed in response to detecting the finger gesture on the input icon associated with the search term input area if the list of recent queries by the user was displayed more recently than the list of bookmarked locations and the list of contacts prior to the finger gesture on the input icon associated with the search term input area; and

the list of contacts is displayed in response to detecting the finger gesture on the input icon associated with the search term input area if the list of contacts was displayed more recently than the list of recent queries by the user and the list of bookmarked locations prior to the finger gesture on the input icon associated with the search term input area.

3. The computer-implemented method of claim 1, including:

in response to detecting a finger gesture on the search term input area, displaying a keyboard for entering the one or more search terms; and

in response to detecting a finger gesture on a search initiation icon:

sending the one or more entered search terms to a remote computer,

receiving one or more search results, and

displaying at least some of the search results on a digital map.

4. A computer-implemented method, comprising:

at a computing device with a touch screen display,

displaying a map application, wherein

the map application is configured to simultaneously display a bookmark list display icon, a recent query list display icon, and a contact list display icon; and

the map application is configured to separately display a list of bookmarked locations, a list of recent queries by a user, and a list of contacts for the user;

in response to detecting a finger gesture on the bookmark list display icon, displaying the list of bookmarked locations;

in response to detecting a finger gesture on a bookmarked location in the list of bookmarked locations, displaying an area corresponding to the bookmarked location on a digital map;

in response to detecting a finger gesture on the recent query list display icon, displaying the list of recent queries by the user;

in response to detecting a finger gesture on a recent query in the list of recent queries by the user, displaying one or more results corresponding to the recent query on a digital map;

in response to detecting a finger gesture on the contact list display icon, displaying the list of contacts for the user; and

in response to detecting a finger gesture on a contact in the list of contacts, displaying an area associated with the contact on a digital map.

5. A computer-implemented method, comprising:

at a computing device with a touch screen display;

displaying a map application, wherein

the map application is configured to separately display:

a list of bookmarked locations;

a list of recent queries by a user;

a list of contacts for the user; and

a keyboard with a search initiation icon;

displaying a digital map with one or more respective icons that correspond to one or more respective results in response to:

detecting a finger gesture on a bookmarked location in the list of bookmarked locations;

detecting a finger gesture on a recent query in the list of recent queries by the user;

detecting a finger gesture on a contact in the list of contacts; or

detecting a finger gesture on the search initiation icon; and

in response to detecting a finger down gesture and a finger drag gesture on the digital map, translating the digital map on the touch screen display in accordance with the finger drag gesture.

6. The computer-implemented method of claim 5, including:

in response to detecting a single-finger tap gesture on the digital map, magnifying the area near the single-finger tap gesture.

7. The computer-implemented method of claim 5, including:

in response to detecting a two-finger tap gesture on the digital map, demagnifying the area near the two-finger tap gesture.

8. The computer-implemented method of claim 5, including:

displaying a first respective icon for a respective search result;

in response to detecting a finger gesture on the first respective icon, displaying a second respective icon for the respective search result; and

in response to detecting a finger gesture on the second respective icon, displaying an interface for the respective search result.

9. The computer-implemented method of claim 8, wherein the interface for the respective search result includes a plurality of:

a name for the respective search result;

a local map of the respective search result;

an electronic address for the respective search result;

a physical address for the respective search result;

a phone number associated with the respective search result, which when activated by a finger gesture initiates a phone call to the phone number;

an icon that when activated by a finger gesture enters the physical address as an end point in a request for directions;

an icon that when activated by a finger gesture enters the physical address as a starting point in a request for directions;

an icon that when activated by a finger gesture initiates creation of a bookmark for the respective search result;

an icon that when activated by a finger gesture initiates creation of a contact list entry for the respective search result; and

an icon that when activated by a finger gesture initiates addition of the respective search result to an existing contact.

10. The computer-implemented method of claim 5, including:

displaying a first respective icon for a respective search result;

in response to detecting a finger gesture on the first respective icon, displaying a second respective icon and a third respective icon for the respective search result;

in response to detecting a finger gesture on the second respective icon, ceasing to display the second respective icon and the third respective icon; and

in response to detecting a finger gesture on the third respective icon, displaying an interface for the respective search result.

11. The computer-implemented method of claim 10, wherein the interface for the respective search result includes a plurality of:

a name for the respective search result;

a local map of the respective search result;

an electronic address for the respective search result;

a physical address for the respective search result;

a phone number associated with the respective search result, which when activated by a finger gesture initiates a phone call to the phone number;

an icon that when activated by a finger gesture enters the physical address as an end point in a request for directions;

an icon that when activated by a finger gesture enters the physical address as a starting point in a request for directions;

an icon that when activated by a finger gesture initiates creation of a bookmark for the respective search result;

an icon that when activated by a finger gesture initiates creation of a contact list entry for the respective search result; and

an icon that when activated by a finger gesture initiates addition of the respective search result to an existing contact.

12. The computer-implemented method of claim 5, including:

in response to detecting a finger gesture on a configuration icon for the list of bookmarked locations, displaying respective deletion icons and respective moving-affordance icons for respective bookmarks in the list of bookmarked locations; and

configuring the list of bookmarked locations in response to one or more finger gestures on the respective deletion icons and the respective moving-affordance icons for respective bookmarks in the list of bookmarked locations.

13. A computing 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 one or more programs including:

instructions for displaying a map application, wherein the map application is configured to separately display a list of bookmarked locations, a list of recent queries by a user, and a list of contacts for the user; and

instructions for displaying, in response to detecting a finger gesture on an input icon associated with a search term input area, one of:

the list of bookmarked locations, wherein in response to detecting a finger gesture on a bookmarked location in the list of bookmarked locations, an area corresponding to the bookmarked location is displayed on a digital map;

the list of recent queries by the user, wherein in response to detecting a finger gesture on a recent query in the list of recent queries by the user, one or more results corresponding to the recent query are displayed on a digital map; and

the list of contacts for the user, wherein in response to detecting a finger gesture on a contact in the list of contacts, an area associated with the contact is displayed on a digital map.

14. A computer readable storage medium having stored therein instructions, which when executed by a device with a touch screen display, cause the device to:

display a map application, wherein the map application is configured to separately display a list of bookmarked locations, a list of recent queries by a user, and a list of contacts for the user; and

in response to detecting a finger gesture on an input icon associated with a search term input area, display one of:

the list of bookmarked locations, wherein in response to detecting a finger gesture on a bookmarked location in the list of bookmarked locations, an area corresponding to the bookmarked location is displayed on a digital map;

the list of recent queries by the user, wherein in response to detecting a finger gesture on a recent query in the list of recent queries by the user, one or more results corresponding to the recent query are displayed on a digital map; and

the list of contacts for the user, wherein in response to detecting a finger gesture on a contact in the list of contacts, an area associated with the contact is displayed on a digital map.

15. A computer-implemented method, comprising:

at a computing device with a touch screen display,

displaying a map application, wherein the map application is configured to separately display:

a list of bookmarked locations;

a list of recent queries by a user;

a list of contacts for the user;

a keyboard with a route search initiation icon;

displaying a first area for entering a first location;

displaying a second area for entering a second location;

in response to detecting a finger gesture on an input icon associated with the first area, displaying:

the list of bookmarked locations, wherein in response to detecting a finger gesture on a bookmarked location in the list of bookmarked locations, the map application receives an address or name, corresponding to the bookmarked location, when the address or name is entered in the first area;

the list of recent queries by the user, wherein in response to detecting a finger gesture on a location in the list of recent queries by the user, the map application receives an address corresponding to the location when the address is entered in the first area; or

the list of contacts for the user, wherein in response to detecting a finger gesture on a contact in the list of contacts for the user, the map application receives an address associated with the contact when the address is entered in the first area;

in response to detecting a finger gesture on an input icon associated with the second area, displaying:

the list of bookmarked locations, wherein in response to detecting a finger gesture on a bookmarked location in the list of bookmarked locations, the map application receives an address or name, corresponding to the bookmarked location, when the address or name corresponding to the bookmarked location is entered in the second area;

the list of recent queries by the user, wherein in response to detecting a finger gesture on a location in the list of recent queries by the user, the map application receives an address corresponding to the location when the address corresponding to the location is entered in the second area; or

the list of contacts for the user, wherein in response to detecting an finger gesture on a contact in the list of contacts for the user, the map application receives an address associated with the contact when the address associated with the contact is entered in the second area; and

in response to detecting a finger gesture on the route search initiation icon:

sending the first location and the second location to a remote computer;

receiving routing information between the first location and the second location; and

displaying at least some of the routing information between the first location and the second location on a digital map.

16. A computer-implemented method, comprising:

at a portable computing device with a touch screen display,

in response to detecting a finger gesture on a route search initiation icon:

sending a first location and a second location to a remote computer;

receiving routing information between the first location and the second location; and

displaying at least some of the routing information between the first location and the second location on a digital map;

in response to detecting a finger gesture on a list icon, displaying an itemized list of the routing information; and

in response to detecting a finger gesture on a particular item in the itemized list of the routing information, showing a corresponding portion of routing information on the digital map.

17. The computer-implemented method of claim 16, wherein the received routing information is stored on the portable computing device and the received routing information includes all of the digital map information needed to display waypoints in the route between the first location and the second location.

18. The computer-implemented method of claim 17, wherein displaying at least some of the routing information between the first location and the second location on the digital map includes:

when a distance from a current waypoint to a next waypoint is large relative to an area displayed around the current waypoint on the digital map,

displaying an animated zoom out from the current waypoint;

then displaying an animated movement to the next waypoint, and

then displaying an animated zoom in to the next waypoint.

19. A computing 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 one or more programs including:

instructions for responding to detecting a finger gesture on a route search initiation icon by:

sending a first location and a second location to a remote computer;

receiving routing information between the first location and the second location; and

displaying at least some of the routing information between the first location and the second location on a digital map;

instructions for responding to detecting a finger gesture on a list icon by displaying an itemized list of the routing information; and

instructions for responding to detecting a finger gesture on a particular item in the itemized list of the routing information by showing a corresponding portion of routing information on the digital map.

20. A computer readable storage medium having stored therein instructions, which when executed by a device with a touch screen display, cause the device to:

respond to detecting a finger gesture on a route search initiation icon by:

sending a first location and a second location to a remote computer;

receiving routing information between the first location and the second location; and

displaying at least some of the routing information between the first location and the second location on a digital map;

respond to detecting a finger gesture on a list icon by displaying an itemized list of the routing information; and

respond to detecting a finger gesture on a particular item in the itemized list of the routing information by showing a corresponding portion of routing information on the digital map.

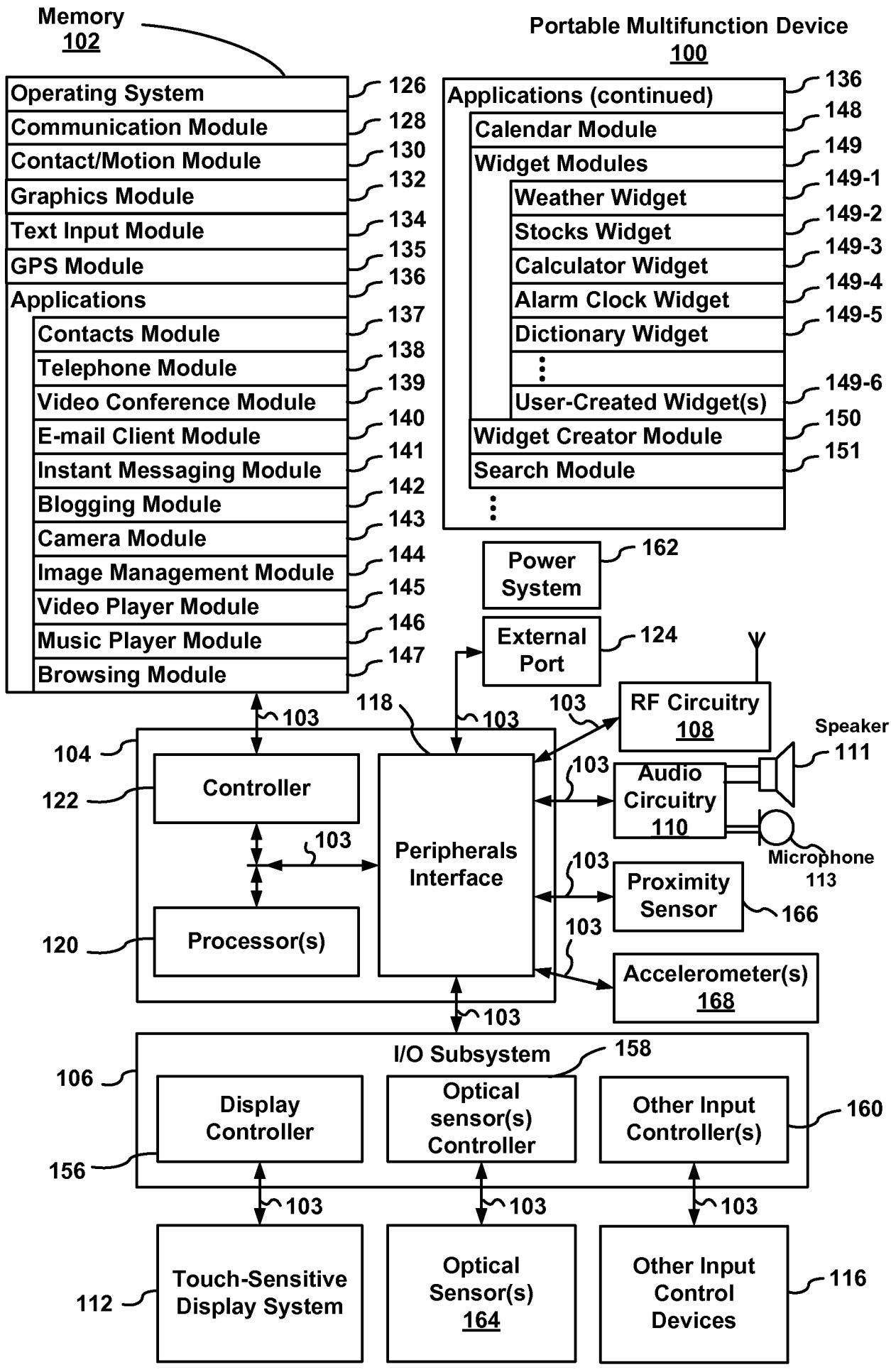

Memory
102
Portable Multifunction Device
100
Operating System
126
Communication Module
128
Contact/Motion Module
130
Graphics Module
132
Text Input Module
134
GPS Module
135
Applications
136
Contacts Module
137
Telephone Module
138
Video Conference Module
139
E-mail Client Module
140
Instant Messaging Module
141
Blogging Module
142
Camera Module
143
Image Management Module
144
Video Player Module
145
Music Player Module
146
Browsing Module
147
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
Controller
122
Processor(s)
120
Peripherals Interface
104
103
118
I/O Subsystem
158
106
Display Controller
156
Optical sensor(s) Controller
Other Input Controller(s)
160
Touch-Sensitive Display System
112
Optical Sensor(s)
164
Other Input Control Devices
116

Figure 1A

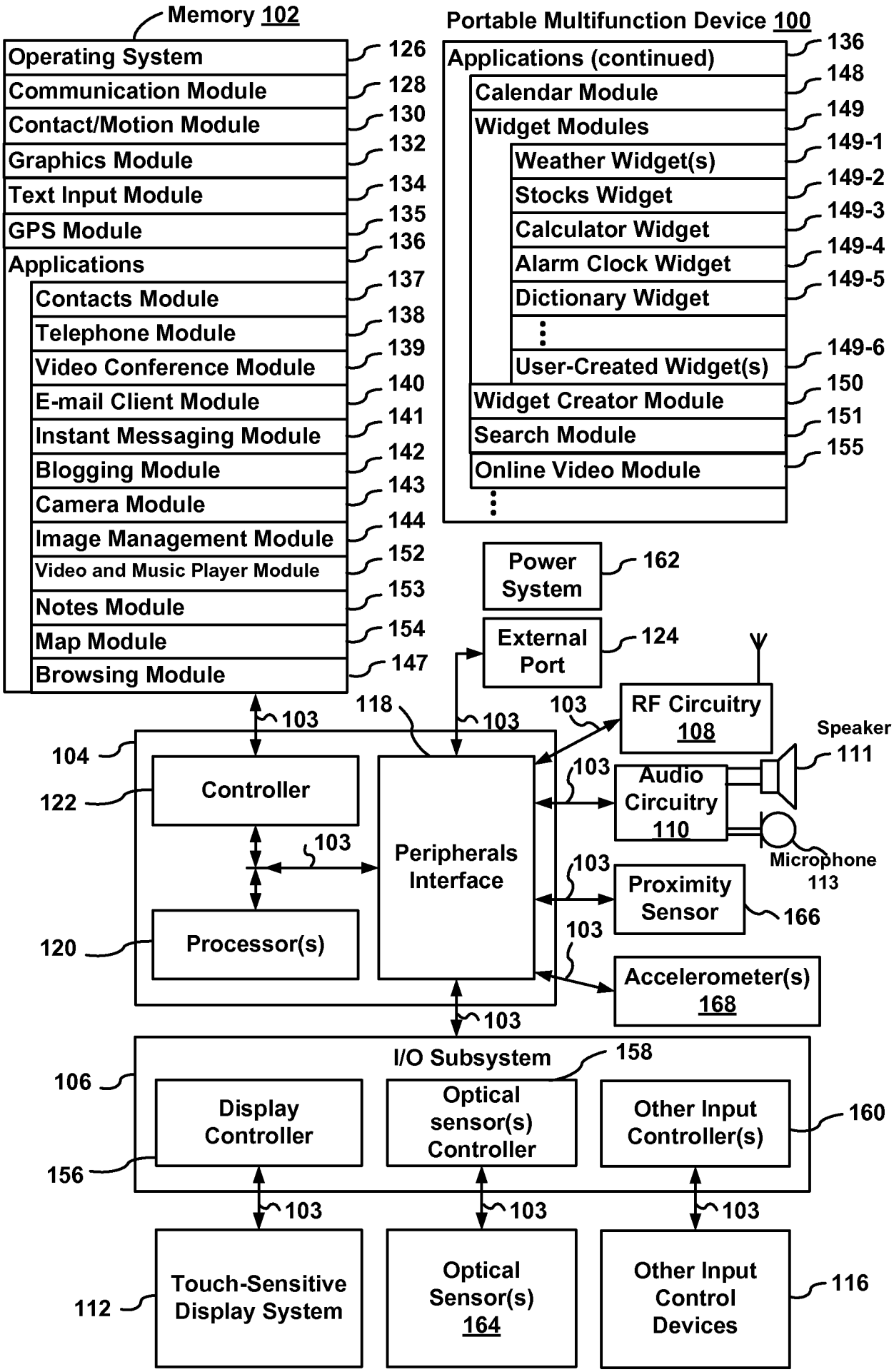

Memory 102
Operating System
Communication Module
Contact/Motion Module
Graphics Module
Text Input Module
GPS Module
Applications
Contacts Module
Telephone Module
Video Conference Module
E-mail Client Module
Instant Messaging Module
Blogging Module
Camera Module
Image Management Module
Video and Music Player Module
Notes Module
Map Module
Browsing Module
126
128
130
132
134
135
136
137
138
139
140
141
142
143
144
152
153
154
147
Portable Multifunction Device 100
Applications (continued)
Calendar Module
Widget Modules
Weather Widget(s)
Stocks Widget
Calculator Widget
Alarm Clock Widget
Dictionary Widget
User-Created Widget(s)
Widget Creator Module
Search Module
Online Video Module
136
148
149
149-1
149-2
149-3
149-4
149-5
149-6
150
151
155
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
122
Controller
Peripherals Interface
120
Processor(s)
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 1B

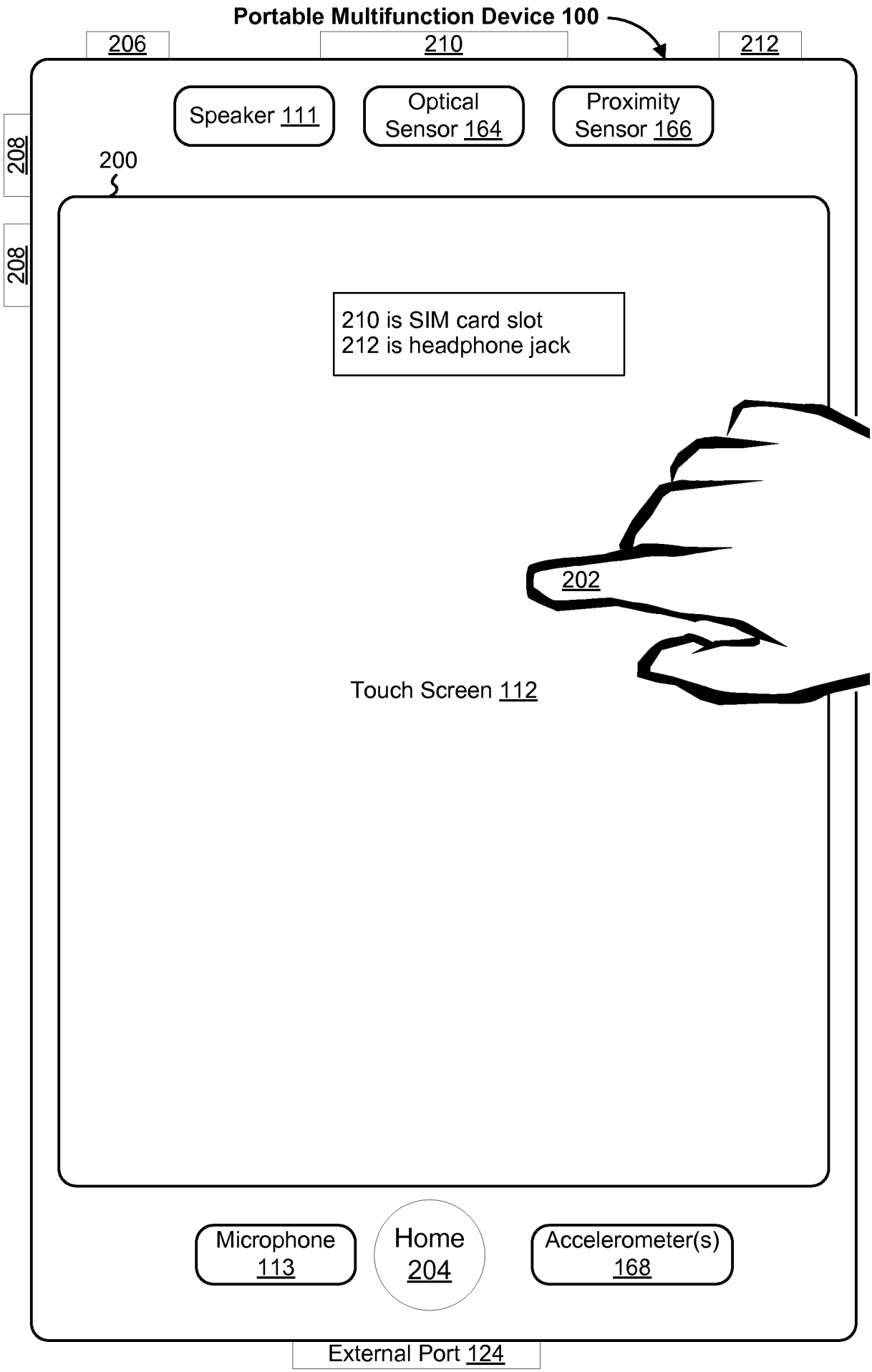

Portable Multifunction Device 100
206
210
212
Speaker 111
Optical Sensor 164
Proximity Sensor 166
208
200
208
210 is SIM card slot
212 is headphone jack
202
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168
External Port 124

Figure 2

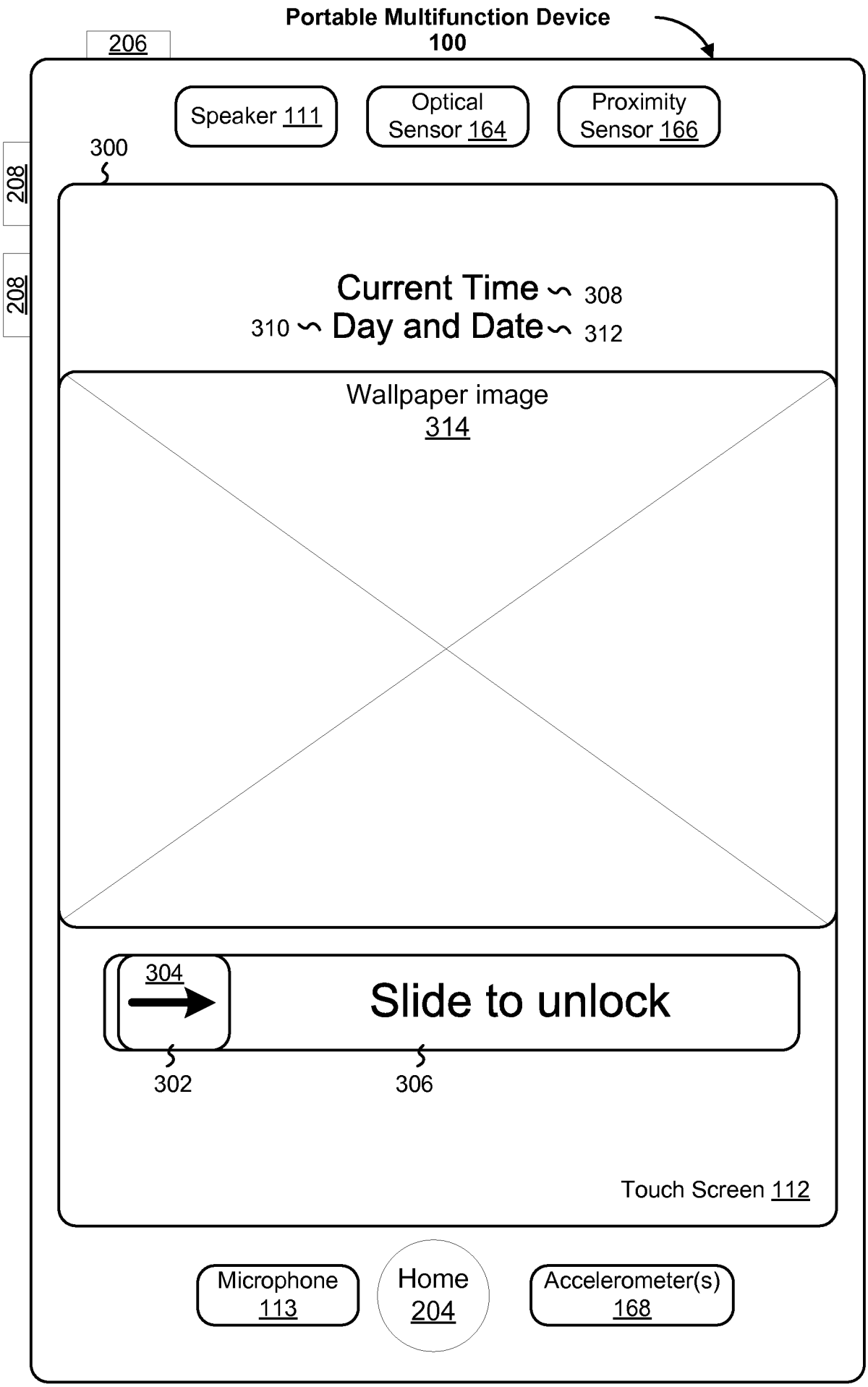

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
300
208
208
Current Time 308
310 Day and Date 312
Wallpaper image
314
304
Slide to unlock
302
306
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168

Figure 3

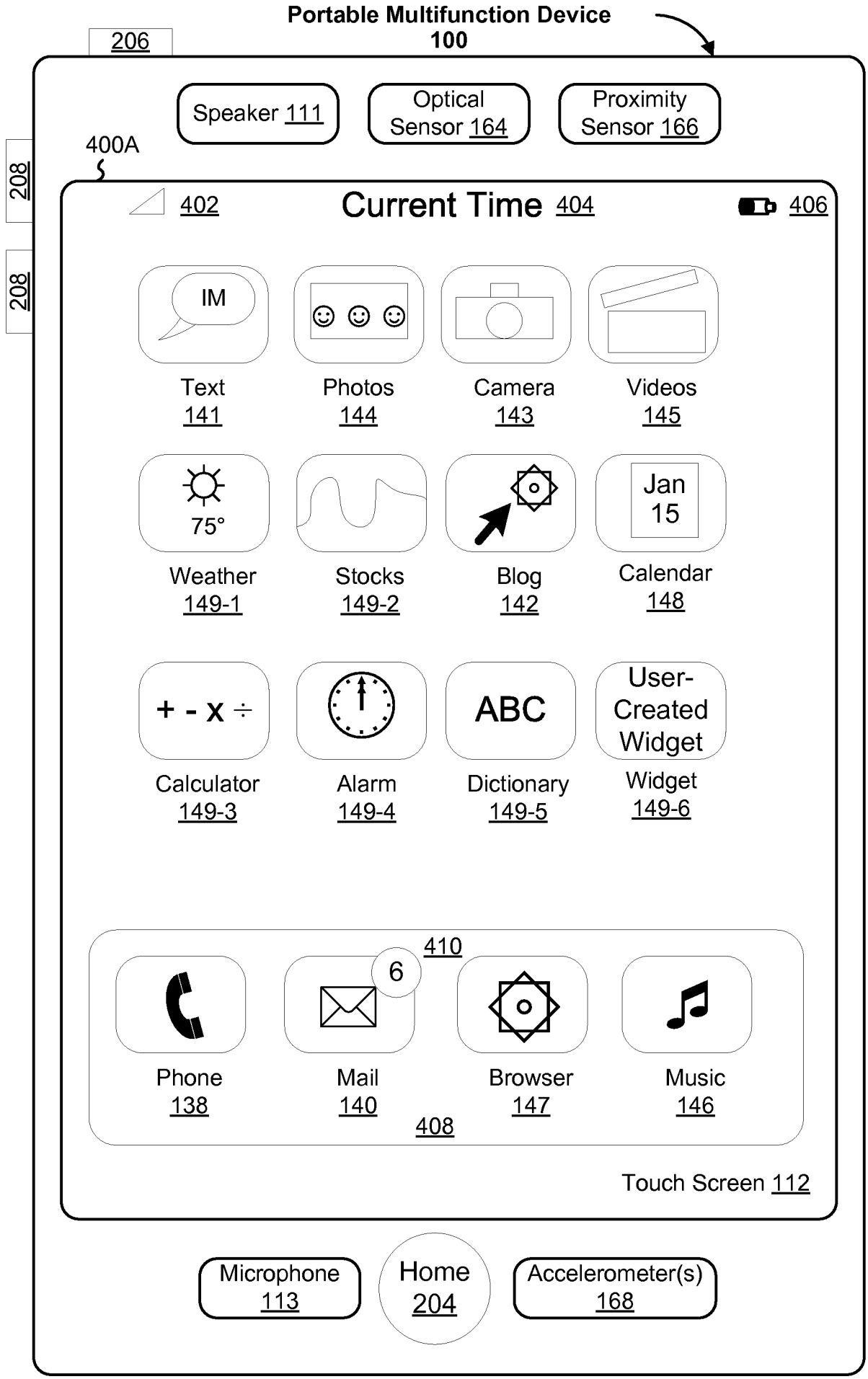

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
400A
208
208
402
Current Time 404
406
IM
Text 141
Photos 144
Camera 143
Videos 145
75°
Weather 149-1
Stocks 149-2
Blog 142
Jan 15
Calendar 148
+ - x ÷
Calculator 149-3
Alarm 149-4
ABC
Dictionary 149-5
User-Created 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 4A

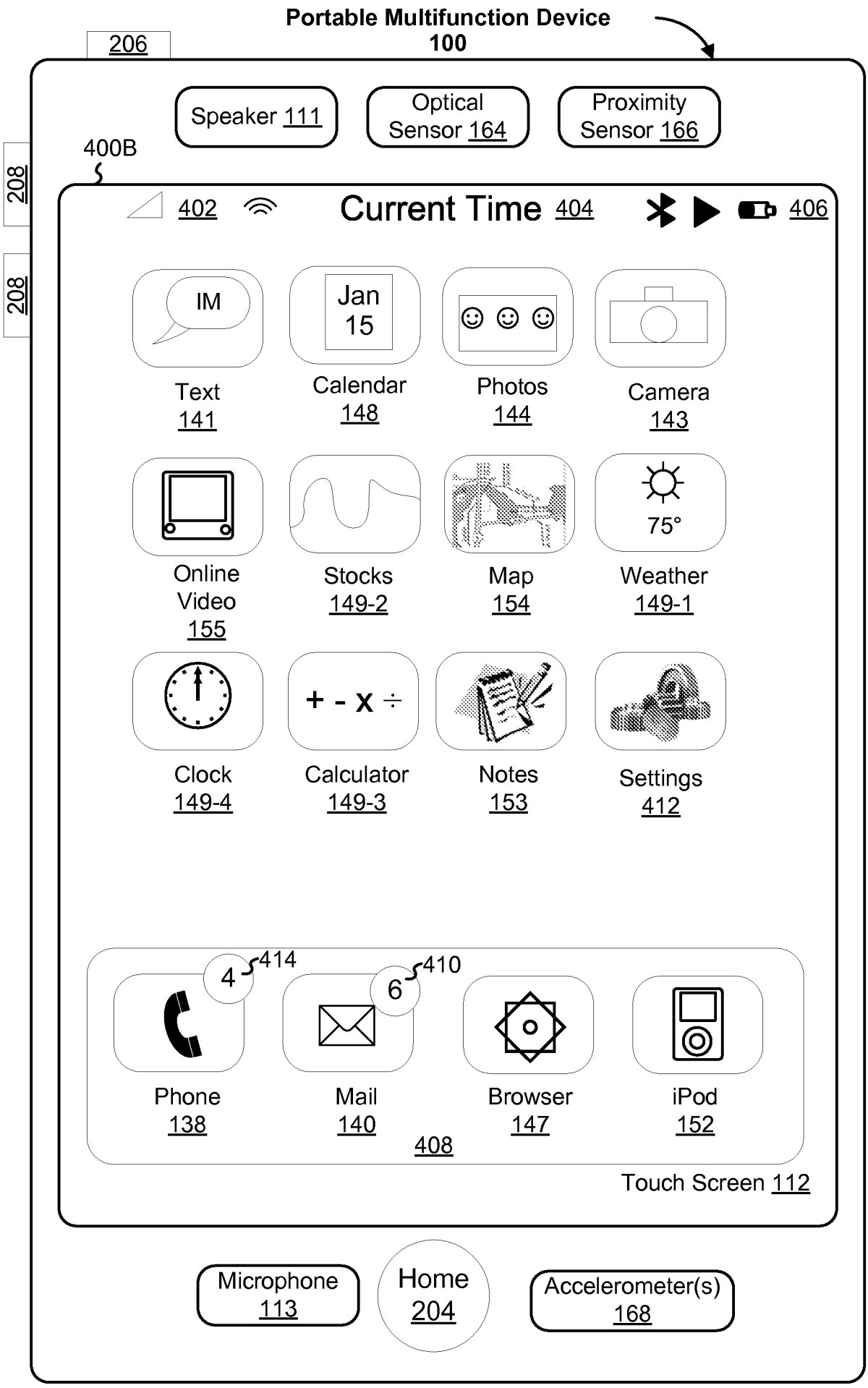

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
400B
208
208
402
Current Time 404
406
IM
Text 141
Jan 15
Calendar 148
Photos 144
Camera 143
Online Video 155
Stocks 149-2
Map 154
75°
Weather 149-1
Clock 149-4
+ - x ÷
Calculator 149-3
Notes 153
Settings 412
4
414
6
410
Phone 138
Mail 140
Browser 147
iPod 152
408
Touch Screen 112
Microphone 113
Home 204
Accelerometer(s) 168

Figure 4B

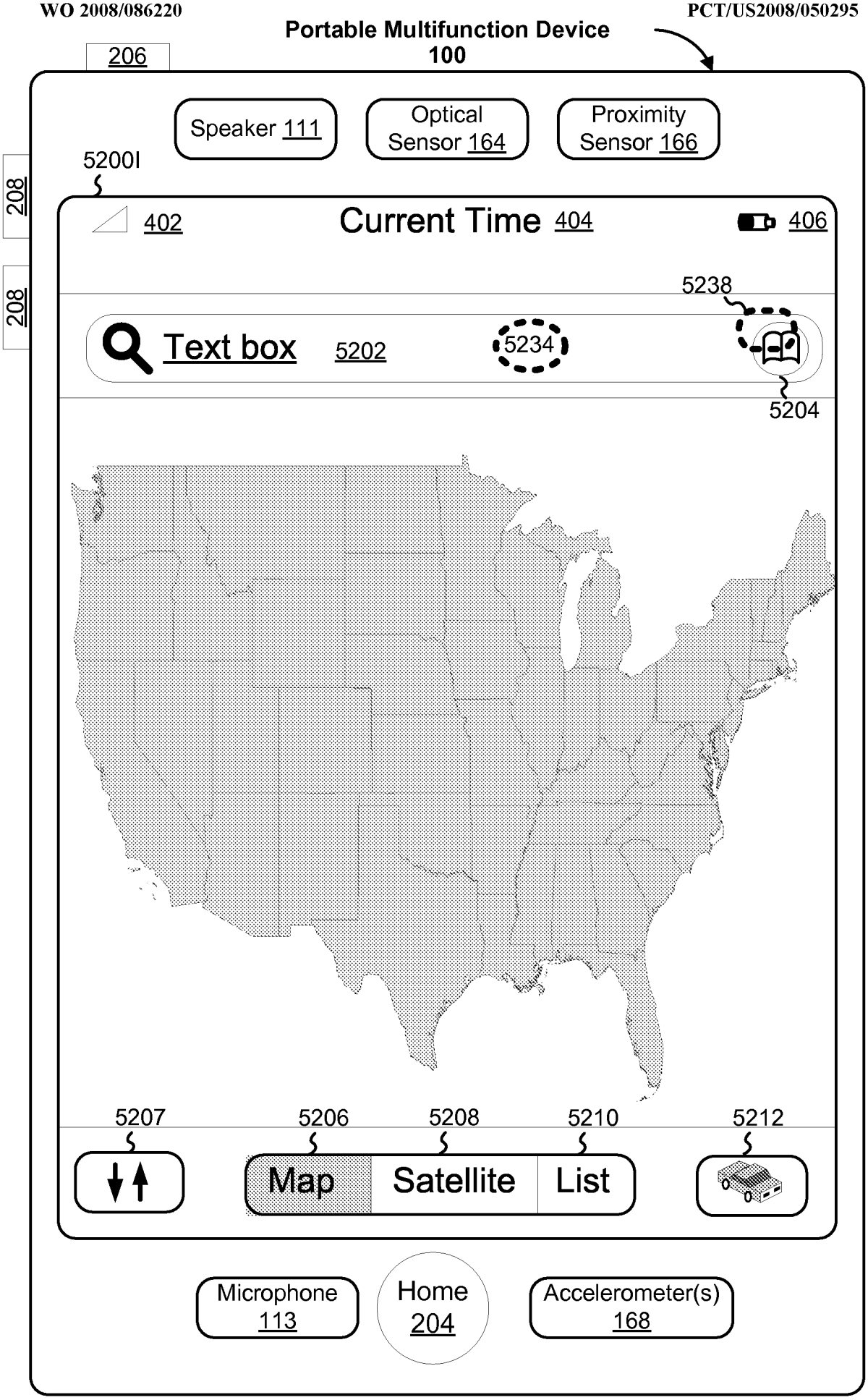

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200I
208
208
402
Current Time 404
406
5238
Text box 5202
5234
5204
5207
5206
5208
5210
5212
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5A

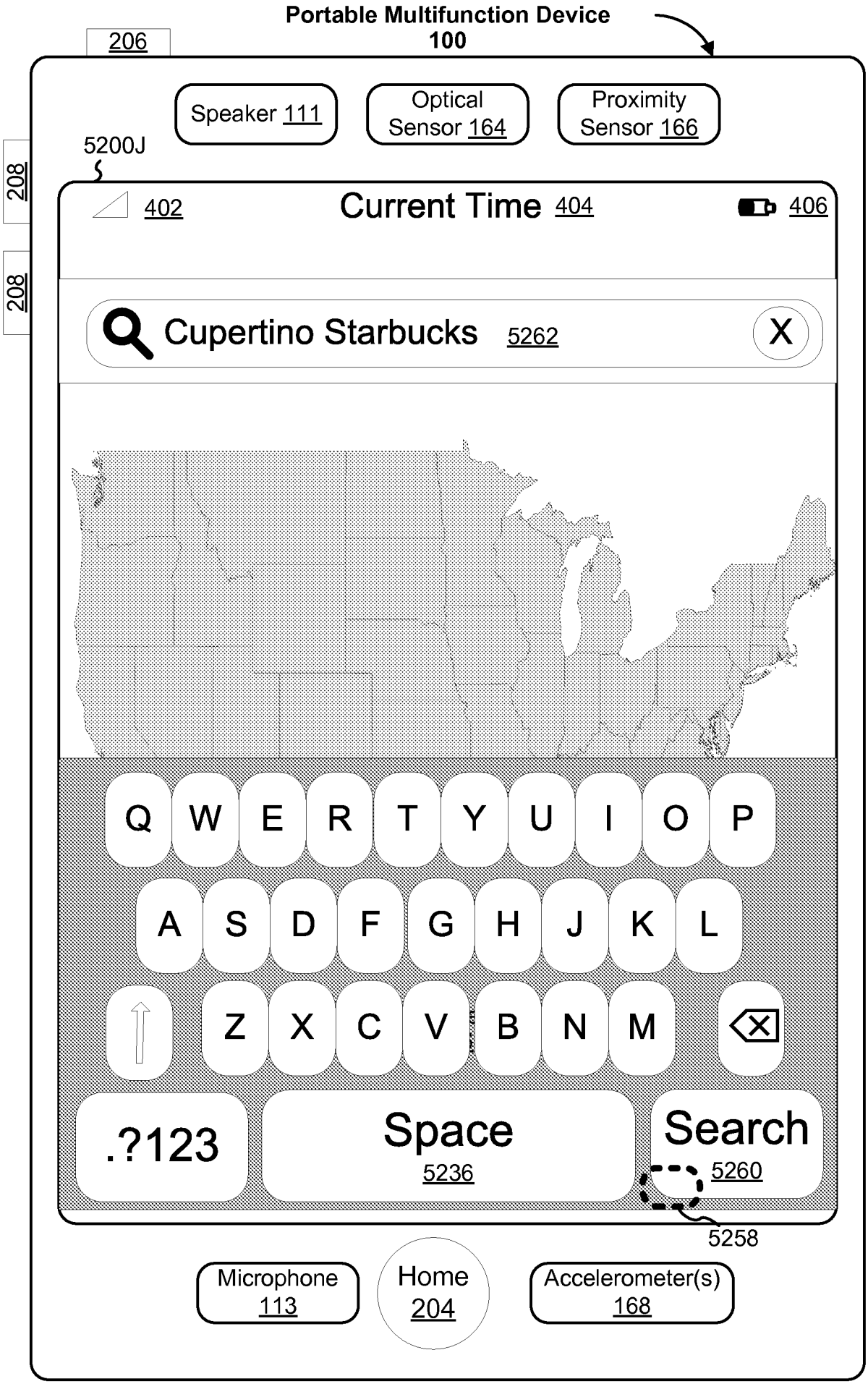

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200J
208
208
402
Current Time 404
406
Cupertino Starbucks 5262
X
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
.?123
Space
5236
Search
5260
5258
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5B

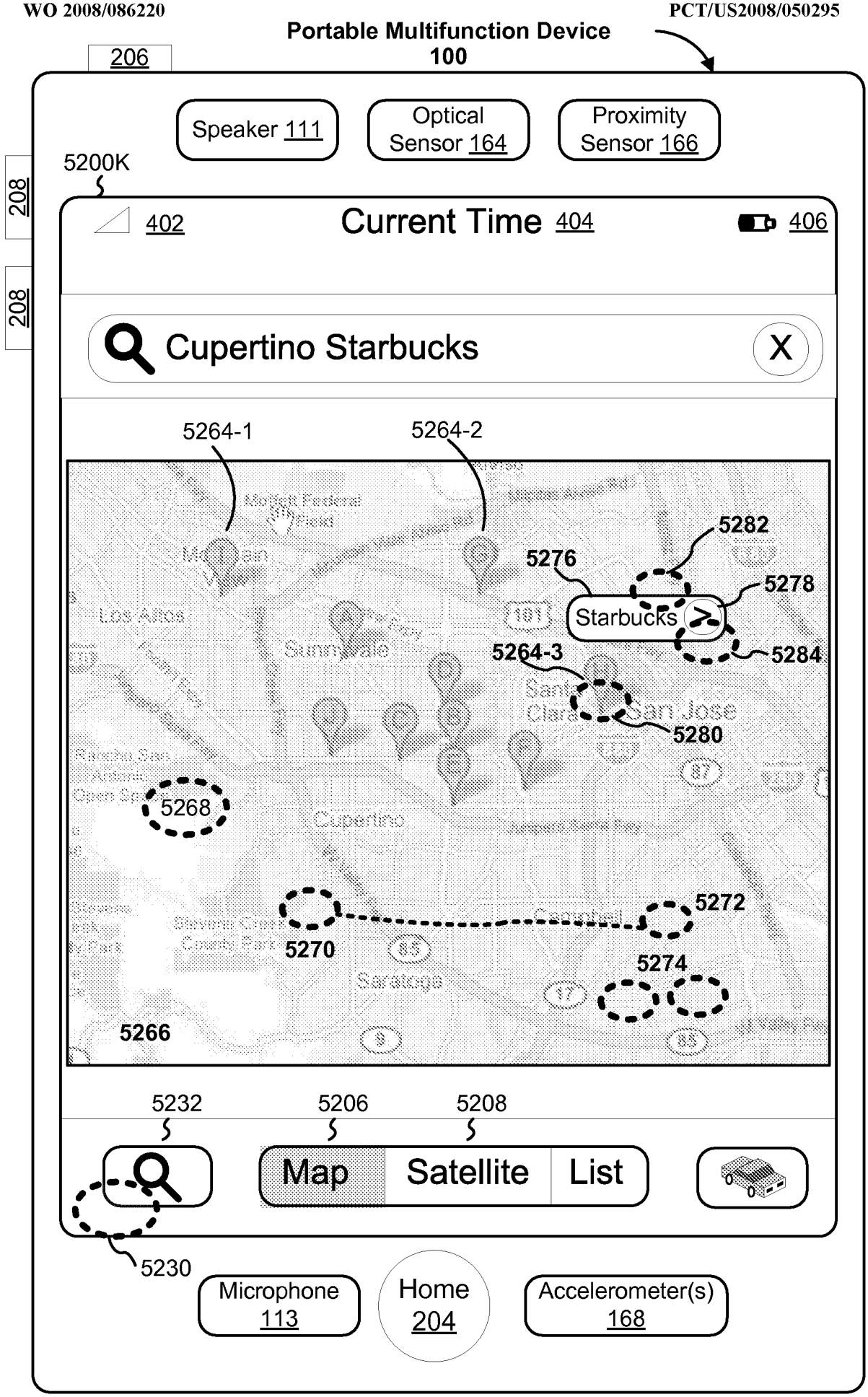

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200K
208
208
402
Current Time 404
406
Cupertino Starbucks
X
5264-1
5264-2
5282
5276
5278
Starbucks
5284
5264-3
5280
5268
Cupertino
5272
5270
5274
Saratoga
5266
5232
5206
5208
Map
Satellite
List
5230
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5C

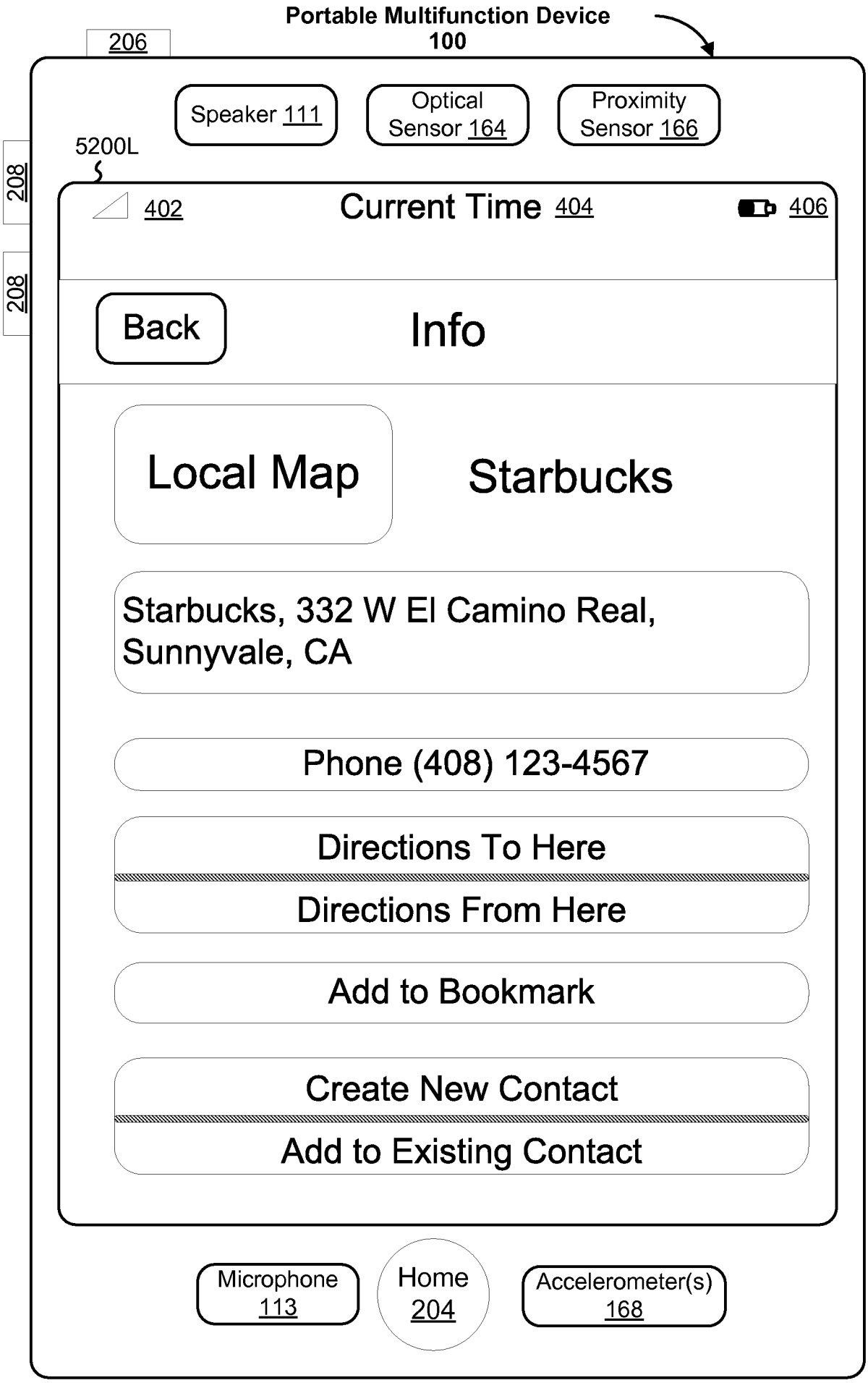

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200L
208
208
402
Current Time 404
406
Back
Info
Local Map
Starbucks
Starbucks, 332 W El Camino Real, Sunnyvale, CA
Phone (408) 123-4567
Directions To Here
Directions From Here
Add to Bookmark
Create New Contact
Add to Existing Contact
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5D

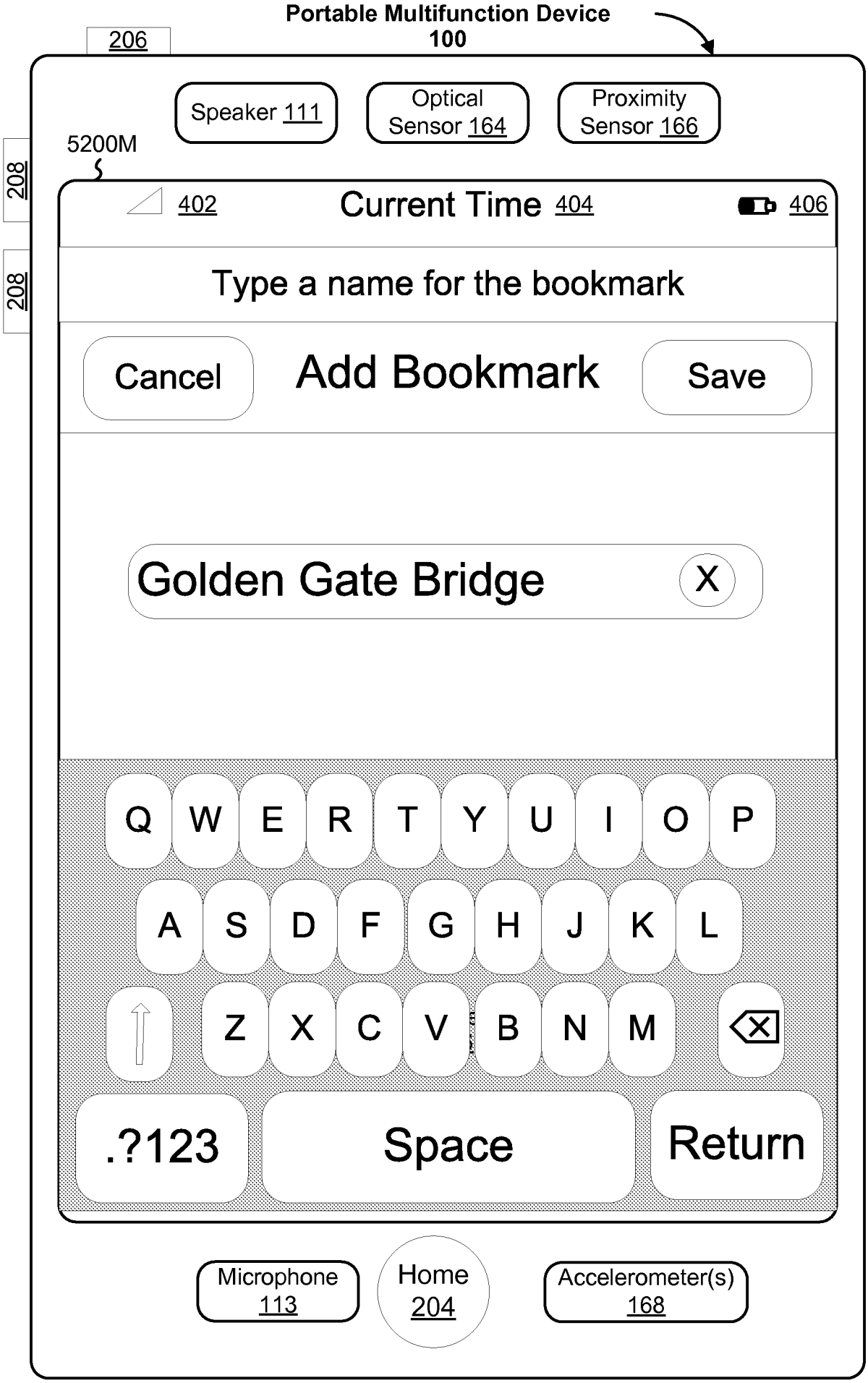

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200M
208
208
402
Current Time 404
406
Type a name for the bookmark
Cancel
Add Bookmark
Save
Golden Gate Bridge
X
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
.?123
Space
Return
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5E

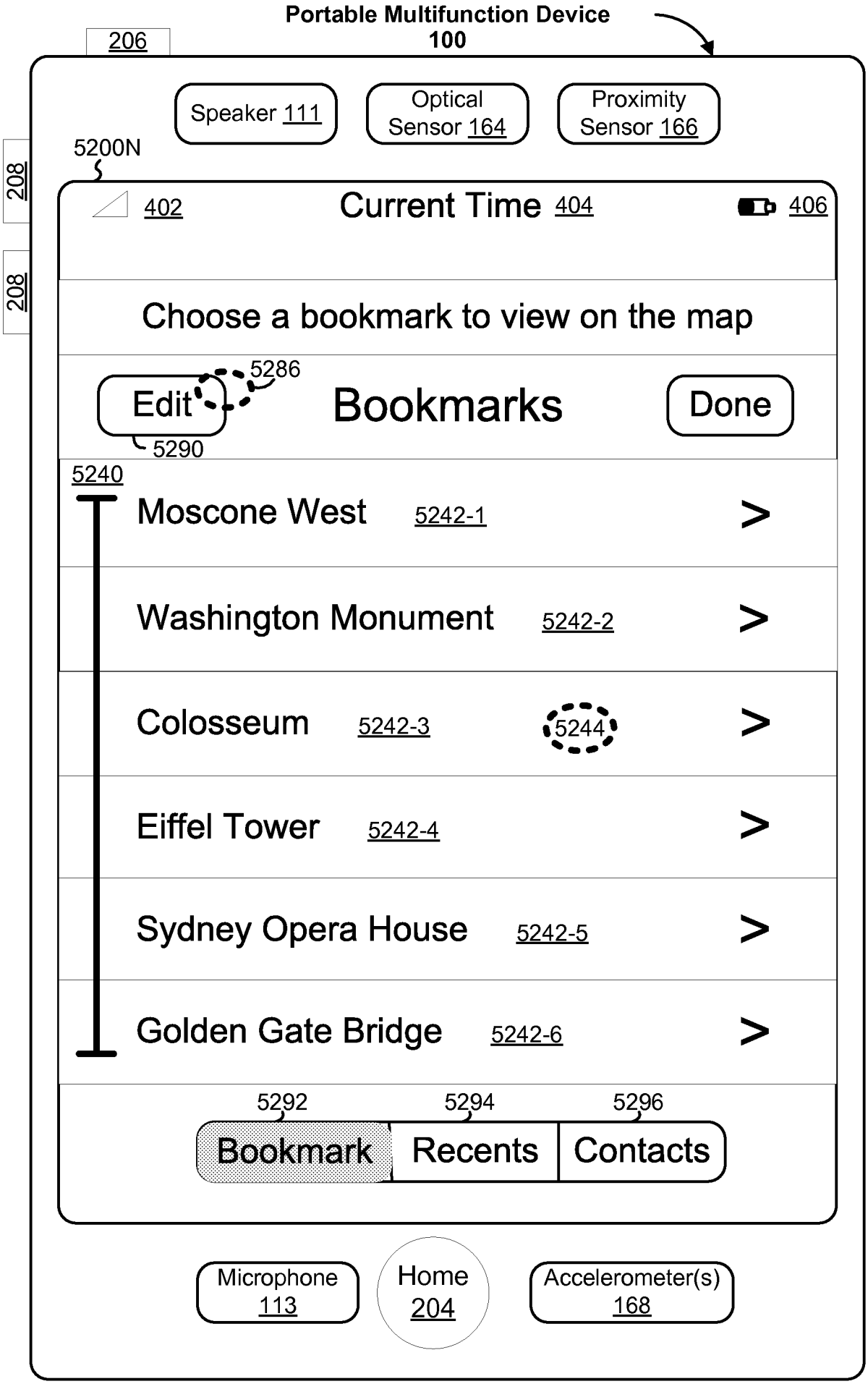

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200N
208
208
402
Current Time 404
406
Choose a bookmark to view on the map
5286
Edit
Bookmarks
Done
5290
5240
Moscone West 5242-1
Washington Monument 5242-2
Colosseum 5242-3
5244
Eiffel Tower 5242-4
Sydney Opera House 5242-5
Golden Gate Bridge 5242-6
5292
5294
5296
Bookmark
Recents
Contacts
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5F

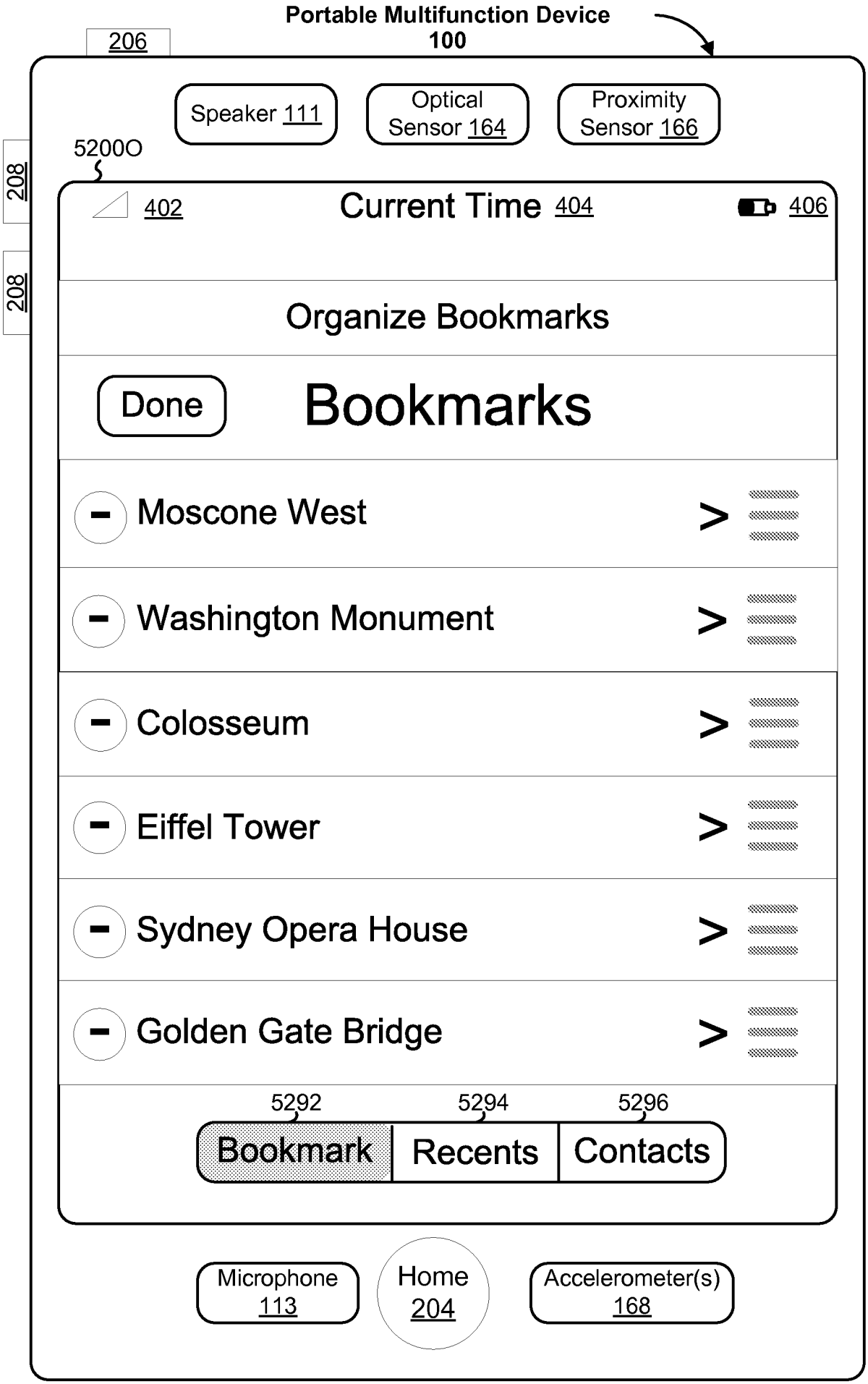

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200O
208
208
402
Current Time 404
406
Organize Bookmarks
Done
Bookmarks
Moscone West
Washington Monument
Colosseum
Eiffel Tower
Sydney Opera House
Golden Gate Bridge
5292
5294
5296
Bookmark
Recents
Contacts
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5G

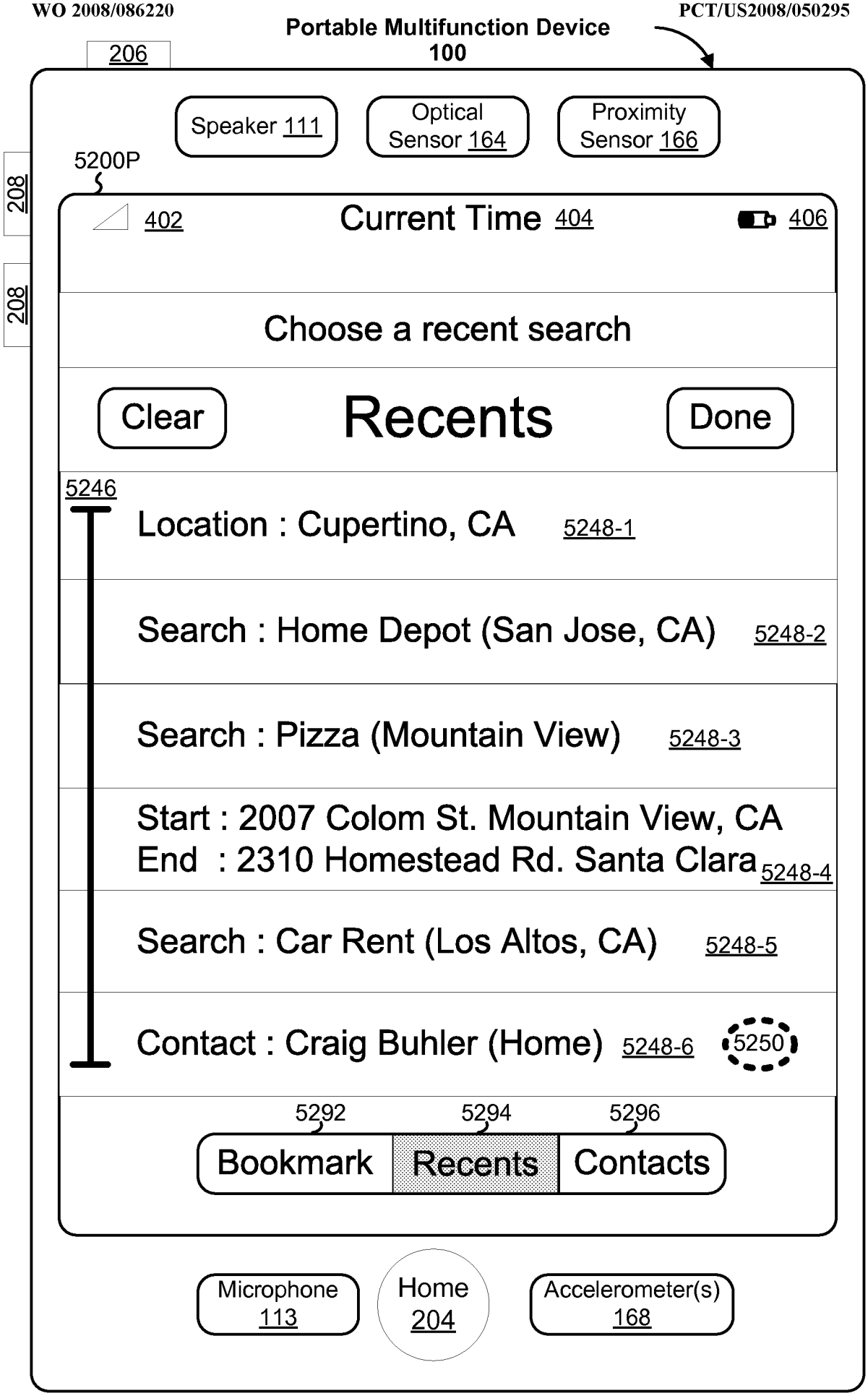

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200P
208
208
402
Current Time 404
406
Choose a recent search
Clear
Recents
Done
5246
Location : Cupertino, CA 5248-1
Search : Home Depot (San Jose, CA) 5248-2
Search : Pizza (Mountain View) 5248-3
Start : 2007 Colom St. Mountain View, CA
End : 2310 Homestead Rd. Santa Clara 5248-4
Search : Car Rent (Los Altos, CA) 5248-5
Contact : Craig Buhler (Home) 5248-6
5250
5292
5294
5296
Bookmark
Recents
Contacts
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5H


Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200Q
208
208
402
Current Time 404
406
Choose a recent search
Clear
Recents
Done
Location : Cupertino, CA
Search : Home Depot (San Jose, CA)
Search : Pizza (Mountain View)
Start : 2007 Colom St. Mountain View, CA
End : 2310 Homestead Rd. Santa Clara
1810
Clear All Recents
1812
Cancel
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5I

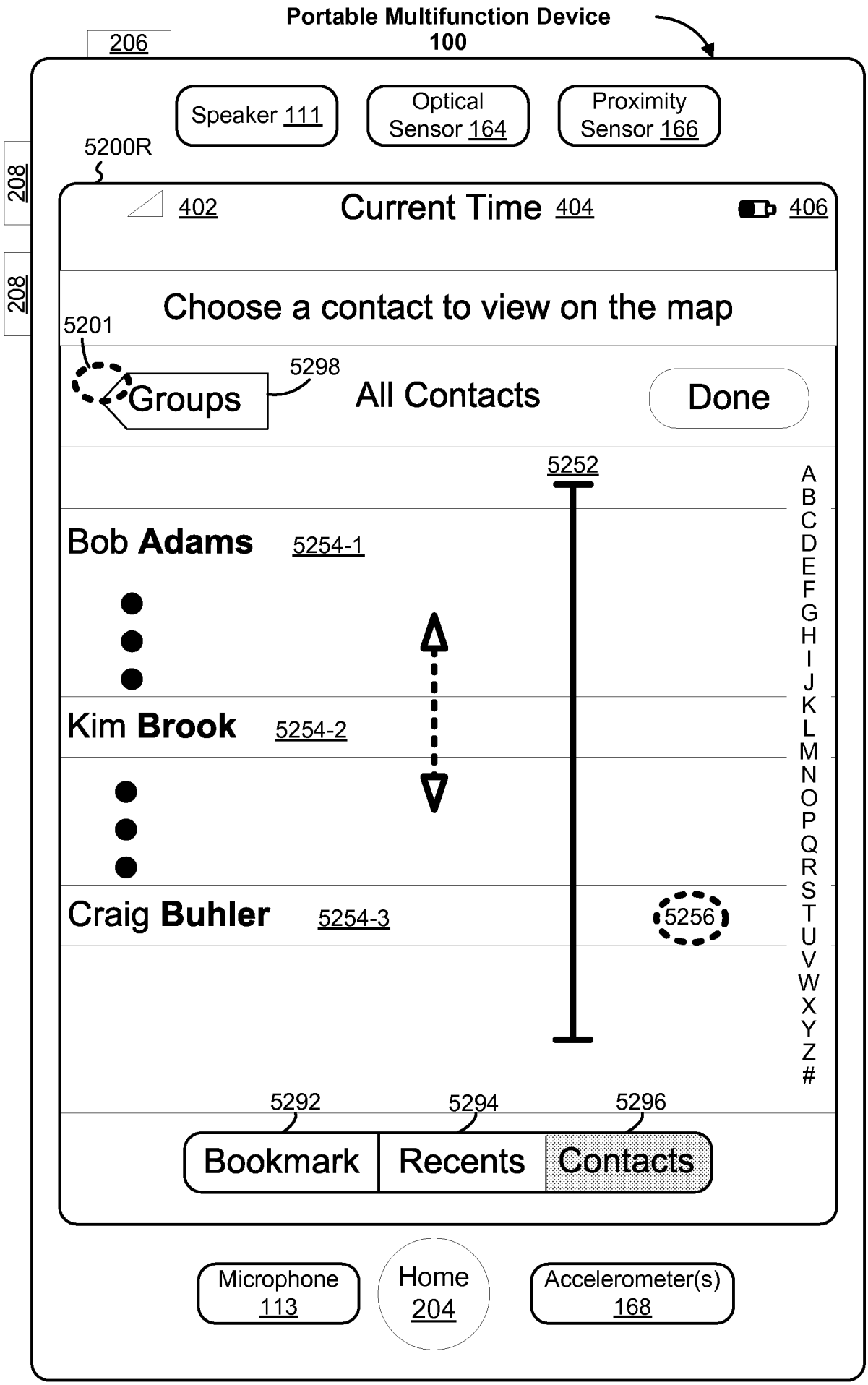

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200R
208
208
402
Current Time 404
406
Choose a contact to view on the map
5201
Groups
5298
All Contacts
Done
5252
Bob Adams 5254-1
Kim Brook 5254-2
Craig Buhler 5254-3
5256
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #
5292
5294
5296
Bookmark
Recents
Contacts
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5J

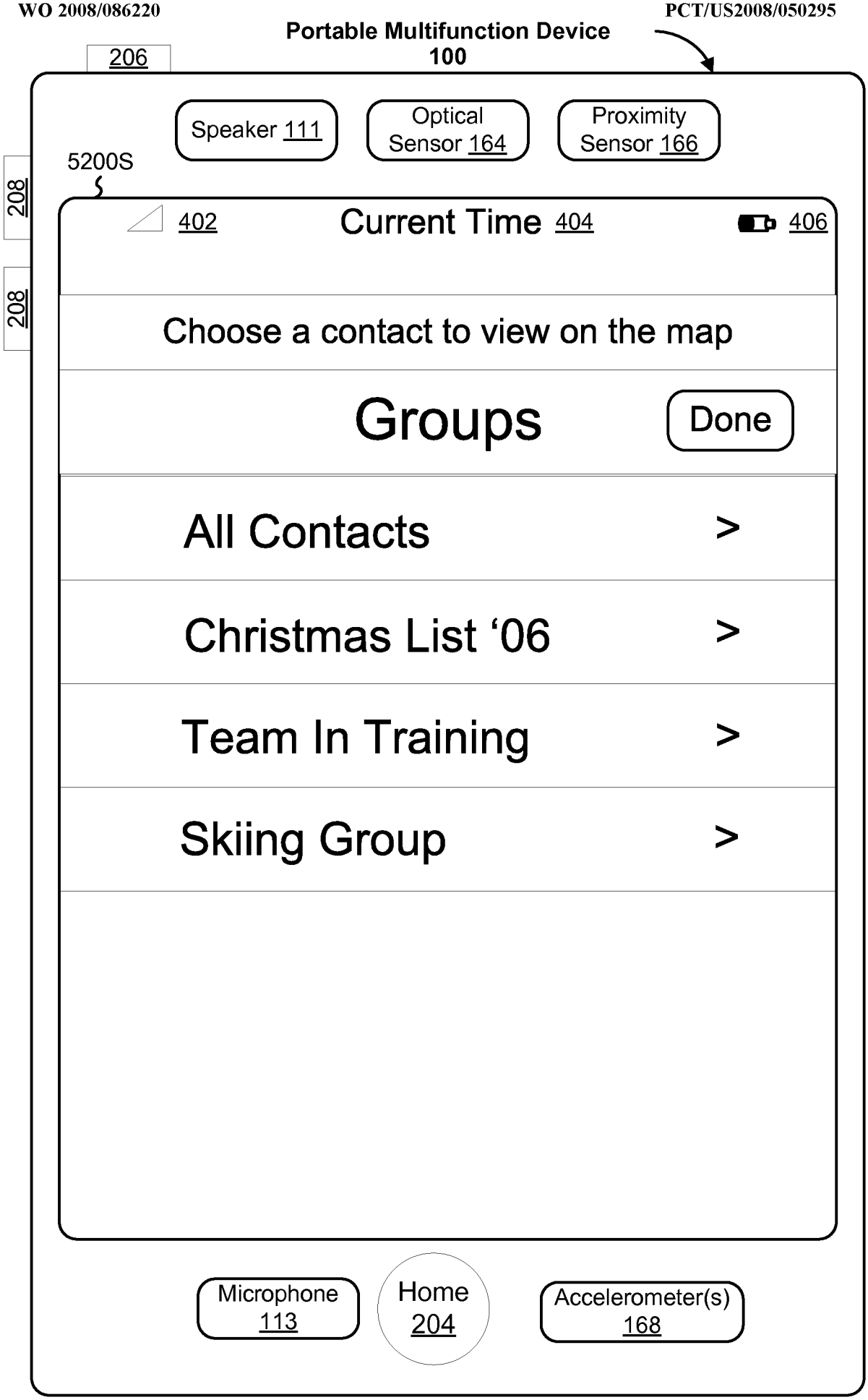

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200S
208
208
402
Current Time 404
406
Choose a contact to view on the map
Groups
Done
All Contacts >
Christmas List '06 >
Team In Training >
Skiing Group >
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5K

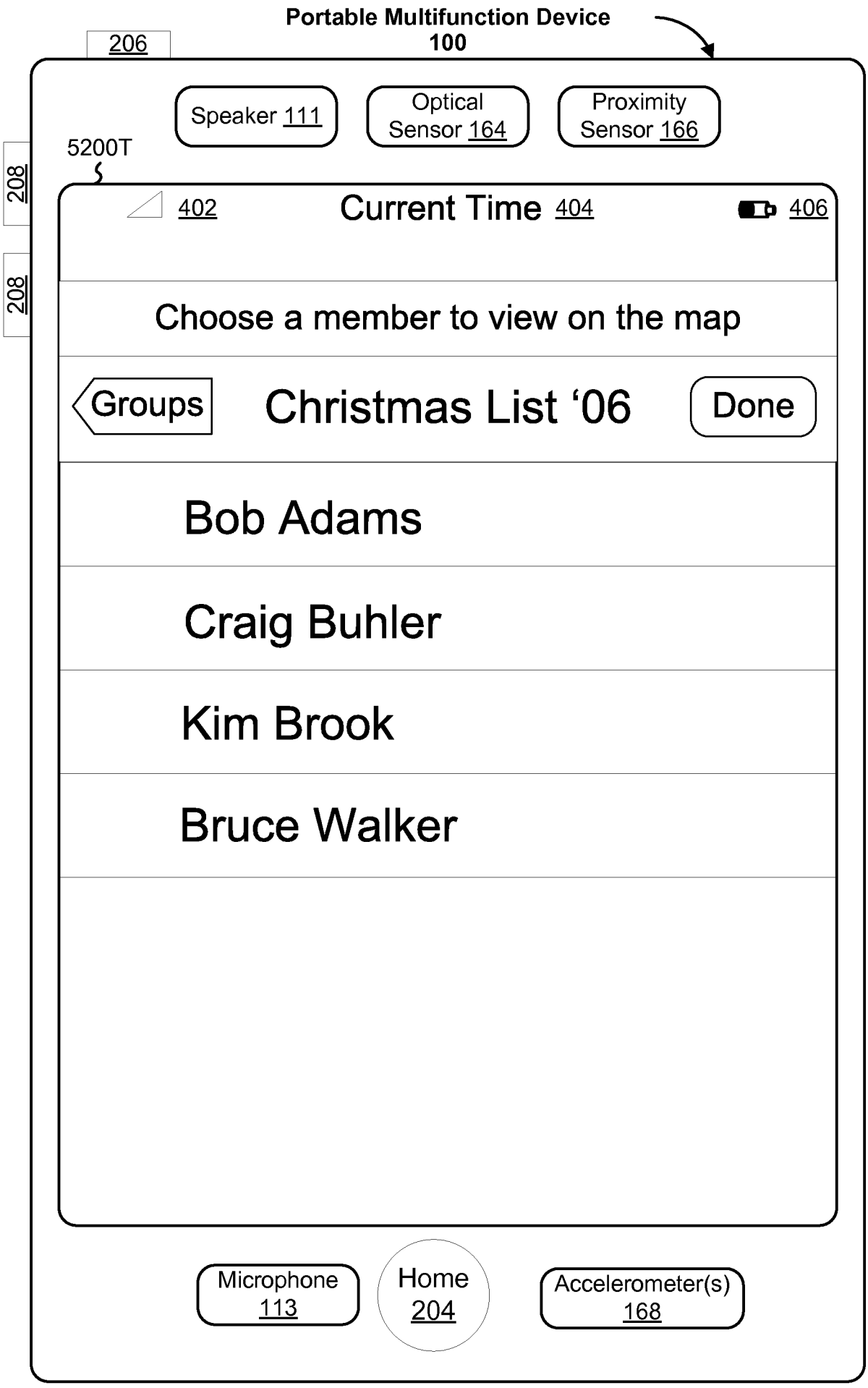

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200T
208
208
402
Current Time 404
406
Choose a member to view on the map
Groups
Christmas List '06
Done
Bob Adams
Craig Buhler
Kim Brook
Bruce Walker
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5L

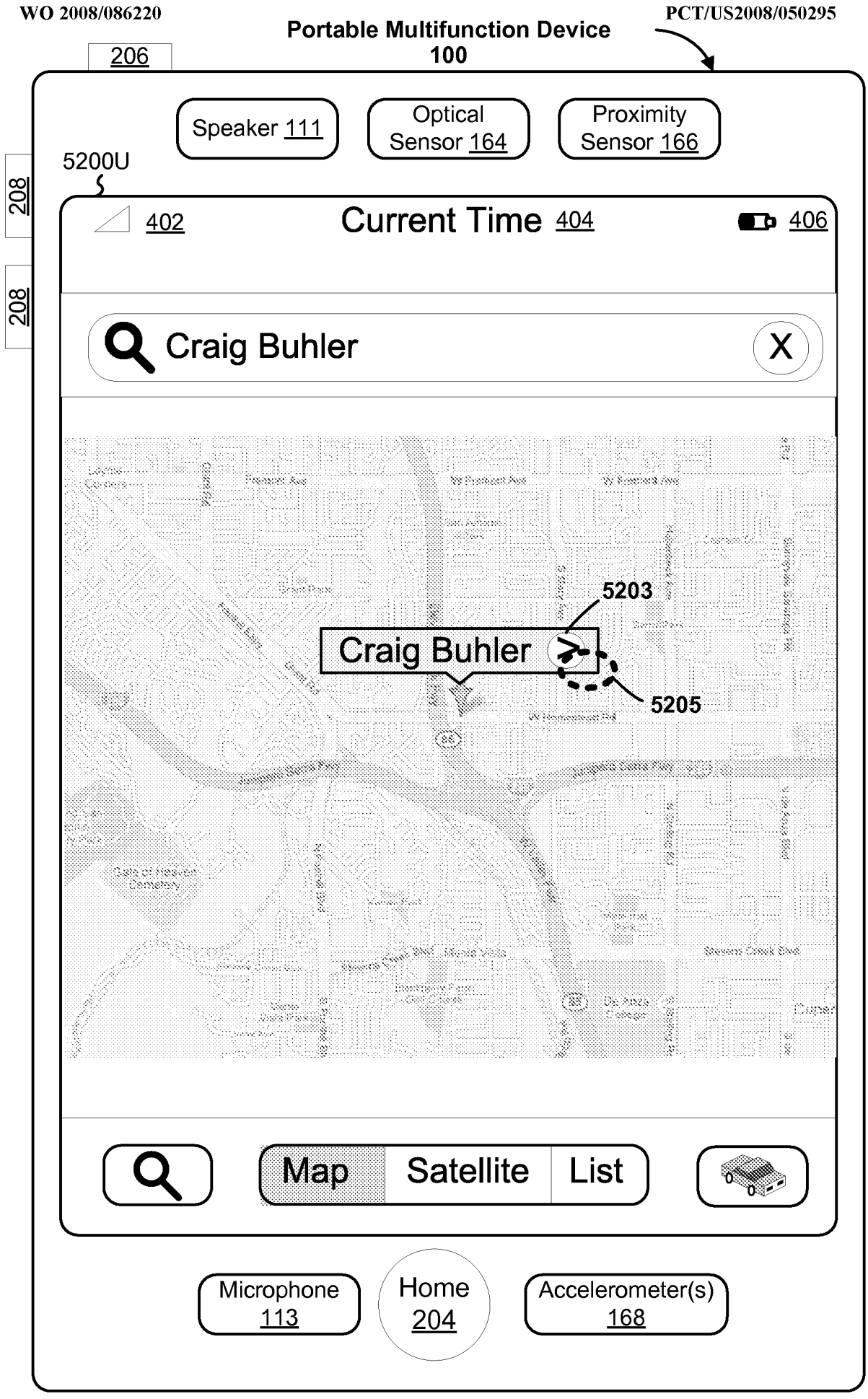

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200U
208
208
402
Current Time 404
406
Craig Buhler
X
5203
Craig Buhler
5205
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5M


Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200V
208
208
402
Current Time 404
406
Map
Info
Image
Craig Buhler
Home : 1234 Homestead Ave.
Cupertino, CA
Phone (408) 123-4444
Directions To Here
Directions From Here
Add to Bookmark
Create New Contact
Add to Existing Contact
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5N

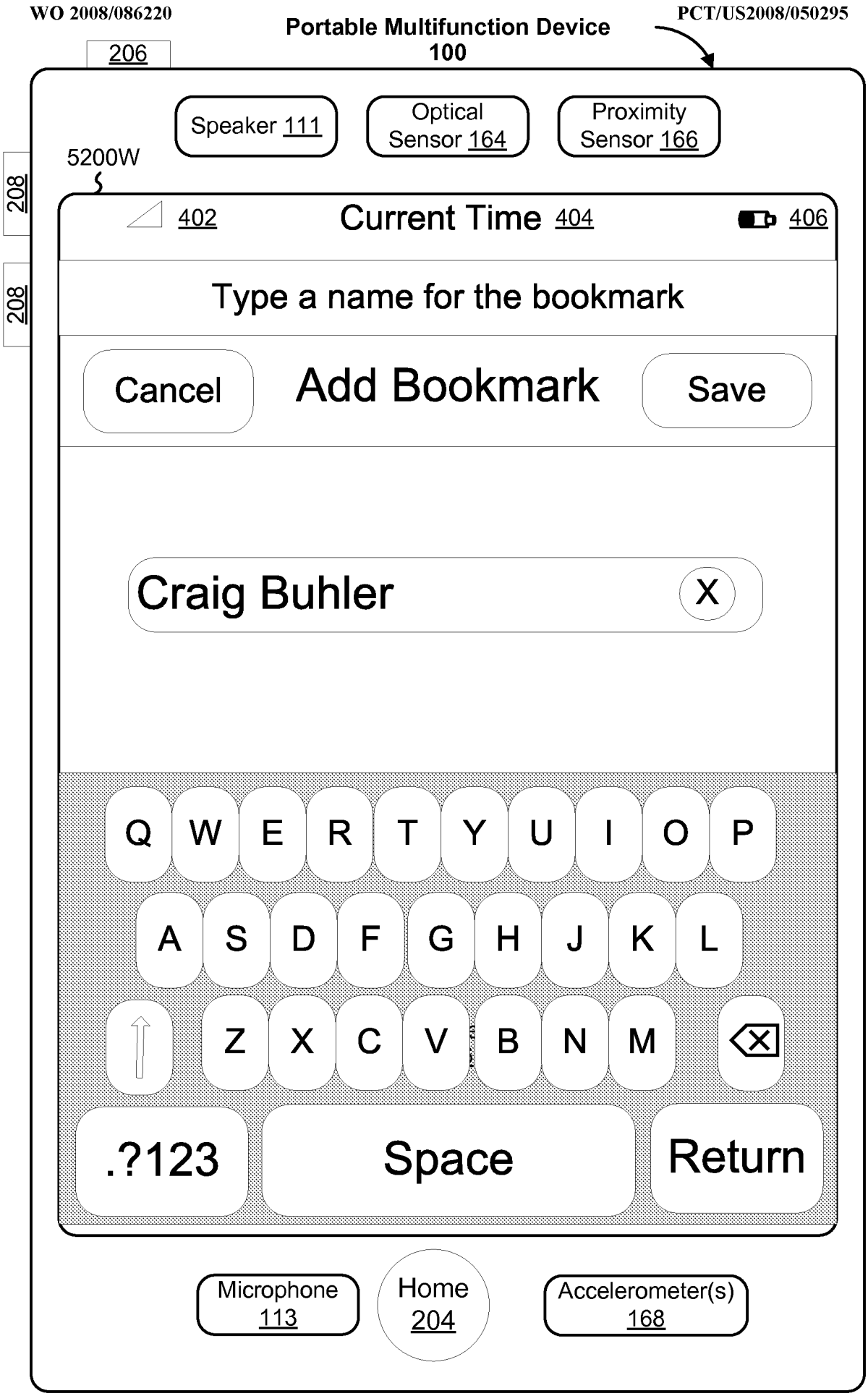

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200W
208
208
402
Current Time 404
406
Type a name for the bookmark
Cancel
Add Bookmark
Save
Craig Buhler
X
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
.?123
Space
Return
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5O

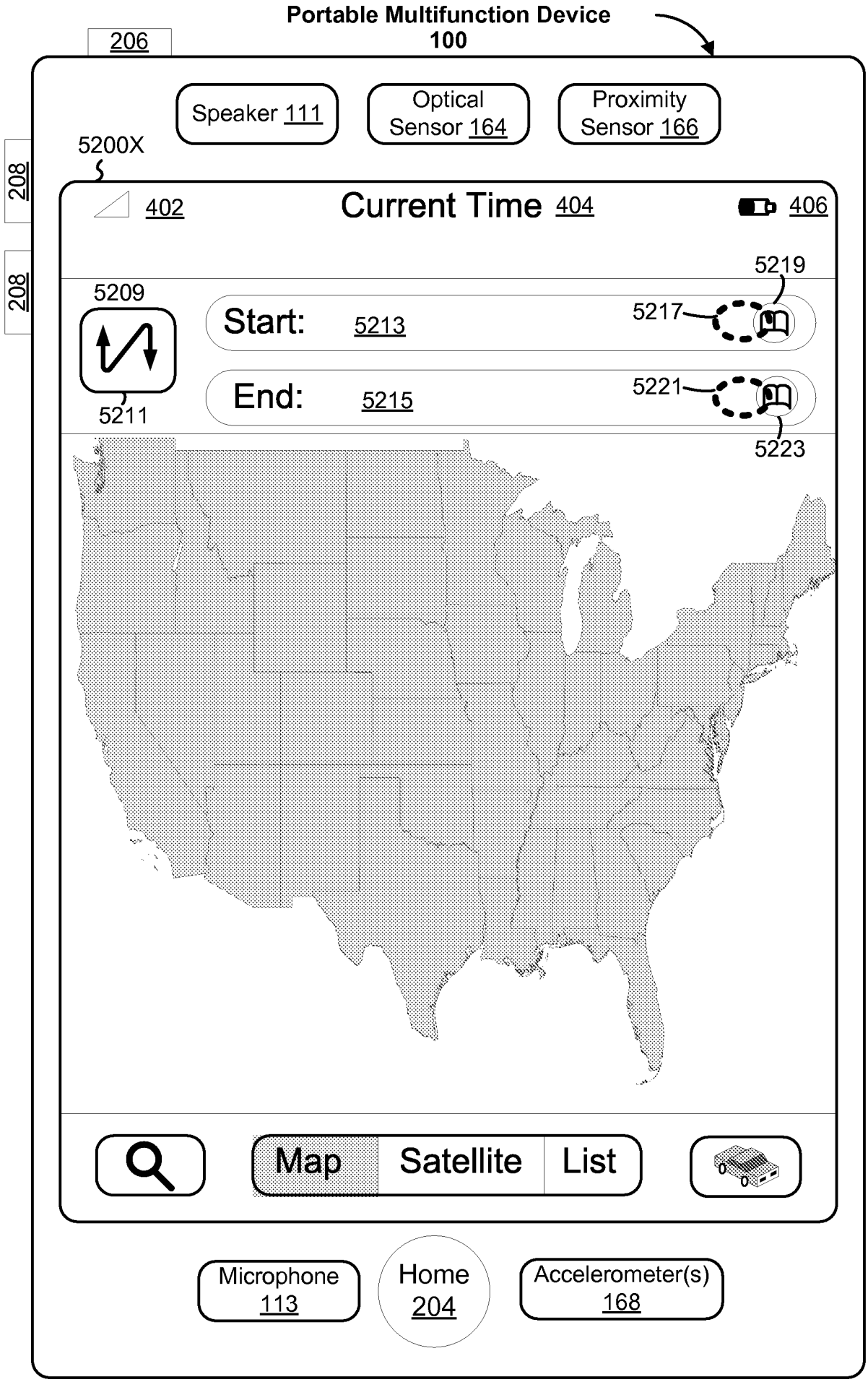

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200X
208
208
402
Current Time 404
406
5219
5209
Start: 5213
5217
End: 5215
5221
5211
5223
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5P


Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200Y
208
208
402
Current Time 404
406
Start:
5239
X
End:
5241
5216
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
Space
Next
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5Q


Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200Z
208
208
402
Current Time 404
406
Start: 2 Infinite Loop, Cupertino, CA
End: 100 Main St., Seattle, WA
X
5216
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
Space
5227
Route
5225
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5R

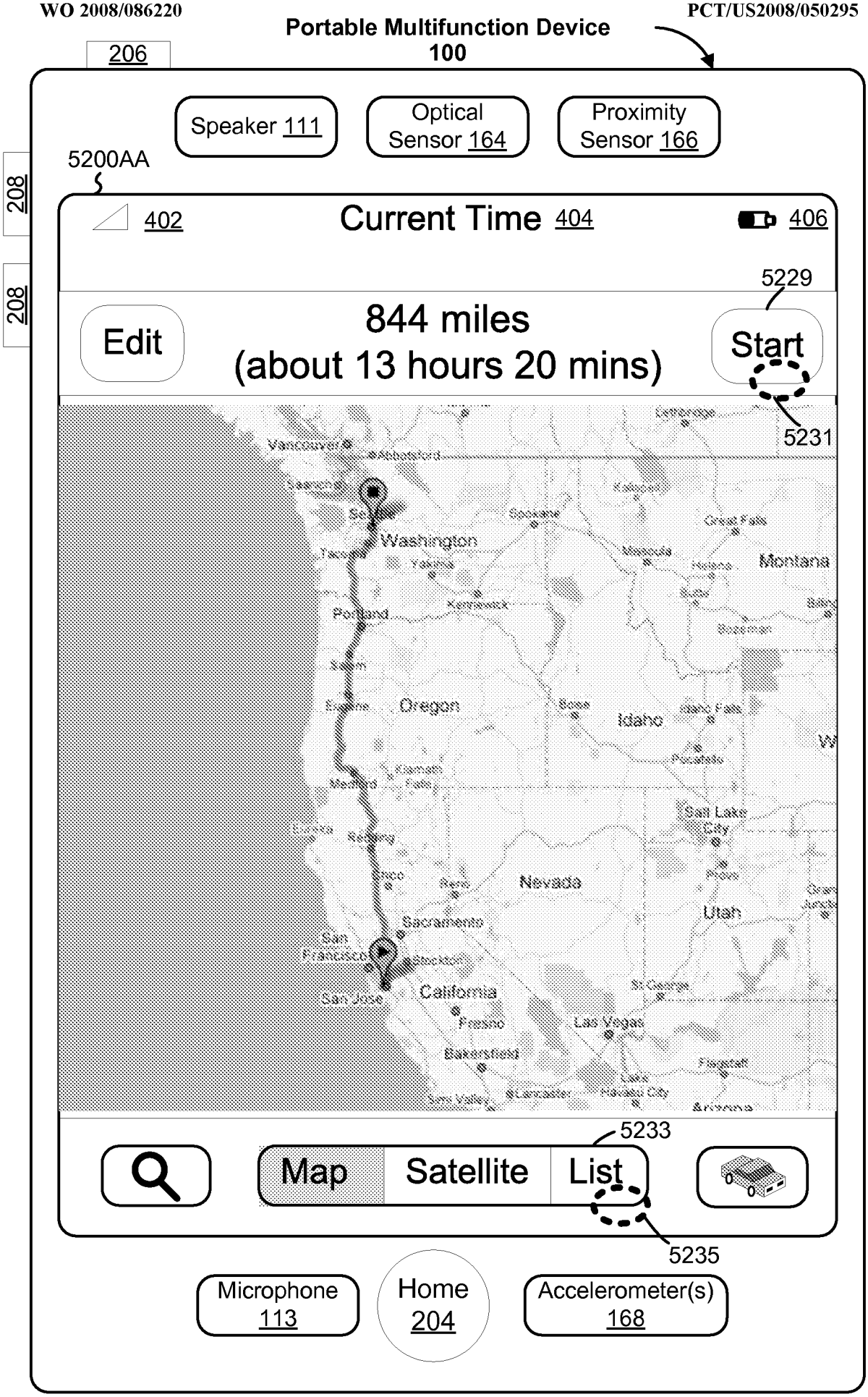

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200AA
208
208
402
Current Time 404
406
5229
Edit
844 miles
(about 13 hours 20 mins)
Start
5231
Washington
Oregon
Idaho
Montana
Nevada
Utah
California
Sacramento
San Francisco
San Jose
Las Vegas
Fresno
Salt Lake City
5233
Map
Satellite
List
5235
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5S

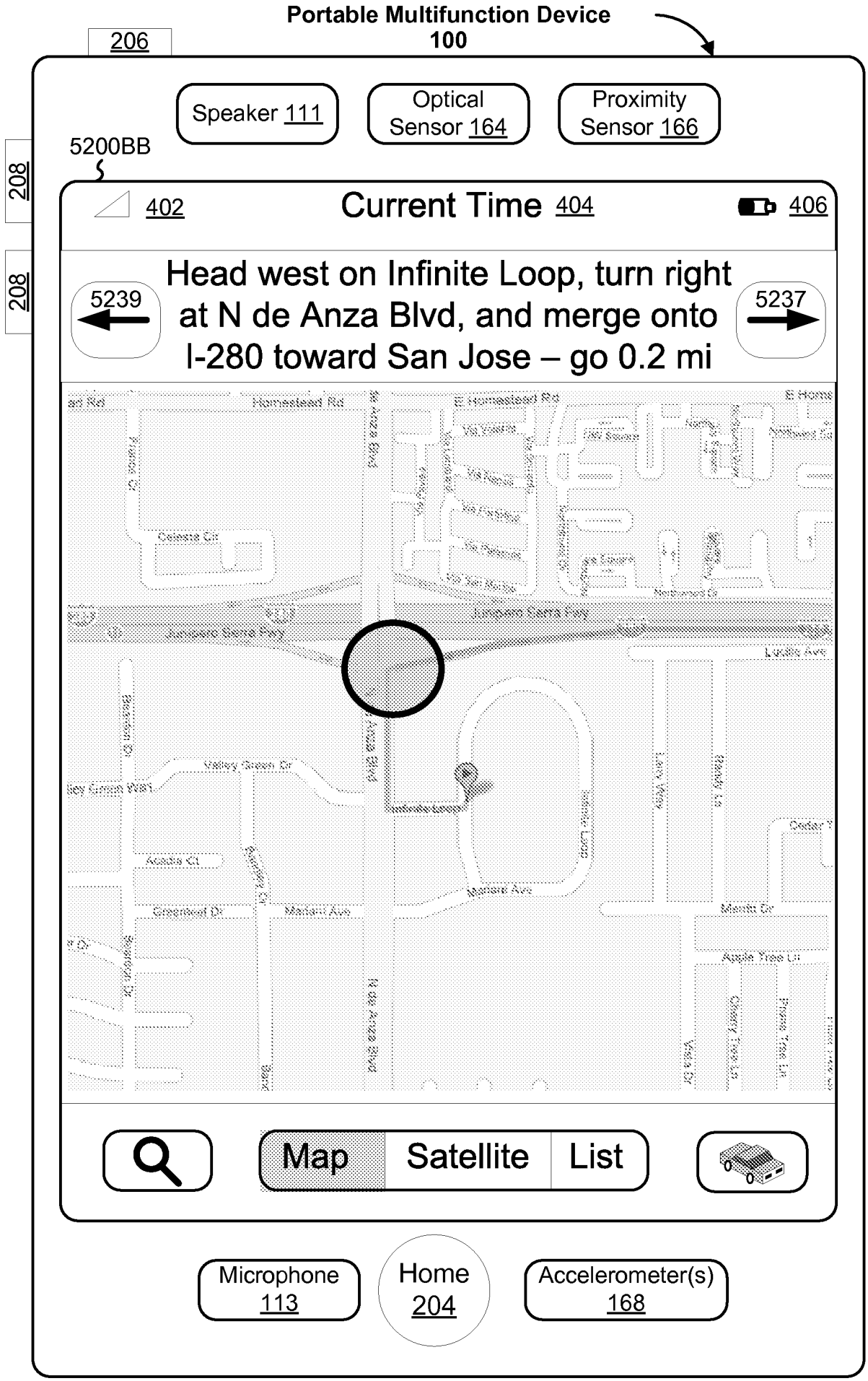

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200BB
208
208
402
Current Time 404
406
Head west on Infinite Loop, turn right at N de Anza Blvd, and merge onto I-280 toward San Jose – go 0.2 mi
5239
5237
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5T

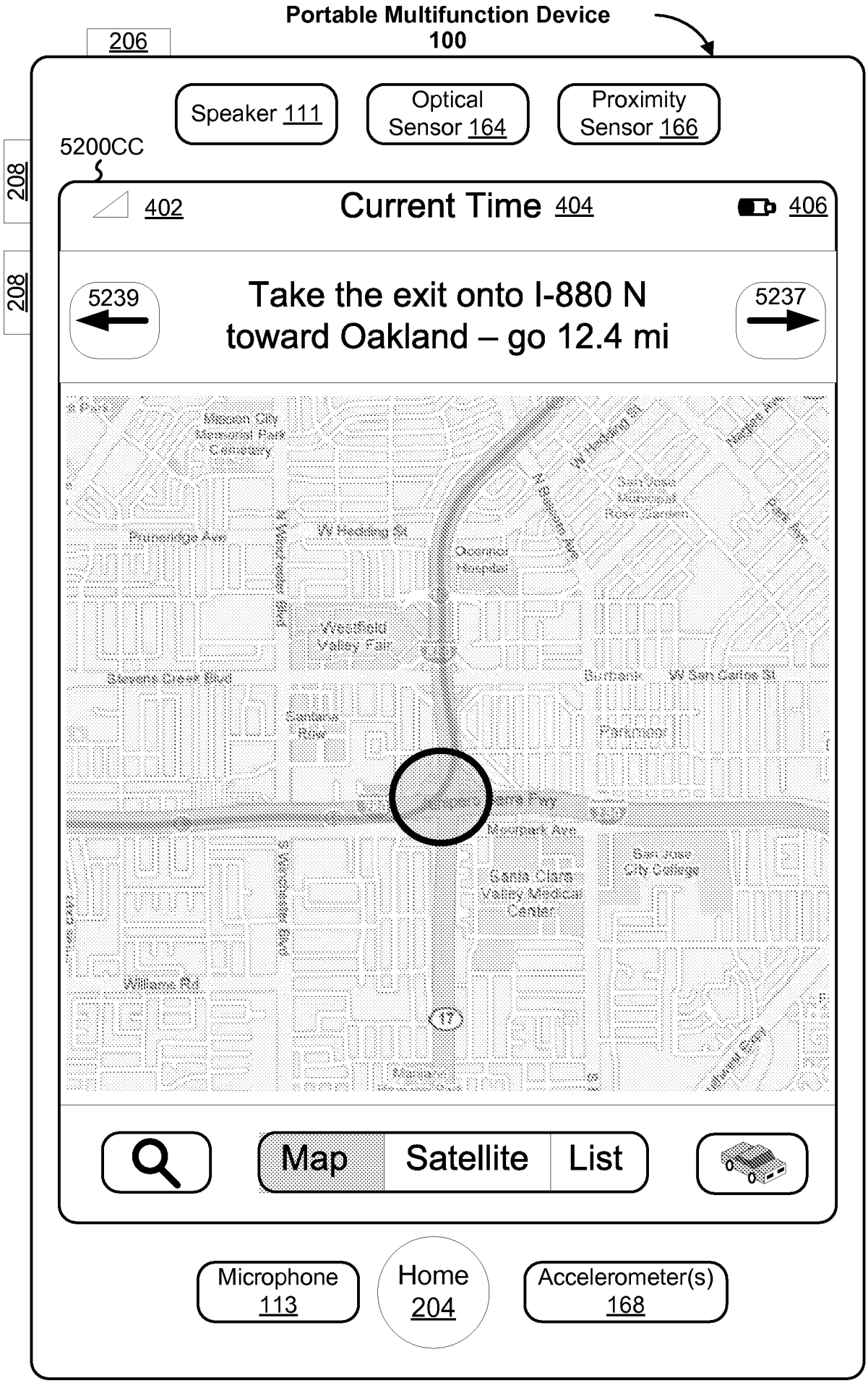

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200CC
208
208
402
Current Time 404
406
5239
Take the exit onto I-880 N
toward Oakland – go 12.4 mi
5237
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5U

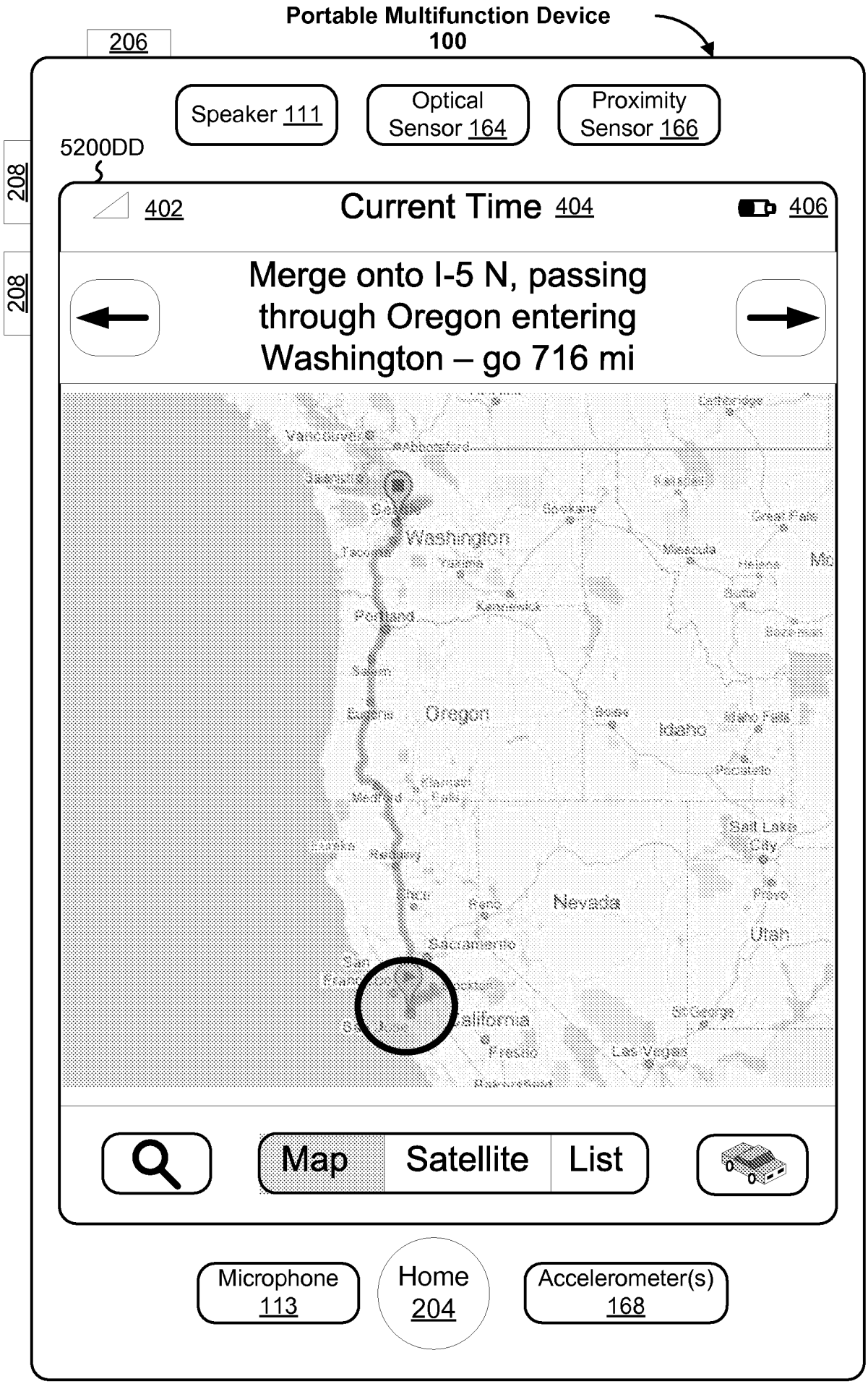

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200DD
208
208
402
Current Time 404
406
Merge onto I-5 N, passing through Oregon entering Washington – go 716 mi
Washington
Oregon
Idaho
Nevada
Utah
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5V

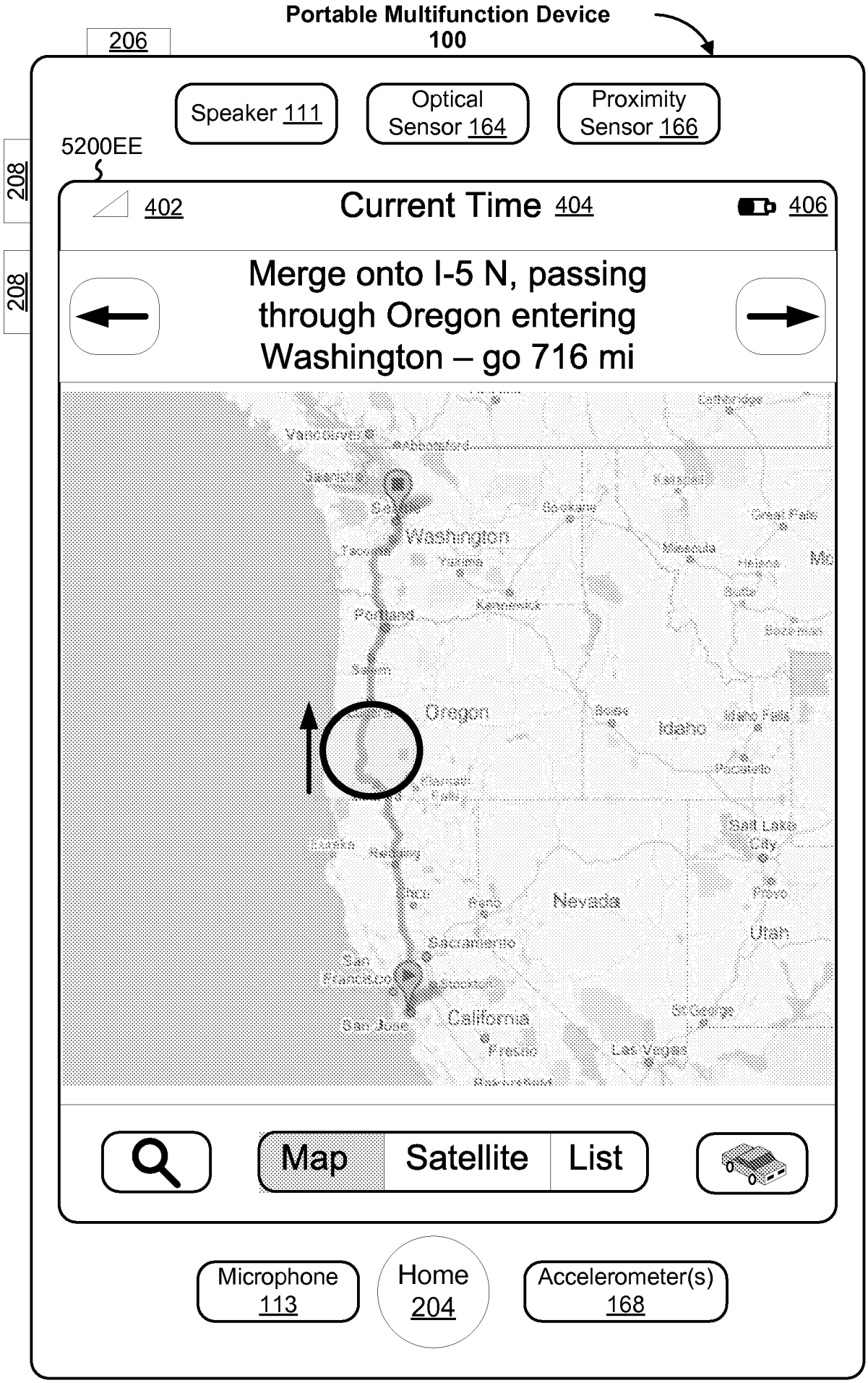

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200EE
208
208
402
Current Time 404
406
Merge onto I-5 N, passing through Oregon entering Washington – go 716 mi
Washington
Oregon
Idaho
Nevada
California
Utah
Portland
Salem
Spokane
Boise
Reno
Sacramento
San Francisco
San Jose
Las Vegas
Salt Lake City
Provo
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5W

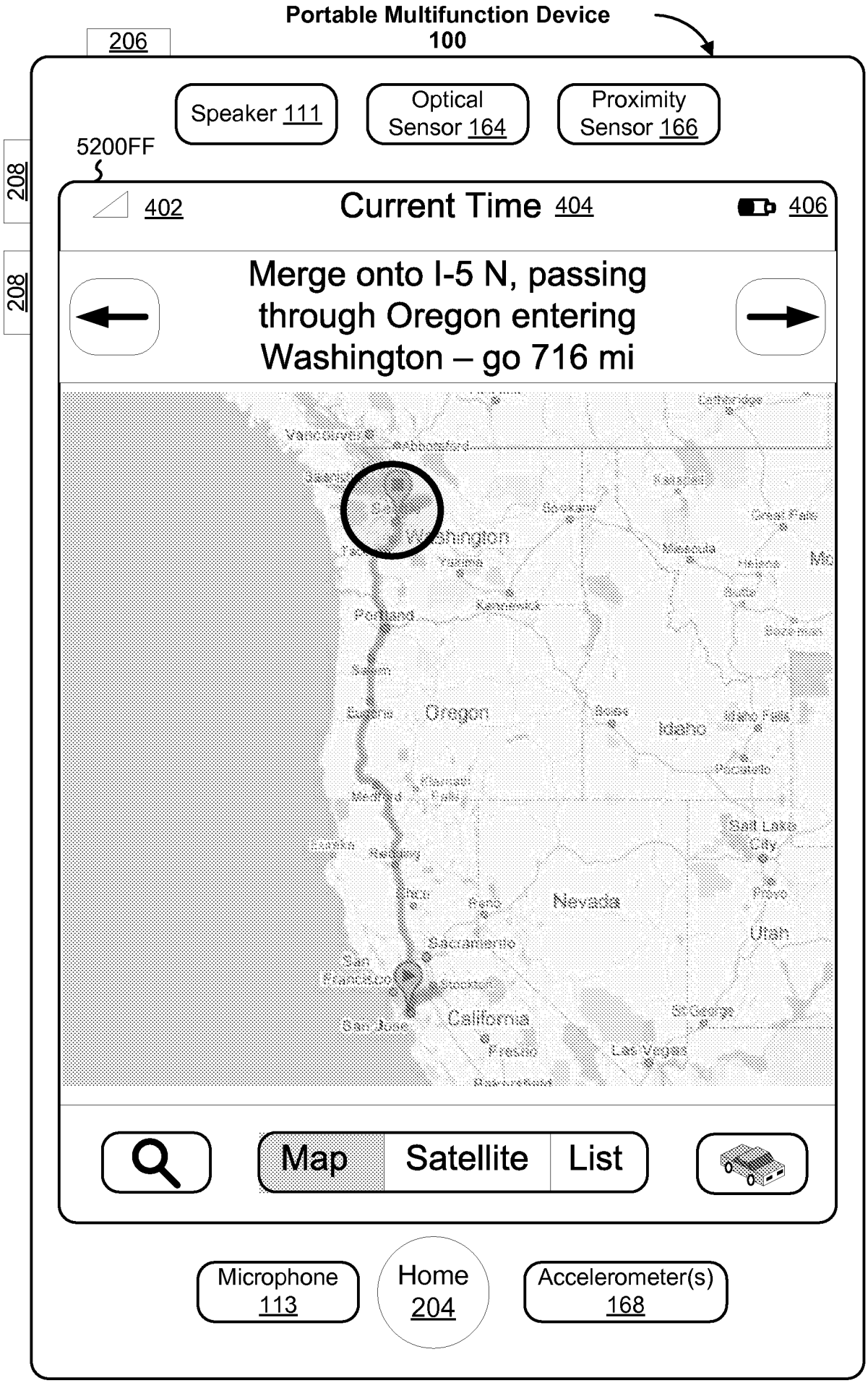

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200FF
208
208
402
Current Time 404
406
Merge onto I-5 N, passing through Oregon entering Washington – go 716 mi
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5X

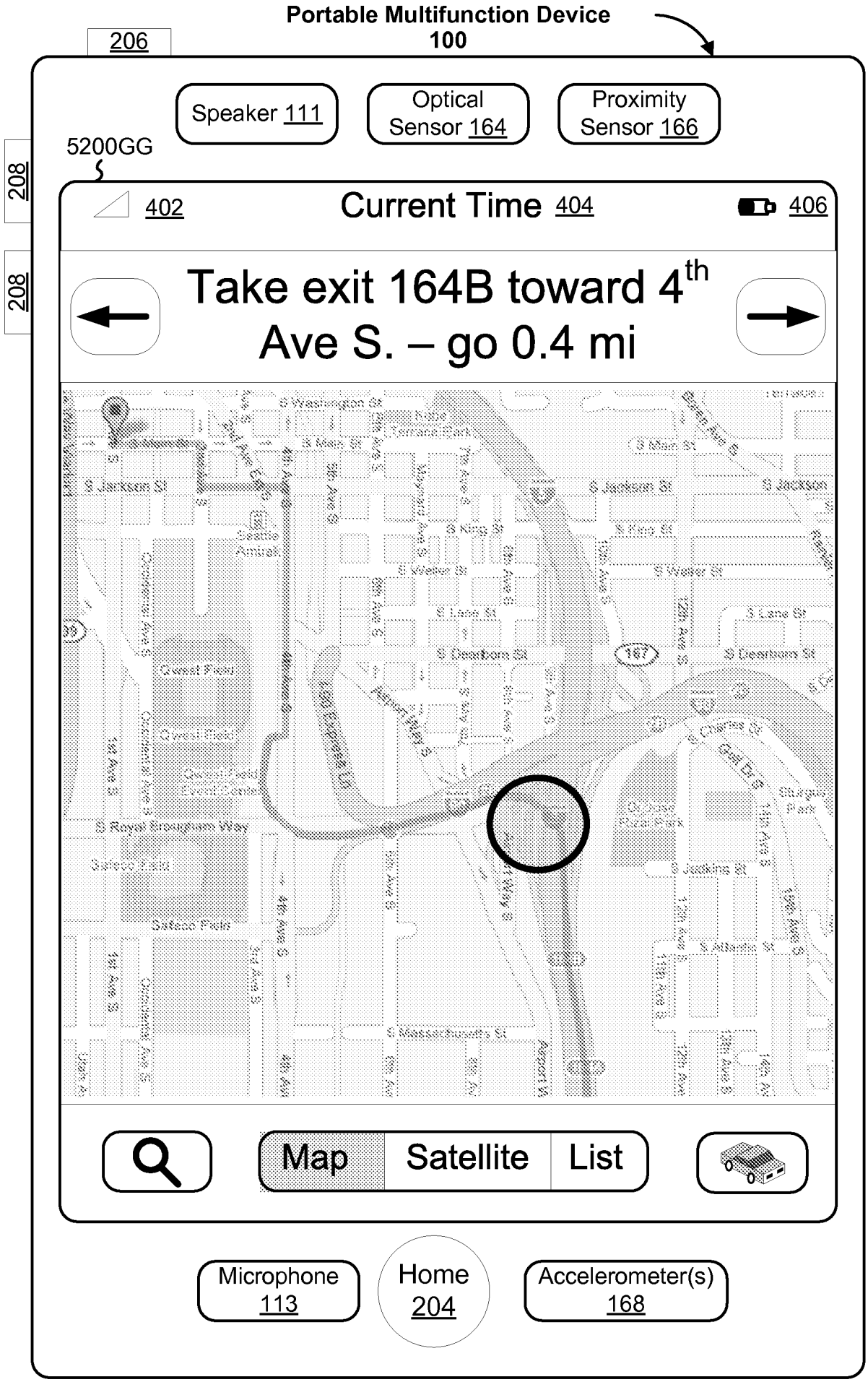

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200GG
208
208
402
Current Time 404
406
Take exit 164B toward 4th Ave S. – go 0.4 mi
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5Y

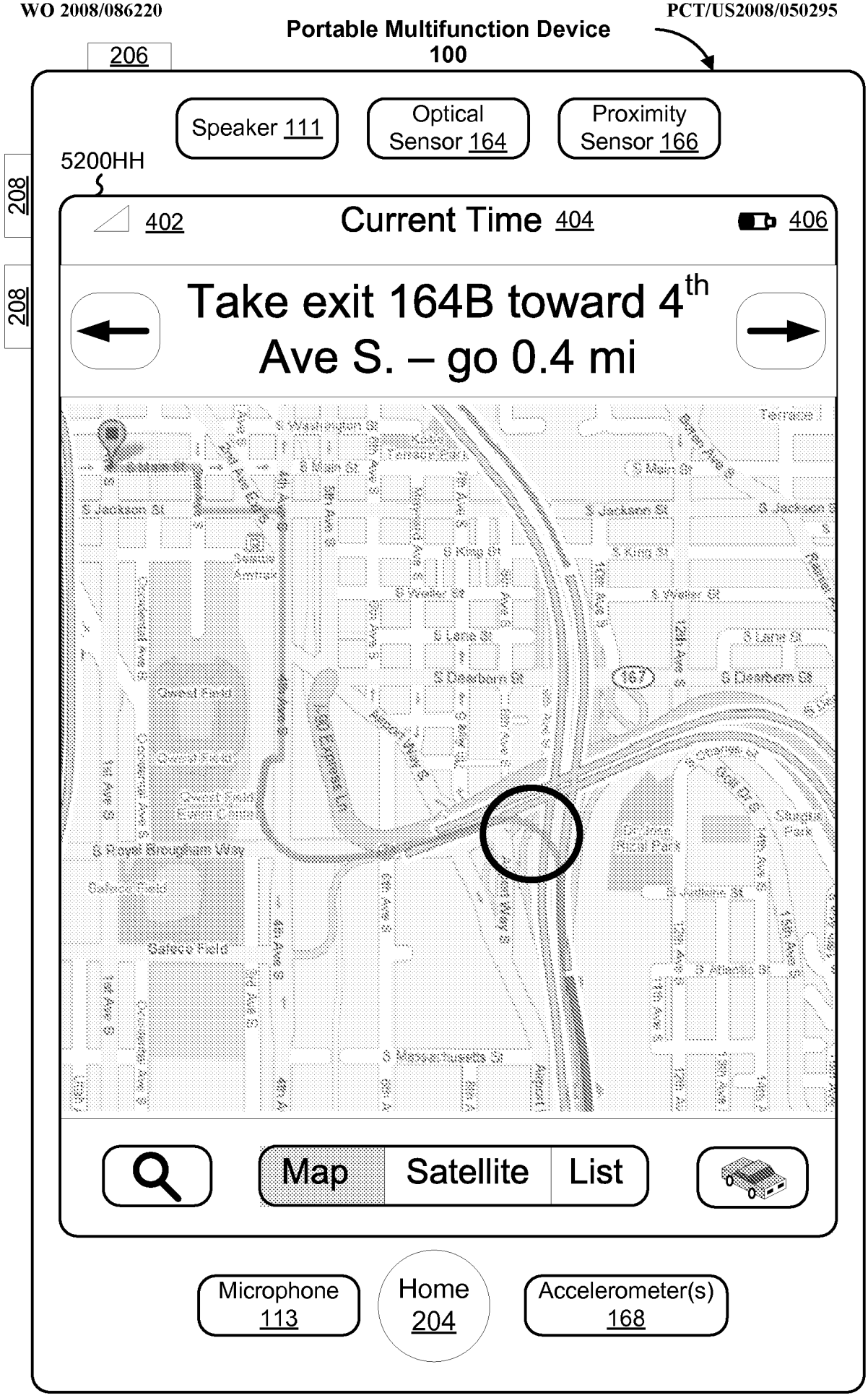

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200HH
208
208
402
Current Time 404
406
Take exit 164B toward 4th Ave S. – go 0.4 mi
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5Z

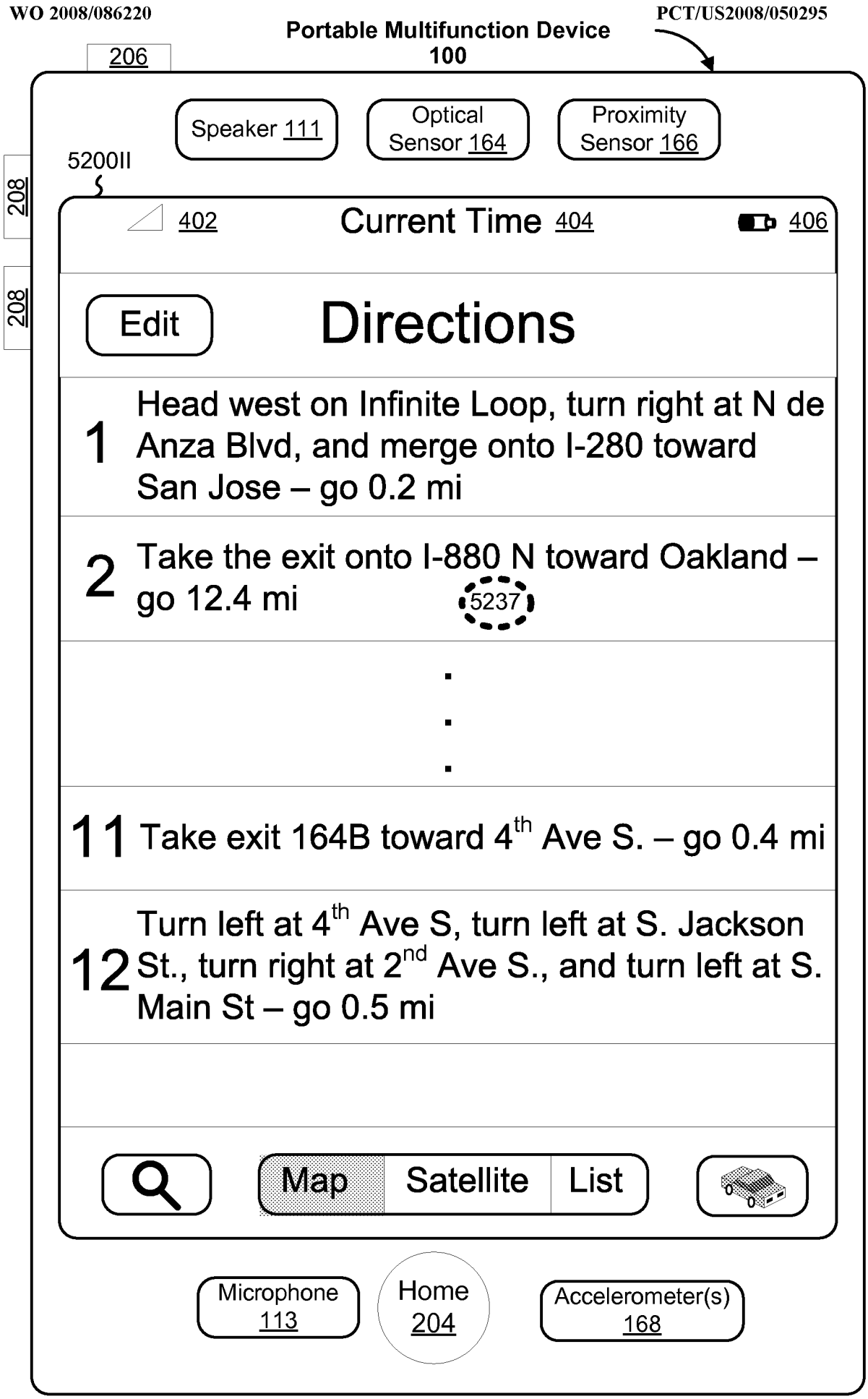

Portable Multifunction Device
100
206
Speaker 111
Optical Sensor 164
Proximity Sensor 166
5200II
208
208
402
Current Time 404
406
Edit
Directions
1 Head west on Infinite Loop, turn right at N de Anza Blvd, and merge onto I-280 toward San Jose – go 0.2 mi
2 Take the exit onto I-880 N toward Oakland – go 12.4 mi
5237
11 Take exit 164B toward 4th Ave S. – go 0.4 mi
12 Turn left at 4th Ave S, turn left at S. Jackson St., turn right at 2nd Ave S., and turn left at S. Main St – go 0.5 mi
Map
Satellite
List
Microphone 113
Home 204
Accelerometer(s) 168

Figure 5AA