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User interfaces for device controls

Abstract

The present disclosure generally relates to displaying user interfaces with device controls.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS (1) This application claims priority to U.S. Provisional Patent Application 63/343,076, entitled “USER INTERFACES FOR DEVICE CONTROLS,” filed May 17, 2022. The content of this application is incorporated herein by reference in its entirety.

FIELD
(1) The present disclosure relates generally to computer user interfaces, and more specifically to techniques for controlling external devices.
BACKGROUND
(2) Computer systems can include hardware and/or software for providing improved techniques for a user preferring to use different input mechanisms and/or for a user having one or more impairments (e.g., motor impairment and/or visual impairment) to interact with the computer.
BRIEF SUMMARY
(3) Users may prefer to use alternative input techniques and/or may have a limited ability to provide certain inputs to control a computer (e.g., using a mouse and/or a touchscreen). A user may configure particular accessibility settings of a computer system to allow the user to more easily control a device. A user may request to control one computer system using a different computer system (e.g., an external device).
(4) Some techniques for controlling external devices using electronic devices, however, are generally cumbersome and inefficient. For example, some existing techniques use a complex and time-consuming user interface, which may include multiple key presses or keystrokes. Existing techniques require more time than necessary, wasting user time and device energy. This latter consideration is particularly important in battery-operated devices.
(5) Accordingly, the present technique provides electronic devices with faster, more efficient methods and interfaces for controlling external devices. Such methods and interfaces optionally complement or replace other methods for controlling external devices. Such methods and interfaces reduce the cognitive burden on a user and produce a more efficient human-machine interface. For battery-operated computing devices, such methods and interfaces conserve power and increase the time between battery charges. When a user desires to control an external (e.g., remote) device, automatically displaying a particular user interface based on the accessibility settings of the one or more devices (e.g., a local device and/or an external device) reduces the number of inputs required to control the one or more devices. Additionally or alternatively, automatically displaying a particular user interface to control an external device based on an accessibility setting improves a human-machine interface for users.
(6) In accordance with some embodiments, a method performed at a first computer system that is in communication with a display generation component and one or more input devices is described. The method comprises: detecting, via the one or more input devices, an input corresponding to a request to control a second computer system; and in response to detecting the input corresponding to the request to control the second computer system and while in communication with the second computer system: in accordance with a determination that a first set of control criteria is met, displaying one or more first user interface objects that controls a graphical element displayed by the second computer system to navigate one or more user interfaces of the second computer system, wherein a first control criteria of the first set of control criteria is met when a first mode of controlling a computer system is enabled on the second computer system; and in accordance with a determination that the first set of control criteria is not met, forgoing display of the one or more user interface objects that controls a graphical element to navigate the one or more user interfaces of the second computer system.
(7) In accordance with some embodiments, a non-transitory computer-readable storage medium is described. The non-transitory computer-readable storage medium stores one or more programs configured to be executed by one or more processors of a first computer system that is in communication with a display generation component and one or more input devices, the one or more programs including instructions for: detecting, via the one or more input devices, an input corresponding to a request to control a second computer system; and in response to detecting the input corresponding to the request to control the second computer system and while in communication with the second computer system: in accordance with a determination that a first set of control criteria is met, displaying one or more first user interface objects that controls a graphical element displayed by the second computer system to navigate one or more user interfaces of the second computer system, wherein a first control criteria of the first set of control criteria is met when a first mode of controlling a computer system is enabled on the second computer system; and in accordance with a determination that the first set of control criteria is not met, forgoing display of the one or more user interface objects that controls a graphical element to navigate the one or more user interfaces of the second computer system.
(8) In accordance with some embodiments, a transitory computer-readable storage medium is described. The transitory computer-readable storage medium stores one or more programs configured to be executed by one or more processors of a first computer system that is configured to communicate with a display generation component and one or more input devices, the one or more programs including instructions for: detecting, via the one or more input devices, an input corresponding to a request to control a second computer system; and in response to detecting the input corresponding to the request to control the second computer system and while in communication with the second computer system: in accordance with a determination that a first set of control criteria is met, displaying one or more first user interface objects that controls a graphical element displayed by the second computer system to navigate one or more user interfaces of the second computer system, wherein a first control criteria of the first set of control criteria is met when a first mode of controlling a computer system is enabled on the second computer system; and in accordance with a determination that the first set of control criteria is not met, forgoing display of the one or more user interface objects that controls a graphical element to navigate the one or more user interfaces of the second computer system.
(9) In accordance with some embodiments, a first computer system that is configured to communicate with a display generation component and one or more input devices is described. The computer system comprises: one or more processors; and memory storing one or more programs configured

to be executed by the one or more processors, the one or more programs including instructions for: detecting, via the one or more input devices, an input corresponding to a request to control a second computer system; and in response to detecting the input corresponding to the request to control the second computer system and while in communication with the second computer system: in accordance with a determination that a first set of control criteria is met, displaying one or more first user interface objects that controls a graphical element displayed by the second computer system to navigate one or more user interfaces of the second computer system, wherein a first control criteria of the first set of control criteria is met when a first mode of controlling a computer system is enabled on the second computer system; and in accordance with a determination that the first set of control criteria is not met, forgoing display of the one or more user interface objects that controls a graphical element to navigate the one or more user interfaces of the second computer system.

(10) In accordance with some embodiments, a first computer system that is configured to communicate with a display generation component and one or more input devices is described. The computer system comprises: means for detecting, via the one or more input devices, an input corresponding to a request to control a second computer system; and means, responsive to detecting the input corresponding to the request to control the second computer system and while in communication with the second computer system, for: in accordance with a determination that a first set of control criteria is met, displaying one or more first user interface objects that controls a graphical element displayed by the second computer system to navigate one or more user interfaces of the second computer system, wherein a first control criteria of the first set of control criteria is met when a first mode of controlling a computer system is enabled on the second computer system; and in accordance with a determination that the first set of control criteria is not met, forgoing display of the one or more user interface objects that controls a graphical element to navigate the one or more user interfaces of the second computer system.

(11) In accordance with some embodiments, a computer program product is described. The computer program product comprises one or more programs configured to be executed by one or more processors of a computer system that is in communication with a display generation component and one or more input devices. The one or more programs include instructions for: detecting, via the one or more input devices, an input corresponding to a request to control a second computer system; and in response to detecting the input corresponding to the request to control the second computer system and while in communication with the second computer system: in accordance with a determination that a first set of control criteria is met, displaying one or more first user interface objects that controls a graphical element displayed by the second computer system to navigate one or more user interfaces of the second computer system, wherein a first control criteria of the first set of control criteria is met when a first mode of controlling a computer system is enabled on the second computer system; and in accordance with a determination that the first set of control criteria is not met, forgoing display of the one or more user interface objects that controls a graphical element to navigate the one or more user interfaces of the second computer system.

(12) Executable instructions for performing these functions are, optionally, included in a non-transitory computer-readable storage medium or other computer program product configured for execution by one or more processors. Executable instructions for performing these functions are, optionally, included in a transitory computer-readable storage medium or other computer program product configured for execution by one or more processors.

(13) Thus, devices are provided with faster, more efficient methods and interfaces for controlling external devices, thereby increasing the effectiveness, efficiency, and user satisfaction with such devices. Such methods and interfaces may complement or replace other methods for controlling external devices.

Description

DESCRIPTION OF THE FIGURES

(1) For a better understanding of the various described embodiments, 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.

(2) FIG. **1**A is a block diagram illustrating a portable multifunction device with a touch-sensitive display in accordance with some embodiments.

(3) FIG. **1**B is a block diagram illustrating exemplary components for event handling in accordance with some embodiments.

(4) FIG. **2** illustrates a portable multifunction device having a touch screen in accordance with some embodiments.

(5) FIG. **3** is a block diagram of an exemplary multifunction device with a display and a touch-sensitive surface in accordance with some embodiments.

(6) FIG. **4**A illustrates an exemplary user interface for a menu of applications on a portable multifunction device in accordance with some embodiments.

(7) FIG. **4**B illustrates an exemplary user interface for a multifunction device with a touch-sensitive surface that is separate from the display in accordance with some embodiments.

(8) FIG. **5**A illustrates a personal electronic device in accordance with some embodiments.

(9) FIG. **5**B is a block diagram illustrating a personal electronic device in accordance with some embodiments.

(10) FIGS. **6**A-**6**R illustrate exemplary user interfaces for device controls in accordance with some embodiments.

(11) FIG. **7** depicts a flow diagram illustrating a method for displaying a user interface to control a device in accordance with some embodiments.

DESCRIPTION OF EMBODIMENTS

(12) The following description sets forth exemplary methods, parameters, and the like. It should be recognized, however, that such description is not intended as a limitation on the scope of the present disclosure but is instead provided as a description of exemplary embodiments.

(13) There is a need for electronic devices that provide efficient methods and interfaces for controlling external devices. For example, a technique enables the display of a particular user interface based on what accessibility settings are enabled at one or more devices. Such techniques can reduce the cognitive burden on a user who seeks to control the external device, thereby enhancing productivity. Further, such techniques can reduce processor and battery power otherwise wasted on redundant user inputs.

(14) Below, FIGS. **1**A-**1**B, **2**, **3**, and **4**A-**4**B, and **5**A-**5**B provide a description of exemplary devices for performing the techniques for managing event notifications. FIGS. **6**A-**6**R illustrate exemplary user interfaces for controlling external devices. FIG. **7** is a flow diagram illustrating methods of displaying a user interface to control a device in accordance with some embodiments. The user interfaces in FIGS. **6**A-**6**R are used to illustrate the processes described below, including the processes in FIG. **7**.

(15) The processes described below enhance the operability of the devices and make the user-device interfaces more efficient (e.g., by helping the user to provide proper inputs and reducing user mistakes when operating/interacting with the device) through various techniques, including by providing improved visual feedback to the user, reducing the number of inputs needed to perform an operation, providing additional control options without cluttering the user interface with additional displayed controls, performing an operation when a set of conditions has been met without requiring further user input, controlling devices having one or more accessibility settings, improving the human-machine interface for a user, and/or additional techniques. These techniques also reduce power usage and improve battery life of the device by enabling the user to use the device more quickly and efficiently.

(16) In addition, in methods described herein where one or more steps are contingent upon one or more conditions having been met, it should be understood that the described method can be repeated in multiple repetitions so that over the course of the repetitions all of the conditions upon which steps in the method are contingent have been met in different repetitions of the method. For example, if a method requires performing a first step if a condition is satisfied, and a second step if the condition is not satisfied, then a person of ordinary skill would appreciate that the claimed

steps are repeated until the condition has been both satisfied and not satisfied, in no particular order. Thus, a method described with one or more steps that are contingent upon one or more conditions having been met could be rewritten as a method that is repeated until each of the conditions described in the method has been met. This, however, is not required of system or computer readable medium claims where the system or computer readable medium contains instructions for performing the contingent operations based on the satisfaction of the corresponding one or more conditions and thus is capable of determining whether the contingency has or has not been satisfied without explicitly repeating steps of a method until all of the conditions upon which steps in the method are contingent have been met. A person having ordinary skill in the art would also understand that, similar to a method with contingent steps, a system or computer readable storage medium can repeat the steps of a method as many times as are needed to ensure that all of the contingent steps have been performed.

(17) Although the following description uses terms "first," "second," etc. to describe various elements, these elements should not be limited by the terms. In some embodiments, these terms are used to distinguish one element from another. For example, a first touch could be termed a second touch, and, similarly, a second touch could be termed a first touch, without departing from the scope of the various described embodiments. In some embodiments, the first touch and the second touch are two separate references to the same touch. In some embodiments, the first touch and the second touch are both touches, but they are not the same touch.

(18) The terminology used in the description of the various described embodiments herein is for the purpose of describing particular embodiments only and is not intended to be limiting. As used in the description of the various described embodiments 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 "includes," "including," "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.

(19) The term "if" is, optionally, construed to mean "when" or "upon" or "in response to determining" or "in response to detecting," depending on the context. Similarly, the phrase "if it is determined" or "if [a stated condition or event] is detected" is, optionally, construed to mean "upon determining" or "in response to determining" or "upon detecting [the stated condition or event]" or "in response to detecting [the stated condition or event]," depending on the context.

(20) Embodiments of electronic devices, 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. Exemplary embodiments of portable multifunction devices include, without limitation, the iPhone®, iPod Touch®, and iPad® devices from Apple Inc. of Cupertino, California. Other portable electronic devices, such as laptops or tablet computers with touch-sensitive surfaces (e.g., touch screen displays and/or touchpads), are, optionally, used. It should also be understood that, in some embodiments, the device is not a portable communications device, but is a desktop computer with a touch-sensitive surface (e.g., a touch screen display and/or a touchpad). In some embodiments, the electronic device is a computer system that is in communication (e.g., via wireless communication, via wired communication) with a display generation component. The display generation component is configured to provide visual output, such as display via a CRT display, display via an LED display, or display via image projection. In some embodiments, the display generation component is integrated with the computer system. In some embodiments, the display generation component is separate from the computer system. As used herein, "displaying" content includes causing to display the content (e.g., video data rendered or decoded by display controller **156**) by transmitting, via a wired or wireless connection, data (e.g., image data or video data) to an integrated or external display generation component to visually produce the content.

(21) In the discussion that follows, an electronic device that includes a display and a touch-sensitive surface is described. It should be understood, however, that the electronic device optionally includes one or more other physical user-interface devices, such as a physical keyboard, a mouse, and/or a joystick.

(22) The device typically supports a variety of applications, such as one or more of the following: a drawing application, a presentation application, a word processing application, a website creation application, a disk authoring application, a spreadsheet application, a gaming application, a telephone application, a video conferencing application, an e-mail application, an instant messaging application, a workout support application, a photo management 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.

(23) The various applications that are executed on the device optionally use at least one common physical user-interface device, such as the touch-sensitive surface. One or more functions of the touch-sensitive surface as well as corresponding information displayed on the device are, optionally, 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-sensitive surface) of the device optionally supports the variety of applications with user interfaces that are intuitive and transparent to the user.

(24) Attention is now directed toward embodiments of portable devices with touch-sensitive displays. FIG. **1**A is a block diagram illustrating portable multifunction device **100** with touch-sensitive display system **112** in accordance with some embodiments. Touch-sensitive display **112** is sometimes called a "touch screen" for convenience and is sometimes known as or called a "touch-sensitive display system." Device **100** includes memory **102** (which optionally includes one or more computer-readable storage mediums), memory controller **122**, one or more processing units (CPUs) **120**, peripherals interface **118**, RF circuitry **108**, audio circuitry **110**, speaker **111**, microphone **113**, input/output (I/O) subsystem **106**, other input control devices **116**, and external port **124**. Device **100** optionally includes one or more optical sensors **164**. Device **100** optionally includes one or more contact intensity sensors **165** for detecting intensity of contacts on device **100** (e.g., a touch-sensitive surface such as touch-sensitive display system **112** of device **100**). Device **100** optionally includes one or more tactile output generators **167** for generating tactile outputs on device **100** (e.g., generating tactile outputs on a touch-sensitive surface such as touch-sensitive display system **112** of device **100** or touchpad **355** of device **300**). These components optionally communicate over one or more communication buses or signal lines **103**.

(25) As used in the specification and claims, the term "intensity" of a contact on a touch-sensitive surface refers to the force or pressure (force per unit area) of a contact (e.g., a finger contact) on the touch-sensitive surface, or to a substitute (proxy) for the force or pressure of a contact on the touch-sensitive surface. The intensity of a contact has a range of values that includes at least four distinct values and more typically includes hundreds of distinct values (e.g., at least 256). Intensity of a contact is, optionally, determined (or measured) using various approaches and various sensors or combinations of sensors. For example, one or more force sensors underneath or adjacent to the touch-sensitive surface are, optionally, used to measure force at various points on the touch-sensitive surface. In some implementations, force measurements from multiple force sensors are combined (e.g., a weighted average) to determine an estimated force of a contact. Similarly, a pressure-sensitive tip of a stylus is, optionally, used to determine a pressure of the stylus on the touch-sensitive surface. Alternatively, the size of the contact area detected on the touch-sensitive surface and/or changes thereto, the capacitance of the touch-sensitive surface proximate to the contact and/or changes thereto, and/or the resistance of the touch-sensitive surface proximate to the contact and/or changes thereto are, optionally, used as a substitute for the force or pressure of the contact on the touch-sensitive surface. In some implementations, the substitute measurements for contact force or pressure are used directly to determine whether an intensity threshold has been exceeded (e.g., the intensity threshold is described in units corresponding to the substitute measurements). In some implementations, the substitute measurements for contact force or pressure are converted to an estimated force or pressure, and the estimated force or pressure is used to determine whether an intensity threshold has been exceeded (e.g., the intensity threshold is a pressure threshold measured in units of pressure). Using the intensity of a contact as an attribute of a user input allows for user access to additional device functionality that may

otherwise not be accessible by the user on a reduced-size device with limited real estate for displaying affordances (e.g., on a touch-sensitive display) and/or receiving user input (e.g., via a touch-sensitive display, a touch-sensitive surface, or a physical/mechanical control such as a knob or a button).
(26) As used in the specification and claims, the term "tactile output" refers to physical displacement of a device relative to a previous position of the device, physical displacement of a component (e.g., a touch-sensitive surface) of a device relative to another component (e.g., housing) of the device, or displacement of the component relative to a center of mass of the device that will be detected by a user with the user's sense of touch. For example, in situations where the device or the component of the device is in contact with a surface of a user that is sensitive to touch (e.g., a finger, palm, or other part of a user's hand), the tactile output generated by the physical displacement will be interpreted by the user as a tactile sensation corresponding to a perceived change in physical characteristics of the device or the component of the device. For example, movement of a touch-sensitive surface (e.g., a touch-sensitive display or trackpad) is, optionally, interpreted by the user as a "down click" or "up click" of a physical actuator button. In some cases, a user will feel a tactile sensation such as an "down click" or "up click" even when there is no movement of a physical actuator button associated with the touch-sensitive surface that is physically pressed (e.g., displaced) by the user's movements. As another example, movement of the touch-sensitive surface is, optionally, interpreted or sensed by the user as "roughness" of the touch-sensitive surface, even when there is no change in smoothness of the touch-sensitive surface. While such interpretations of touch by a user will be subject to the individualized sensory perceptions of the user, there are many sensory perceptions of touch that are common to a large majority of users. Thus, when a tactile output is described as corresponding to a particular sensory perception of a user (e.g., an "up click," a "down click," "roughness"), unless otherwise stated, the generated tactile output corresponds to physical displacement of the device or a component thereof that will generate the described sensory perception for a typical (or average) user.
(27) It should be appreciated that device **100** is only one example of a portable multifunction device, and that device **100** optionally has more or fewer components than shown, optionally combines two or more components, or optionally has a different configuration or arrangement of the components. The various components shown in FIG. **1**A are implemented in hardware, software, or a combination of both hardware and software, including one or more signal processing and/or application-specific integrated circuits.
(28) Memory **102** optionally includes high-speed random access memory and optionally also includes non-volatile memory, such as one or more magnetic disk storage devices, flash memory devices, or other non-volatile solid-state memory devices. Memory controller **122** optionally controls access to memory **102** by other components of device **100**.
(29) Peripherals interface **118** can be used to couple input and output peripherals of the device to CPU **120** and memory **102**. The one or more processors **120** run or execute various software programs (such as computer programs (e.g., including instructions)) and/or sets of instructions stored in memory **102** to perform various functions for device **100** and to process data. In some embodiments, peripherals interface **118**, CPU **120**, and memory controller **122** are, optionally, implemented on a single chip, such as chip **104**. In some other embodiments, they are, optionally, implemented on separate chips.
(30) RF (radio frequency) circuitry **108** receives and sends RF signals, also called electromagnetic signals. RF circuitry **108** converts electrical signals to/from electromagnetic signals and communicates with communications networks and other communications devices via the electromagnetic signals. RF circuitry **108** optionally includes 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. RF circuitry **108** optionally communicates 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 RF circuitry **108** optionally includes well-known circuitry for detecting near field communication (NFC) fields, such as by a short-range communication radio. The wireless communication optionally uses 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), high-speed uplink packet access (HSUPA), Evolution, Data-Only (EV-DO), HSPA, HSPA+, Dual-Cell HSPA (DC-HSPDA), long term evolution (LTE), near field communication (NFC), wideband code division multiple access (W-CDMA), code division multiple access (CDMA), time division multiple access (TDMA), Bluetooth, Bluetooth Low Energy (BTLE), Wireless Fidelity (Wi-Fi) (e.g., IEEE 802.11a, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n, and/or IEEE 802.11ac), voice over Internet Protocol (VoIP), Wi-MAX, a protocol for e-mail (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), 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.
(31) Audio circuitry **110**, speaker **111**, and microphone **113** provide an audio interface between a user and device **100**. Audio circuitry **110** receives audio data from peripherals interface **118**, converts the audio data to an electrical signal, and transmits the electrical signal to speaker **111**. Speaker **111** converts the electrical signal to human-audible sound waves. Audio circuitry **110** also receives electrical signals converted by microphone **113** from sound waves. Audio circuitry **110** converts the electrical signal to audio data and transmits the audio data to peripherals interface **118** for processing. Audio data is, optionally, retrieved from and/or transmitted to memory **102** and/or RF circuitry **108** by peripherals interface **118**. In some embodiments, audio circuitry **110** also includes a headset jack (e.g., **212**, FIG. **2**). The headset jack provides an interface between 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).
(32) I/O subsystem **106** couples input/output peripherals on device **100**, such as touch screen **112** and other input control devices **116**, to peripherals interface **118**. I/O subsystem **106** optionally includes display controller **156**, optical sensor controller **158**, depth camera controller **169**, intensity sensor controller **159**, haptic feedback controller **161**, 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 control devices **116**. The other input control devices **116** optionally include physical buttons (e.g., push buttons, rocker buttons, etc.), dials, slider switches, joysticks, click wheels, and so forth. In some embodiments, input controller(s) **160** are, optionally, coupled to any (or none) of the following: a keyboard, an infrared port, a USB port, and a pointer device such as a mouse. The one or more buttons (e.g., **208**, FIG. **2**) optionally include an up/down button for volume control of speaker **111** and/or microphone **113**. The one or more buttons optionally include a push button (e.g., **206**, FIG. **2**). In some embodiments, the electronic device is a computer system that is in communication (e.g., via wireless communication, via wired communication) with one or more input devices. In some embodiments, the one or more input devices include a touch-sensitive surface (e.g., a trackpad, as part of a touch-sensitive display). In some embodiments, the one or more input devices include one or more camera sensors (e.g., one or more optical sensors **164** and/or one or more depth camera sensors **175**), such as for tracking a user's gestures (e.g., hand gestures and/or air gestures) as input. In some embodiments, the one or more input devices are integrated with the computer system. In some embodiments, the one or more input devices are separate from the computer system. In some embodiments, an air gesture is a gesture that is detected without the user touching an input element that is part of the device (or independently of an input element that is a part of the device) and is based on detected motion of a portion of the user's body through the air including motion of the user's body relative to an absolute reference (e.g., an angle of the user's arm relative to the ground or a distance of the user's hand relative to the ground), relative to another portion of the user's body (e.g., movement of a hand of the user relative to a shoulder of the user, movement of one hand of the user relative to another hand of the user, and/or movement of a finger of the user relative to another finger or portion of a hand of the user), and/or absolute motion of a portion of the user's body (e.g., a tap gesture that includes movement of a hand in a predetermined pose by a predetermined amount and/or speed, or a shake gesture that includes a predetermined speed or amount of rotation of a portion of the user's body).
(33) A quick press of the push button optionally disengages a lock of touch screen **112** or optionally begins a process that uses gestures on the touch

screen to unlock the device, as described in U.S. patent application Ser. No. 11/322,549, “Unlocking a Device by Performing Gestures on an Unlock Image,” filed Dec. 23, 2005, U.S. Pat. No. 7,657,849, which is hereby incorporated by reference in its entirety. A longer press of the push button (e.g., **206**) optionally turns power to device **100** on or off. The functionality of one or more of the buttons are, optionally, user-customizable. Touch screen **112** is used to implement virtual or soft buttons and one or more soft keyboards.

(34) Touch-sensitive display **112** provides an input interface and an output interface between the device and a user. Display controller **156** receives and/or sends electrical signals from/to touch screen **112**. Touch screen **112** displays visual output to the user. The visual output optionally includes graphics, text, icons, video, and any combination thereof (collectively termed “graphics”). In some embodiments, some or all of the visual output optionally corresponds to user-interface objects.

(35) 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. Touch screen **112** and 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 touch screen **112** and convert 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 touch screen **112**. In an exemplary embodiment, a point of contact between touch screen **112** and the user corresponds to a finger of the user.

(36) Touch screen **112** optionally uses LCD (liquid crystal display) technology, LPD (light emitting polymer display) technology, or LED (light emitting diode) technology, although other display technologies are used in other embodiments. Touch screen **112** and display controller **156** optionally 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 touch screen **112**. In an exemplary embodiment, projected mutual capacitance sensing technology is used, such as that found in the iPhone® and iPod Touch® from Apple Inc. of Cupertino, California.

(37) A touch-sensitive display in some embodiments of touch screen **112** is, optionally, analogous to the multi-touch sensitive touchpads described in the following U.S. Pat. No. 6,323,846 (Westerman et al.), U.S. Pat. No. 6,570,557 (Westerman et al.), and/or U.S. Pat. No. 6,677,932 (Westerman), and/or U.S. Patent Publication 2002/0015024A1, each of which is hereby incorporated by reference in its entirety. However, touch screen **112** displays visual output from device **100**, whereas touch-sensitive touchpads do not provide visual output.

(38) A touch-sensitive display in some embodiments of touch screen **112** is described in the following applications: (1) U.S. patent application Ser. No. 11/381,313, “Multipoint Touch Surface Controller,” filed May 2, 2006; (2) U.S. patent application Ser. No. 10/840,862, “Multipoint Touchscreen,” filed May 6, 2004; (3) U.S. patent application Ser. No. 10/903,964, “Gestures For Touch Sensitive Input Devices,” filed Jul. 30, 2004; (4) U.S. patent application Ser. No. 11/048,264, “Gestures For Touch Sensitive Input Devices,” filed Jan. 31, 2005; (5) U.S. patent application Ser. No. 11/038,590, “Mode-Based Graphical User Interfaces For Touch Sensitive Input Devices,” filed Jan. 18, 2005; (6) U.S. patent application Ser. No. 11/228,758, “Virtual Input Device Placement On A Touch Screen User Interface,” filed Sep. 16, 2005; (7) U.S. patent application Ser. No. 11/228,700, “Operation Of A Computer With A Touch Screen Interface,” filed Sep. 16, 2005; (8) U.S. patent application Ser. No. 11/228,737, “Activating Virtual Keys Of A Touch-Screen Virtual Keyboard,” filed Sep. 16, 2005; and (9) U.S. patent application Ser. No. 11/367,749, “Multi-Functional Hand-Held Device,” filed Mar. 3, 2006. All of these applications are incorporated by reference herein in their entirety.

(39) Touch screen **112** optionally has a video resolution in excess of 100 dpi. In some embodiments, the touch screen has a video resolution of approximately 160 dpi. The user optionally makes contact with 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 can be 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.

(40) In some embodiments, in addition to the touch screen, device **100** optionally includes a touchpad 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 is, optionally, a touch-sensitive surface that is separate from touch screen **112** or an extension of the touch-sensitive surface formed by the touch screen.

(41) Device **100** also includes power system **162** for powering the various components. Power system **162** optionally includes 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.

(42) Device **100** optionally also includes one or more optical sensors **164**. FIG. **1**A shows an optical sensor coupled to optical sensor controller **158** in I/O subsystem **106**. Optical sensor **164** optionally includes charge-coupled device (CCD) or complementary metal-oxide semiconductor (CMOS) phototransistors. Optical sensor **164** receives light from the environment, projected through one or more lenses, and converts the light to data representing an image. In conjunction with imaging module **143** (also called a camera module), optical sensor **164** optionally captures still images or video. In some embodiments, an optical sensor is located on the back of device **100**, opposite touch screen display **112** on the front of the device so that the touch screen display is enabled for use as a viewfinder for 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 is, optionally, obtained for video conferencing while the user views the other video conference participants on the touch screen display. In some embodiments, the position of 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** is used along with the touch screen display for both video conferencing and still and/or video image acquisition.

(43) Device **100** optionally also includes one or more depth camera sensors **175**. FIG. **1**A shows a depth camera sensor coupled to depth camera controller **169** in I/O subsystem **106**. Depth camera sensor **175** receives data from the environment to create a three dimensional model of an object (e.g., a face) within a scene from a viewpoint (e.g., a depth camera sensor). In some embodiments, in conjunction with imaging module **143** (also called a camera module), depth camera sensor **175** is optionally used to determine a depth map of different portions of an image captured by the imaging module **143**. In some embodiments, a depth camera sensor is located on the front of device **100** so that the user's image with depth information is, optionally, obtained for video conferencing while the user views the other video conference participants on the touch screen display and to capture selfies with depth map data. In some embodiments, the depth camera sensor **175** is located on the back of device, or on the back and the front of the device **100**. In some embodiments, the position of depth camera sensor **175** can be changed by the user (e.g., by rotating the lens and the sensor in the device housing) so that a depth camera sensor **175** is used along with the touch screen display for both video conferencing and still and/or video image acquisition.

(44) Device **100** optionally also includes one or more contact intensity sensors **165**. FIG. **1**A shows a contact intensity sensor coupled to intensity sensor controller **159** in I/O subsystem **106**. Contact intensity sensor **165** optionally includes one or more piezoresistive strain gauges, capacitive force sensors, electric force sensors, piezoelectric force sensors, optical force sensors, capacitive touch-sensitive surfaces, or other intensity sensors (e.g., sensors used to measure the force (or pressure) of a contact on a touch-sensitive surface). Contact intensity sensor **165** receives contact intensity information (e.g., pressure information or a proxy for pressure information) from the environment. In some embodiments, at least one contact intensity sensor is collocated with, or proximate to, a touch-sensitive surface (e.g., touch-sensitive display system **112**). In some embodiments, at least one contact intensity sensor is located on the back of device **100**, opposite touch screen display **112**, which is located on the front of device **100**.

(45) Device **100** optionally also includes one or more proximity sensors **166**. FIG. **1**A shows proximity sensor **166** coupled to peripherals interface **118**. Alternately, proximity sensor **166** is, optionally, coupled to input controller **160** in I/O subsystem **106**. Proximity sensor **166** optionally performs as described in U.S. patent application Ser. No. 11/241,839, “Proximity Detector In Handheld Device”; Ser. No. 11/240,788, “Proximity Detector In

Handheld Device”; Ser. No. 11/620,702, “Using Ambient Light Sensor To Augment Proximity Sensor Output”; Ser. No. 11/586,862, “Automated Response To And Sensing Of User Activity In Portable Devices”; and Ser. No. 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 touch screen **112** when the multifunction device is placed near the user's ear (e.g., when the user is making a phone call).

(46) Device **100** optionally also includes one or more tactile output generators **167**. FIG. **1**A shows a tactile output generator coupled to haptic feedback controller **161** in I/O subsystem **106**. Tactile output generator **167** optionally includes one or more electroacoustic devices such as speakers or other audio components and/or electromechanical devices that convert energy into linear motion such as a motor, solenoid, electroactive polymer, piezoelectric actuator, electrostatic actuator, or other tactile output generating component (e.g., a component that converts electrical signals into tactile outputs on the device). Contact intensity sensor **165** receives tactile feedback generation instructions from haptic feedback module **133** and generates tactile outputs on device **100** that are capable of being sensed by a user of device **100**. In some embodiments, at least one tactile output generator is collocated with, or proximate to, a touch-sensitive surface (e.g., touch-sensitive display system **112**) and, optionally, generates a tactile output by moving the touch-sensitive surface vertically (e.g., in/out of a surface of device **100**) or laterally (e.g., back and forth in the same plane as a surface of device **100**). In some embodiments, at least one tactile output generator sensor is located on the back of device **100**, opposite touch screen display **112**, which is located on the front of device **100**.

(47) Device **100** optionally also includes one or more accelerometers **168**. FIG. **1**A shows accelerometer **168** coupled to peripherals interface **118**. Alternately, accelerometer **168** is, optionally, coupled to an input controller **160** in I/O subsystem **106**. Accelerometer **168** optionally performs 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 incorporated by reference herein 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. Device **100** optionally includes, in addition to accelerometer(s) **168**, a magnetometer and a GPS (or GLONASS or other global navigation system) receiver for obtaining information concerning the location and orientation (e.g., portrait or landscape) of device **100**.

(48) In some embodiments, the software components stored in memory **102** include operating system **126**, communication module (or set of instructions) **128**, contact/motion module (or set of instructions) **130**, graphics module (or set of instructions) **132**, text input module (or set of instructions) **134**, Global Positioning System (GPS) module (or set of instructions) **135**, and applications (or sets of instructions) **136**. Furthermore, in some embodiments, memory **102** (FIG. **1**A) or **370** (FIG. **3**) stores device/global internal state **157**, as shown in FIGS. **1**A and **3**. Device/global internal state **157** includes one or more of: active application state, indicating which applications, if any, are currently active; display state, indicating what applications, views or other information occupy various regions of touch screen display **112**; sensor state, including information obtained from the device's various sensors and input control devices **116**; and location information concerning the device's location and/or attitude.

(49) Operating system **126** (e.g., Darwin, RTXC, LINUX, UNIX, OS X, iOS, 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.

(50) 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 RF circuitry **108** and/or external port **124**. 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 Inc.) devices.

(51) Contact/motion module **130** optionally detects contact with touch screen **112** (in conjunction with display controller **156**) and other touch-sensitive devices (e.g., a touchpad or physical click wheel). Contact/motion module **130** includes various software components for performing various operations related to detection of contact, such as determining if contact has occurred (e.g., detecting a finger-down event), determining an intensity of the contact (e.g., the force or pressure of the contact or a substitute for the force or pressure of the contact), determining if there is movement of the contact and tracking the movement across the touch-sensitive surface (e.g., detecting one or more finger-dragging events), and determining if the contact has ceased (e.g., detecting a finger-up event or a break in contact). Contact/motion module **130** receives contact data from the touch-sensitive surface. Determining movement of the point of contact, which is represented by a series of contact data, optionally includes 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 are, optionally, applied to single contacts (e.g., one finger contacts) or to multiple simultaneous contacts (e.g., “multitouch”/multiple finger contacts). In some embodiments, contact/motion module **130** and display controller **156** detect contact on a touchpad.

(52) In some embodiments, contact/motion module **130** uses a set of one or more intensity thresholds to determine whether an operation has been performed by a user (e.g., to determine whether a user has “clicked” on an icon). In some embodiments, at least a subset of the intensity thresholds are determined in accordance with software parameters (e.g., the intensity thresholds are not determined by the activation thresholds of particular physical actuators and can be adjusted without changing the physical hardware of device **100**). For example, a mouse “click” threshold of a trackpad or touch screen display can be set to any of a large range of predefined threshold values without changing the trackpad or touch screen display hardware. Additionally, in some implementations, a user of the device is provided with software settings for adjusting one or more of the set of intensity thresholds (e.g., by adjusting individual intensity thresholds and/or by adjusting a plurality of intensity thresholds at once with a system-level click “intensity” parameter).

(53) Contact/motion module **130** optionally detects a gesture input by a user. Different gestures on the touch-sensitive surface have different contact patterns (e.g., different motions, timings, and/or intensities of detected contacts). Thus, a gesture is, optionally, detected by detecting a particular contact pattern. For example, detecting a finger tap gesture includes detecting a finger-down event followed by detecting a finger-up (liftoff) event at the same position (or substantially the same position) as the finger-down event (e.g., at the position of an icon). As another example, detecting a finger swipe gesture on the touch-sensitive surface includes detecting a finger-down event followed by detecting one or more finger-dragging events, and subsequently followed by detecting a finger-up (liftoff) event.

(54) Graphics module **132** includes various known software components for rendering and displaying graphics on touch screen **112** or other display, including components for changing the visual impact (e.g., brightness, transparency, saturation, contrast, or other visual property) 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.

(55) In some embodiments, graphics module **132** stores data representing graphics to be used. Each graphic is, optionally, assigned a corresponding code. Graphics module **132** receives, from applications etc., one or more codes specifying graphics to be displayed along with, if necessary, coordinate data and other graphic property data, and then generates screen image data to output to display controller **156**.

(56) Haptic feedback module **133** includes various software components for generating instructions used by tactile output generator(s) **167** to produce tactile outputs at one or more locations on device **100** in response to user interactions with device **100**.

(57) Text input module **134**, which is, optionally, a component of graphics module **132**, provides soft keyboards for entering text in various applications (e.g., contacts **137**, e-mail client module **140**, IM **141**, browser **147**, and any other application that needs text input).

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

(59) Applications **136** optionally include the following modules (or sets of instructions), or a subset or superset thereof: Contacts module **137** (sometimes called an address book or contact list); Telephone module **138**; Video conference module **139**; E-mail client module **140**; Instant messaging (IM) module **141**; Workout support module **142**; Camera module **143** for still and/or video images; Image management module **144**; Video player module; Music player module; Browser module **147**; Calendar module **148**; Widget modules **149**, which optionally include one or more of: 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 and music player module; Notes module **153**; Map module **154**; and/or Online video module **155**.

(60) Examples of other applications **136** that are, optionally, stored in memory **102** include other word processing applications, other image editing applications, drawing applications, presentation applications, JAVA-enabled applications, encryption, digital rights management, voice recognition, and voice replication.

(61) In conjunction with touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, and text input module **134**, contacts module **137** are, optionally, used to manage an address book or contact list (e.g., stored in application internal state **192** of contacts module **137** in memory **102** or memory **370**), 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 module **138**, video conference module **139**, e-mail client module **140**, or IM module **141**; and so forth.

(62) In conjunction with RF circuitry **108**, audio circuitry **110**, speaker **111**, microphone **113**, touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, and text input module **134**, telephone module **138** are optionally, used to enter a sequence of characters corresponding to a telephone number, access one or more telephone numbers in contacts module **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 optionally uses any of a plurality of communications standards, protocols, and technologies.

(63) 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/motion module **130**, graphics module **132**, text input module **134**, contacts module **137**, and telephone module **138**, video conference module **139** includes executable instructions to initiate, conduct, and terminate a video conference between a user and one or more other participants in accordance with user instructions.

(64) In conjunction with RF circuitry **108**, touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, and text input module **134**, e-mail client module **140** includes executable instructions to create, send, receive, and manage e-mail in response to user instructions. In conjunction with image management module **144**, e-mail client module **140** makes it very easy to create and send e-mails with still or video images taken with camera module **143**.

(65) In conjunction with RF circuitry **108**, touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, and text input module **134**, the instant messaging module **141** includes executable instructions 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 optionally include graphics, photos, audio files, video files and/or other attachments as are supported in an 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).

(66) In conjunction with RF circuitry **108**, touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, text input module **134**, GPS module **135**, map module **154**, and music player module, workout support module **142** includes executable instructions to create workouts (e.g., with time, distance, and/or calorie burning goals); communicate with workout sensors (sports devices); receive workout sensor data; calibrate sensors used to monitor a workout; select and play music for a workout; and display, store, and transmit workout data.

(67) In conjunction with touch screen **112**, display controller **156**, optical sensor(s) **164**, optical sensor controller **158**, contact/motion module **130**, graphics module **132**, and image management module **144**, camera module **143** includes executable instructions 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**.

(68) In conjunction with touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, text input module **134**, and camera module **143**, image management module **144** includes executable instructions to arrange, modify (e.g., edit), or otherwise manipulate, label, delete, present (e.g., in a digital slide show or album), and store still and/or video images.

(69) In conjunction with RF circuitry **108**, touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, and text input module **134**, browser module **147** includes executable instructions to browse the Internet in accordance with user instructions, including searching, linking to, receiving, and displaying web pages or portions thereof, as well as attachments and other files linked to web pages.

(70) In conjunction with RF circuitry **108**, touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, text input module **134**, e-mail client module **140**, and browser module **147**, calendar module **148** includes executable instructions to create, display, modify, and store calendars and data associated with calendars (e.g., calendar entries, to-do lists, etc.) in accordance with user instructions.

(71) In conjunction with RF circuitry **108**, touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, text input module **134**, and browser module **147**, widget modules **149** are mini-applications that are, optionally, 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).

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

(73) In conjunction with touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, and text input module **134**, search module **151** includes executable instructions 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) in accordance with user instructions.

(74) In conjunction with touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, audio circuitry **110**, speaker **111**, RF circuitry **108**, and browser module **147**, video and music player module **152** includes executable instructions that allow 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, and executable instructions to display, present, or otherwise play back videos (e.g., on touch screen **112** or on an external, connected display via external port **124**). In some embodiments, device **100** optionally includes the functionality of an MP3 player, such as an iPod (trademark of Apple Inc.).

(75) In conjunction with touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, and text input module **134**, notes module **153** includes executable instructions to create and manage notes, to-do lists, and the like in accordance with user instructions.

(76) In conjunction with RF circuitry **108**, touch screen **112**, display controller **156**, contact/motion module **130**, graphics module **132**, text input

module **134**, GPS module **135**, and browser module **147**, map module **154** are, optionally, 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) in accordance with user instructions.

(77) In conjunction with touch screen **112**, display controller **156**, contact/motion 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**, online video module **155** includes instructions that allow 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. Additional description of the online video application can be found in U.S. Provisional Patent Application No. 60/936,562, "Portable Multifunction Device, Method, and Graphical User Interface for Playing Online Videos," filed Jun. 20, 2007, and U.S. patent application Ser. No. 11/968,067, "Portable Multifunction Device, Method, and Graphical User Interface for Playing Online Videos," filed Dec. 31, 2007, the contents of which are hereby incorporated by reference in their entirety.

(78) Each of the above-identified modules and applications corresponds to a set of executable instructions for performing one or more functions described above and the methods described in this application (e.g., the computer-implemented methods and other information processing methods described herein). These modules (e.g., sets of instructions) need not be implemented as separate software programs (such as computer programs (e.g., including instructions)), procedures, or modules, and thus various subsets of these modules are, optionally, combined or otherwise rearranged in various embodiments. For example, video player module is, optionally, combined with music player module into a single module (e.g., video and music player module **152**, FIG. **1**A). In some embodiments, memory **102** optionally stores a subset of the modules and data structures identified above. Furthermore, memory **102** optionally stores additional modules and data structures not described above.

(79) In some embodiments, device **100** is a device where operation of a predefined set of functions on the device is performed exclusively through a touch screen and/or a touchpad. By using a touch screen and/or a touchpad as the primary input control device for operation of device **100**, the number of physical input control devices (such as push buttons, dials, and the like) on device **100** is, optionally, reduced.

(80) The predefined set of functions that are performed exclusively through a touch screen and/or a touchpad optionally include navigation between user interfaces. In some embodiments, the touchpad, when touched by the user, navigates device **100** to a main, home, or root menu from any user interface that is displayed on device **100**. In such embodiments, a "menu button" is implemented using a touchpad. In some other embodiments, the menu button is a physical push button or other physical input control device instead of a touchpad.

(81) FIG. **1**B is a block diagram illustrating exemplary components for event handling in accordance with some embodiments. In some embodiments, memory **102** (FIG. **1**A) or **370** (FIG. **3**) includes event sorter **170** (e.g., in operating system **126**) and a respective application **136-1** (e.g., any of the aforementioned applications **137-151**, **155**, **380-390**).

(82) Event sorter **170** receives event information and determines the application **136-1** and application view **191** of application **136-1** to which to deliver the event information. Event sorter **170** includes event monitor **171** and event dispatcher module **174**. In some embodiments, application **136-1** includes application internal state **192**, which indicates the current application view(s) displayed on touch-sensitive display **112** when the application is active or executing. In some embodiments, device/global internal state **157** is used by event sorter **170** to determine which application(s) is (are) currently active, and application internal state **192** is used by event sorter **170** to determine application views **191** to which to deliver event information.

(83) In some embodiments, application internal state **192** includes additional information, such as one or more of: resume information to be used when application **136-1** resumes execution, user interface state information that indicates information being displayed or that is ready for display by application **136-1**, a state queue for enabling the user to go back to a prior state or view of application **136-1**, and a redo/undo queue of previous actions taken by the user.

(84) Event monitor **171** receives event information from peripherals interface **118**. Event information includes information about a sub-event (e.g., a user touch on touch-sensitive display **112**, as part of a multi-touch gesture). Peripherals interface **118** transmits information it receives from I/O subsystem **106** or a sensor, such as proximity sensor **166**, accelerometer(s) **168**, and/or microphone **113** (through audio circuitry **110**). Information that peripherals interface **118** receives from I/O subsystem **106** includes information from touch-sensitive display **112** or a touch-sensitive surface.

(85) In some embodiments, event monitor **171** sends requests to the peripherals interface **118** at predetermined intervals. In response, peripherals interface **118** transmits event information. In other embodiments, peripherals interface **118** transmits event information only when there is a significant event (e.g., receiving an input above a predetermined noise threshold and/or for more than a predetermined duration).

(86) In some embodiments, event sorter **170** also includes a hit view determination module **172** and/or an active event recognizer determination module **173**.

(87) Hit view determination module **172** provides software procedures for determining where a sub-event has taken place within one or more views when touch-sensitive display **112** displays more than one view. Views are made up of controls and other elements that a user can see on the display.

(88) Another aspect of the user interface associated with an application is a set of views, sometimes herein called application views or user interface windows, in which information is displayed and touch-based gestures occur. The application views (of a respective application) in which a touch is detected optionally correspond to programmatic levels within a programmatic or view hierarchy of the application. For example, the lowest level view in which a touch is detected is, optionally, called the hit view, and the set of events that are recognized as proper inputs are, optionally, determined based, at least in part, on the hit view of the initial touch that begins a touch-based gesture.

(89) Hit view determination module **172** receives information related to sub-events of a touch-based gesture. When an application has multiple views organized in a hierarchy, hit view determination module **172** identifies a hit view as the lowest view in the hierarchy which should handle the sub-event. In most circumstances, the hit view is the lowest level view in which an initiating sub-event occurs (e.g., the first sub-event in the sequence of sub-events that form an event or potential event). Once the hit view is identified by the hit view determination module **172**, the hit view typically receives all sub-events related to the same touch or input source for which it was identified as the hit view.

(90) Active event recognizer determination module **173** determines which view or views within a view hierarchy should receive a particular sequence of sub-events. In some embodiments, active event recognizer determination module **173** determines that only the hit view should receive a particular sequence of sub-events. In other embodiments, active event recognizer determination module **173** determines that all views that include the physical location of a sub-event are actively involved views, and therefore determines that all actively involved views should receive a particular sequence of sub-events. In other embodiments, even if touch sub-events were entirely confined to the area associated with one particular view, views higher in the hierarchy would still remain as actively involved views.

(91) Event dispatcher module **174** dispatches the event information to an event recognizer (e.g., event recognizer **180**). In embodiments including active event recognizer determination module **173**, event dispatcher module **174** delivers the event information to an event recognizer determined by active event recognizer determination module **173**. In some embodiments, event dispatcher module **174** stores in an event queue the event information, which is retrieved by a respective event receiver **182**.

(92) In some embodiments, operating system **126** includes event sorter **170**. Alternatively, application **136-1** includes event sorter **170**. In yet other embodiments, event sorter **170** is a stand-alone module, or a part of another module stored in memory **102**, such as contact/motion module **130**.

(93) In some embodiments, application **136-1** includes a plurality of event handlers **190** and one or more application views **191**, each of which includes instructions for handling touch events that occur within a respective view of the application's user interface. Each application view **191** of the application **136-1** includes one or more event recognizers **180**. Typically, a respective application view **191** includes a plurality of event

recognizers **180**. In other embodiments, one or more of event recognizers **180** are part of a separate module, such as a user interface kit or a higher level object from which application **136-1** inherits methods and other properties. In some embodiments, a respective event handler **190** includes one or more of: data updater **176**, object updater **177**, GUI updater **178**, and/or event data **179** received from event sorter **170**. Event handler **190** optionally utilizes or calls data updater **176**, object updater **177**, or GUI updater **178** to update the application internal state **192**. Alternatively, one or more of the application views **191** include one or more respective event handlers **190**. Also, in some embodiments, one or more of data updater **176**, object updater **177**, and GUI updater **178** are included in a respective application view **191**.

(94) A respective event recognizer **180** receives event information (e.g., event data **179**) from event sorter **170** and identifies an event from the event information. Event recognizer **180** includes event receiver **182** and event comparator **184**. In some embodiments, event recognizer **180** also includes at least a subset of: metadata **183**, and event delivery instructions **188** (which optionally include sub-event delivery instructions).

(95) Event receiver **182** receives event information from event sorter **170**. The event information includes information about a sub-event, for example, a touch or a touch movement. Depending on the sub-event, the event information also includes additional information, such as location of the sub-event. When the sub-event concerns motion of a touch, the event information optionally also includes speed and direction of the sub-event. In some embodiments, events include rotation of the device from one orientation to another (e.g., from a portrait orientation to a landscape orientation, or vice versa), and the event information includes corresponding information about the current orientation (also called device attitude) of the device.

(96) Event comparator **184** compares the event information to predefined event or sub-event definitions and, based on the comparison, determines an event or sub-event, or determines or updates the state of an event or sub-event. In some embodiments, event comparator **184** includes event definitions **186**. Event definitions **186** contain definitions of events (e.g., predefined sequences of sub-events), for example, event 1 (**187-1**), event 2 (**187-2**), and others. In some embodiments, sub-events in an event (e.g., **187-1** and/or **187-2**) include, for example, touch begin, touch end, touch movement, touch cancellation, and multiple touching. In one example, the definition for event 1 (**187-1**) is a double tap on a displayed object. The double tap, for example, comprises a first touch (touch begin) on the displayed object for a predetermined phase, a first liftoff (touch end) for a predetermined phase, a second touch (touch begin) on the displayed object for a predetermined phase, and a second liftoff (touch end) for a predetermined phase. In another example, the definition for event 2 (**187-2**) is a dragging on a displayed object. The dragging, for example, comprises a touch (or contact) on the displayed object for a predetermined phase, a movement of the touch across touch-sensitive display **112**, and liftoff of the touch (touch end). In some embodiments, the event also includes information for one or more associated event handlers **190**.

(97) In some embodiments, event definitions **186** include a definition of an event for a respective user-interface object. In some embodiments, event comparator **184** performs a hit test to determine which user-interface object is associated with a sub-event. For example, in an application view in which three user-interface objects are displayed on touch-sensitive display **112**, when a touch is detected on touch-sensitive display **112**, event comparator **184** performs a hit test to determine which of the three user-interface objects is associated with the touch (sub-event). If each displayed object is associated with a respective event handler **190**, the event comparator uses the result of the hit test to determine which event handler **190** should be activated. For example, event comparator **184** selects an event handler associated with the sub-event and the object triggering the hit test.

(98) In some embodiments, the definition for a respective event (**187**) also includes delayed actions that delay delivery of the event information until after it has been determined whether the sequence of sub-events does or does not correspond to the event recognizer's event type.

(99) When a respective event recognizer **180** determines that the series of sub-events do not match any of the events in event definitions **186**, the respective event recognizer **180** enters an event impossible, event failed, or event ended state, after which it disregards subsequent sub-events of the touch-based gesture. In this situation, other event recognizers, if any, that remain active for the hit view continue to track and process sub-events of an ongoing touch-based gesture.

(100) In some embodiments, a respective event recognizer **180** includes metadata **183** with configurable properties, flags, and/or lists that indicate how the event delivery system should perform sub-event delivery to actively involved event recognizers. In some embodiments, metadata **183** includes configurable properties, flags, and/or lists that indicate how event recognizers interact, or are enabled to interact, with one another. In some embodiments, metadata **183** includes configurable properties, flags, and/or lists that indicate whether sub-events are delivered to varying levels in the view or programmatic hierarchy.

(101) In some embodiments, a respective event recognizer **180** activates event handler **190** associated with an event when one or more particular sub-events of an event are recognized. In some embodiments, a respective event recognizer **180** delivers event information associated with the event to event handler **190**. Activating an event handler **190** is distinct from sending (and deferred sending) sub-events to a respective hit view. In some embodiments, event recognizer **180** throws a flag associated with the recognized event, and event handler **190** associated with the flag catches the flag and performs a predefined process.

(102) In some embodiments, event delivery instructions **188** include sub-event delivery instructions that deliver event information about a sub-event without activating an event handler. Instead, the sub-event delivery instructions deliver event information to event handlers associated with the series of sub-events or to actively involved views. Event handlers associated with the series of sub-events or with actively involved views receive the event information and perform a predetermined process.

(103) In some embodiments, data updater **176** creates and updates data used in application **136-1**. For example, data updater **176** updates the telephone number used in contacts module **137**, or stores a video file used in video player module. In some embodiments, object updater **177** creates and updates objects used in application **136-1**. For example, object updater **177** creates a new user-interface object or updates the position of a user-interface object. GUI updater **178** updates the GUI. For example, GUI updater **178** prepares display information and sends it to graphics module **132** for display on a touch-sensitive display.

(104) In some embodiments, event handler(s) **190** includes or has access to data updater **176**, object updater **177**, and GUI updater **178**. In some embodiments, data updater **176**, object updater **177**, and GUI updater **178** are included in a single module of a respective application **136-1** or application view **191**. In other embodiments, they are included in two or more software modules.

(105) It shall be understood that the foregoing discussion regarding event handling of user touches on touch-sensitive displays also applies to other forms of user inputs to operate multifunction devices **100** with input devices, not all of which are initiated on touch screens. For example, mouse movement and mouse button presses, optionally coordinated with single or multiple keyboard presses or holds; contact movements such as taps, drags, scrolls, etc. on touchpads; pen stylus inputs; movement of the device; oral instructions; detected eye movements; biometric inputs; and/or any combination thereof are optionally utilized as inputs corresponding to sub-events which define an event to be recognized.

(106) FIG. **2** illustrates a portable multifunction device **100** having a touch screen **112** in accordance with some embodiments. The touch screen optionally displays one or more graphics within user interface (UI) **200**. In this embodiment, as well as others described below, a user is enabled to select one or more of the graphics by making a gesture on the graphics, for example, with one or more fingers **202** (not drawn to scale in the figure) or one or more styluses **203** (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 gesture optionally includes 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 device **100**. In some implementations or circumstances, inadvertent contact with a graphic does not select the graphic. For example, a swipe gesture that sweeps over an application icon optionally does not select the corresponding application when the gesture corresponding to selection is a tap.

(107) Device **100** optionally also include one or more physical buttons, such as “home” or menu button **204**. As described previously, menu button **204** is, optionally, used to navigate to any application **136** in a set of applications that are, optionally, executed on device **100**. Alternatively, in some embodiments, the menu button is implemented as a soft key in a GUI displayed on touch screen **112**.

(108) In some embodiments, device **100** includes touch screen **112**, menu button **204**, push button **206** for powering the device on/off and locking the device, volume adjustment button(s) **208**, subscriber identity module (SIM) card slot **210**, headset jack **212**, and docking/charging external port **124**. Push button **206** is, optionally, 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, device **100** also accepts verbal input for activation or deactivation of some functions through microphone **113**. Device **100** also, optionally, includes one or more contact intensity sensors **165** for detecting intensity of contacts on touch screen **112** and/or one or more tactile output generators **167** for generating tactile outputs for a user of device **100**.
(109) FIG. **3** is a block diagram of an exemplary multifunction device with a display and a touch-sensitive surface in accordance with some embodiments. Device **300** need not be portable. In some embodiments, device **300** is a laptop computer, a desktop computer, a tablet computer, a multimedia player device, a navigation device, an educational device (such as a child's learning toy), a gaming system, or a control device (e.g., a home or industrial controller). Device **300** typically includes one or more processing units (CPUs) **310**, one or more network or other communications interfaces **360**, memory **370**, and one or more communication buses **320** for interconnecting these components. Communication buses **320** optionally include circuitry (sometimes called a chipset) that interconnects and controls communications between system components. Device **300** includes input/output (I/O) interface **330** comprising display **340**, which is typically a touch screen display. I/O interface **330** also optionally includes a keyboard and/or mouse (or other pointing device) **350** and touchpad **355**, tactile output generator **357** for generating tactile outputs on device **300** (e.g., similar to tactile output generator(s) **167** described above with reference to FIG. **1**A), sensors **359** (e.g., optical, acceleration, proximity, touch-sensitive, and/or contact intensity sensors similar to contact intensity sensor(s) **165** described above with reference to FIG. **1**A). Memory **370** includes high-speed random access memory, such as DRAM, SRAM, DDR RAM, or other random access solid state memory devices; and optionally includes non-volatile memory, such as one or more magnetic disk storage devices, optical disk storage devices, flash memory devices, or other non-volatile solid state storage devices. Memory **370** optionally includes one or more storage devices remotely located from CPU(s) **310**. In some embodiments, memory **370** stores programs, modules, and data structures analogous to the programs, modules, and data structures stored in memory **102** of portable multifunction device **100** (FIG. **1**A), or a subset thereof. Furthermore, memory **370** optionally stores additional programs, modules, and data structures not present in memory **102** of portable multifunction device **100**. For example, memory **370** of device **300** optionally stores drawing module **380**, presentation module **382**, word processing module **384**, website creation module **386**, disk authoring module **388**, and/or spreadsheet module **390**, while memory **102** of portable multifunction device **100** (FIG. **1**A) optionally does not store these modules.
(110) Each of the above-identified elements in FIG. **3** is, optionally, stored in one or more of the previously mentioned memory devices. Each of the above-identified modules corresponds to a set of instructions for performing a function described above. The above-identified modules or computer programs (e.g., sets of instructions or including instructions) need not be implemented as separate software programs (such as computer programs (e.g., including instructions)), procedures, or modules, and thus various subsets of these modules are, optionally, combined or otherwise rearranged in various embodiments. In some embodiments, memory **370** optionally stores a subset of the modules and data structures identified above. Furthermore, memory **370** optionally stores additional modules and data structures not described above.
(111) Attention is now directed towards embodiments of user interfaces that are, optionally, implemented on, for example, portable multifunction device **100**.
(112) FIG. **4**A illustrates an exemplary user interface for a menu of applications on portable multifunction device **100** in accordance with some embodiments. Similar user interfaces are, optionally, implemented on device **300**. In some embodiments, user interface **400** 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**; Bluetooth indicator **405**; Battery status indicator **406**; Tray **408** with icons for frequently used applications, such as: Icon **416** for telephone module **138**, labeled “Phone,” which optionally includes an indicator **414** of the number of missed calls or voicemail messages; Icon **418** for e-mail client module **140**, labeled “Mail,” which optionally includes an indicator **410** of the number of unread e-mails; Icon **420** for browser module **147**, labeled “Browser;” and Icon **422** for video and music player module **152**, also referred to as iPod (trademark of Apple Inc.) module **152**, labeled “iPod;” and Icons for other applications, such as: Icon **424** for IM module **141**, labeled “Messages;” Icon **426** for calendar module **148**, labeled “Calendar;” Icon **428** for image management module **144**, labeled “Photos;” Icon **430** for camera module **143**, labeled “Camera;” Icon **432** for online video module **155**, labeled “Online Video;” Icon **434** for stocks widget **149-2**, labeled “Stocks;” Icon **436** for map module **154**, labeled “Maps;” Icon **438** for weather widget **149-1**, labeled “Weather;” Icon **440** for alarm clock widget **149-4**, labeled “Clock;” Icon **442** for workout support module **142**, labeled “Workout Support;” Icon **444** for notes module **153**, labeled “Notes;” and Icon **446** for a settings application or module, labeled “Settings,” which provides access to settings for device **100** and its various applications **136**.
(113) It should be noted that the icon labels illustrated in FIG. **4**A are merely exemplary. For example, icon **422** for video and music player module **152** is labeled “Music” or “Music Player.” Other labels are, optionally, used for various application icons. In some embodiments, a label for a respective application icon includes a name of an application corresponding to the respective application icon. In some embodiments, a label for a particular application icon is distinct from a name of an application corresponding to the particular application icon.
(114) FIG. **4**B illustrates an exemplary user interface on a device (e.g., device **300**, FIG. **3**) with a touch-sensitive surface **451** (e.g., a tablet or touchpad **355**, FIG. **3**) that is separate from the display **450** (e.g., touch screen display **112**). Device **300** also, optionally, includes one or more contact intensity sensors (e.g., one or more of sensors **359**) for detecting intensity of contacts on touch-sensitive surface **451** and/or one or more tactile output generators **357** for generating tactile outputs for a user of device **300**.
(115) Although some of the examples that follow will be given with reference to inputs on touch screen display **112** (where the touch-sensitive surface and the display are combined), in some embodiments, the device detects inputs on a touch-sensitive surface that is separate from the display, as shown in FIG. **4**B. In some embodiments, the touch-sensitive surface (e.g., **451** in FIG. **4**B) has a primary axis (e.g., **452** in FIG. **4**B) that corresponds to a primary axis (e.g., **453** in FIG. **4**B) on the display (e.g., **450**). In accordance with these embodiments, the device detects contacts (e.g., **460** and **462** in FIG. **4**B) with the touch-sensitive surface **451** at locations that correspond to respective locations on the display (e.g., in FIG. **4**B, **460** corresponds to **468** and **462** corresponds to **470**). In this way, user inputs (e.g., contacts **460** and **462**, and movements thereof) detected by the device on the touch-sensitive surface (e.g., **451** in FIG. **4**B) are used by the device to manipulate the user interface on the display (e.g., **450** in FIG. **4**B) of the multifunction device when the touch-sensitive surface is separate from the display. It should be understood that similar methods are, optionally, used for other user interfaces described herein.
(116) Additionally, while the following examples are given primarily with reference to finger inputs (e.g., finger contacts, finger tap gestures, finger swipe gestures), it should be understood that, in some embodiments, one or more of the finger inputs are replaced with input from another input device (e.g., a mouse-based input or stylus input). For example, a swipe gesture is, optionally, replaced with a mouse click (e.g., instead of a contact) followed by movement of the cursor along the path of the swipe (e.g., instead of movement of the contact). As another example, a tap gesture is, optionally, replaced with a mouse click while the cursor is located over the location of the tap gesture (e.g., instead of detection of the contact followed by ceasing to detect the contact). Similarly, when multiple user inputs are simultaneously detected, it should be understood that multiple computer mice are, optionally, used simultaneously, or a mouse and finger contacts are, optionally, used simultaneously.
(117) FIG. **5**A illustrates exemplary personal electronic device **500**. Device **500** includes body **502**. In some embodiments, device **500** can include some or all of the features described with respect to devices **100** and **300** (e.g., FIGS. **1**A-**4**B). In some embodiments, device **500** has touch-sensitive display screen **504**, hereafter touch screen **504**. Alternatively, or in addition to touch screen **504**, device **500** has a display and a touch-sensitive surface. As with devices **100** and **300**, in some embodiments, touch screen **504** (or the touch-sensitive surface) optionally includes one or more

intensity sensors for detecting intensity of contacts (e.g., touches) being applied. The one or more intensity sensors of touch screen **504** (or the touch-sensitive surface) can provide output data that represents the intensity of touches. The user interface of device **500** can respond to touches based on their intensity, meaning that touches of different intensities can invoke different user interface operations on device **500**.

(118) Exemplary techniques for detecting and processing touch intensity are found, for example, in related applications: International Patent Application Serial No. PCT/US2013/040061, titled "Device, Method, and Graphical User Interface for Displaying User Interface Objects Corresponding to an Application," filed May 8, 2013, published as WIPO Publication No. WO/2013/169849, and International Patent Application Serial No. PCT/US2013/069483, titled "Device, Method, and Graphical User Interface for Transitioning Between Touch Input to Display Output Relationships," filed Nov. 11, 2013, published as WIPO Publication No. WO/2014/105276, each of which is hereby incorporated by reference in their entirety.

(119) In some embodiments, device **500** has one or more input mechanisms **506** and **508**. Input mechanisms **506** and **508**, if included, can be physical. Examples of physical input mechanisms include push buttons and rotatable mechanisms. In some embodiments, device **500** has one or more attachment mechanisms. Such attachment mechanisms, if included, can permit attachment of device **500** with, for example, hats, eyewear, earrings, necklaces, shirts, jackets, bracelets, watch straps, chains, trousers, belts, shoes, purses, backpacks, and so forth. These attachment mechanisms permit device **500** to be worn by a user.

(120) FIG. **5**B depicts exemplary personal electronic device **500**. In some embodiments, device **500** can include some or all of the components described with respect to FIGS. **1**A, **1**B, and **3**. Device **500** has bus **512** that operatively couples I/O section **514** with one or more computer processors **516** and memory **518**. I/O section **514** can be connected to display **504**, which can have touch-sensitive component **522** and, optionally, intensity sensor **524** (e.g., contact intensity sensor). In addition, I/O section **514** can be connected with communication unit **530** for receiving application and operating system data, using Wi-Fi, Bluetooth, near field communication (NFC), cellular, and/or other wireless communication techniques. Device **500** can include input mechanisms **506** and/or **508**. Input mechanism **506** is, optionally, a rotatable input device or a depressible and rotatable input device, for example. Input mechanism **508** is, optionally, a button, in some examples.

(121) Input mechanism **508** is, optionally, a microphone, in some examples. Personal electronic device **500** optionally includes various sensors, such as GPS sensor **532**, accelerometer **534**, directional sensor **540** (e.g., compass), gyroscope **536**, motion sensor **538**, and/or a combination thereof, all of which can be operatively connected to I/O section **514**.

(122) Memory **518** of personal electronic device **500** can include one or more non-transitory computer-readable storage mediums, for storing computer-executable instructions, which, when executed by one or more computer processors **516**, for example, can cause the computer processors to perform the techniques described below, including processes **700** (FIG. **7**). A computer-readable storage medium can be any medium that can tangibly contain or store computer-executable instructions for use by or in connection with the instruction execution system, apparatus, or device. In some examples, the storage medium is a transitory computer-readable storage medium. In some examples, the storage medium is a non-transitory computer-readable storage medium. The non-transitory computer-readable storage medium can include, but is not limited to, magnetic, optical, and/or semiconductor storages. Examples of such storage include magnetic disks, optical discs based on CD, DVD, or Blu-ray technologies, as well as persistent solid-state memory such as flash, solid-state drives, and the like. Personal electronic device **500** is not limited to the components and configuration of FIG. **5**B, but can include other or additional components in multiple configurations.

(123) As used here, the term "affordance" refers to a user-interactive graphical user interface object that is, optionally, displayed on the display screen of devices **100**, **300**, and/or **500** (FIGS. **1**A, **3**, and **5**A-**5**B). For example, an image (e.g., icon), a button, and text (e.g., hyperlink) each optionally constitute an affordance.

(124) As used herein, the term "focus selector" refers to an input element that indicates a current part of a user interface with which a user is interacting. In some implementations that include a cursor or other location marker, the cursor acts as a "focus selector" so that when an input (e.g., a press input) is detected on a touch-sensitive surface (e.g., touchpad **355** in FIG. **3** or touch-sensitive surface **451** in FIG. **4**B) while the cursor is over a particular user interface element (e.g., a button, window, slider, or other user interface element), the particular user interface element is adjusted in accordance with the detected input. In some implementations that include a touch screen display (e.g., touch-sensitive display system **112** in FIG. **1**A or touch screen **112** in FIG. **4**A) that enables direct interaction with user interface elements on the touch screen display, a detected contact on the touch screen acts as a "focus selector" so that when an input (e.g., a press input by the contact) is detected on the touch screen display at a location of a particular user interface element (e.g., a button, window, slider, or other user interface element), the particular user interface element is adjusted in accordance with the detected input. In some implementations, focus is moved from one region of a user interface to another region of the user interface without corresponding movement of a cursor or movement of a contact on a touch screen display (e.g., by using a tab key or arrow keys to move focus from one button to another button); in these implementations, the focus selector moves in accordance with movement of focus between different regions of the user interface. Without regard to the specific form taken by the focus selector, the focus selector is generally the user interface element (or contact on a touch screen display) that is controlled by the user so as to communicate the user's intended interaction with the user interface (e.g., by indicating, to the device, the element of the user interface with which the user is intending to interact). For example, the location of a focus selector (e.g., a cursor, a contact, or a selection box) over a respective button while a press input is detected on the touch-sensitive surface (e.g., a touchpad or touch screen) will indicate that the user is intending to activate the respective button (as opposed to other user interface elements shown on a display of the device).

(125) As used in the specification and claims, the term "characteristic intensity" of a contact refers to a characteristic of the contact based on one or more intensities of the contact. In some embodiments, the characteristic intensity is based on multiple intensity samples. The characteristic intensity is, optionally, based on a predefined number of intensity samples, or a set of intensity samples collected during a predetermined time period (e.g., 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10 seconds) relative to a predefined event (e.g., after detecting the contact, prior to detecting liftoff of the contact, before or after detecting a start of movement of the contact, prior to detecting an end of the contact, before or after detecting an increase in intensity of the contact, and/or before or after detecting a decrease in intensity of the contact). A characteristic intensity of a contact is, optionally, based on one or more of: a maximum value of the intensities of the contact, a mean value of the intensities of the contact, an average value of the intensities of the contact, a top 10 percentile value of the intensities of the contact, a value at the half maximum of the intensities of the contact, a value at the 90 percent maximum of the intensities of the contact, or the like. In some embodiments, the duration of the contact is used in determining the characteristic intensity (e.g., when the characteristic intensity is an average of the intensity of the contact over time). In some embodiments, the characteristic intensity is compared to a set of one or more intensity thresholds to determine whether an operation has been performed by a user. For example, the set of one or more intensity thresholds optionally includes a first intensity threshold and a second intensity threshold. In this example, a contact with a characteristic intensity that does not exceed the first threshold results in a first operation, a contact with a characteristic intensity that exceeds the first intensity threshold and does not exceed the second intensity threshold results in a second operation, and a contact with a characteristic intensity that exceeds the second threshold results in a third operation. In some embodiments, a comparison between the characteristic intensity and one or more thresholds is used to determine whether or not to perform one or more operations (e.g., whether to perform a respective operation or forgo performing the respective operation), rather than being used to determine whether to perform a first operation or a second operation.

(126) As used herein, an "installed application" refers to a software application that has been downloaded onto an electronic device (e.g., devices **100**, **300**, and/or **500**) and is ready to be launched (e.g., become opened) on the device. In some embodiments, a downloaded application becomes an installed application by way of an installation program that extracts program portions from a downloaded package and integrates the extracted portions with the operating system of the computer system.

(127) As used herein, the terms “open application” or “executing application” refer to a software application with retained state information (e.g., as part of device/global internal state **157** and/or application internal state **192**). An open or executing application is, optionally, any one of the following types of applications: an active application, which is currently displayed on a display screen of the device that the application is being used on; a background application (or background processes), which is not currently displayed, but one or more processes for the application are being processed by one or more processors; and a suspended or hibernated application, which is not running, but has state information that is stored in memory (volatile and non-volatile, respectively) and that can be used to resume execution of the application.
(128) As used herein, the term “closed application” refers to software applications without retained state information (e.g., state information for closed applications is not stored in a memory of the device). Accordingly, closing an application includes stopping and/or removing application processes for the application and removing state information for the application from the memory of the device. Generally, opening a second application while in a first application does not close the first application. When the second application is displayed and the first application ceases to be displayed, the first application becomes a background application.
(129) Attention is now directed towards embodiments of user interfaces (“UI”) and associated processes that are implemented on an electronic device, such as portable multifunction device **100**, device **300**, or device **500**.
(130) FIGS. **6**A-**6**R illustrate exemplary user interfaces for controlling a device, in accordance with some embodiments. The user interfaces in these figures are used to illustrate the processes described below, including the processes in FIG. **7**.
(131) FIGS. **6**A-**6**D illustrates exemplary graphical user interfaces for accessibility settings. The accessibility settings provide different options that can enable different modes of a device so that a user can better interact with and use devices **600** and **614**. These different options in the accessibility settings allow a user to control a local device (e.g., device **600**) and/or remote device (e.g., device **614**) in different manners.
(132) At FIG. **6**A, device **600** displays interface **602***a* of an accessibility settings menu. In some embodiments, device **600** includes one or more features of devices **100**, **300**, and/or **500**. Interface **602***a* includes menu option **604** to access a setting for screen reader and menu option **606** to access a setting for hand gestures. As explained in greater detail herein, when screen reader is enabled, device **600** will output a simulated voice of the contents of a user interface being displayed (e.g., sequentially) so that a user can hear different options provided by the user interface. When hand gestures are enabled, device **600** will detect air-based movements or actions when the device is worn by a user (e.g., on a user's wrist and/or on a user's head). Using one or more sensors (e.g., an optical sensor (e.g., a heart rate sensor), a camera), a gyroscope, an accelerometer)), device **600** can distinguish between different hand gestures and execute a corresponding command. In some embodiments, device **600** detects the hand gestures by detecting changes in the user's wrist, blood flow, and/or heartrate, rather than detecting the gestures using a camera (e.g., detecting hand movement or finger placement using the camera). In some embodiments, device **600** does not use a camera that has the user's hand in the field of view of the camera to detect hand gestures.
(133) At FIG. **6**A, while displaying interface **602***a*, device **600** detects input **650***a* (e.g., a tap gesture, and/or a mouse click). Interface **602***a* is a settings user interface that enables the user to modify how the user of device **600** interacts/interfaces with device **600**. In response to detecting input **650***a*, device **600** displays interface **602***b* of a settings menu, as depicted in FIG. **6**B.
(134) At FIG. **6**B, interface **602***b* includes menu option **608** to display hand gestures that are available. While displaying interface **602***b*, device **600** detects input **650***b* (e.g., a tap gesture and/or a mouse click) directed to menu option **608**. In response to detecting input **650***b*, device **600** displays interface **602***c* of the settings menu, as depicted in FIG. **6**C.
(135) At FIG. **6**C, interface **602***c* includes menu options for customizing a particular gesture to execute a particular command (e.g., function). Interface **602***c* also includes a toggle **610** to enable (and/or disable) gestures. As illustrated in FIG. **6**C, toggle **610** is enabled. As such, device **600** will detect and act on hand gestures that it would otherwise not detect and/or act on had the toggle been disabled. In some embodiments, device **600** can distinguish between different hand gestures using one or more sensors (e.g., an accelerometer, a gyroscope, and/or an optical sensor (e.g., one or more cameras and/or a heart rate sensor)). In some embodiments, the device **600** detects gestures based how device **600** is worn. As illustrated, device **600** is a watch that is worn on a user's wrist. As such, in some embodiments, device **600** detects different hand gestures as described in and referred to as hand gestures in U.S. Provisional Application 63/221,331, which is hereby incorporated by reference in its entirety. In some implementations, hand gestures (e.g., a double-pinch gesture) can initiate commands such as: answer or end a phone call, dismiss a notification, take a photo, play or pause media, and start, pause, or resume a workout on device **600** (and/or device **614**). In some embodiments, device **600** (and/or device **614**) displays instructions that indicate the hand gesture for executing a particular command using assistive touch (e.g., double pinch to play music). For example, in response to receiving a call a device **600**, device **600** can display an instruction to answer the call by using clench gesture **609***c*.
(136) At FIG. **6**C, functions can be customizable for multiple gestures. In some embodiments, to customize a particular hand gesture, device **600** provides an affordance for specific hand gestures, including a pinch affordance **608***a* for pinch gesture **609***a*, double-pinch affordance **608***b* for double-pinch gesture **609***b* (e.g., two pinches occurring within a period of time and/or in successive order), clench affordance **608***c* for clench gesture **609***c*, and/or double-clench affordance **608***d* for double-clench gesture **609***d*(e.g., two clenches occurring within a period of time and/or in successive order), in some embodiments. In some embodiments, if device **600** were a device worn on a different part of the body, device **600** provides affordances for different gestures. In embodiments, where device **600** is a head-worn device, gestures associated with affordances **608***a-d* optionally include a hand gestures performed in such a manner that the gestures are detected in a field of view of one or more cameras of the head-worn device. In some embodiments, for a head-word device, a single gesture includes detected movement of two hands of the user.
(137) At FIG. **6**C, while displaying interface **602***c*, device **600** detects input **650***c* (e.g., a tap gesture and/or a mouse click) on double pinch affordance **608***b*. In response to detecting input **650***c*, device **600** displays interface **602***d* of a settings menu, as depicted in FIG. **6**D.
(138) At FIG. **6**D, interface **602***d* includes affordances **612***a-c* for configuring (e.g., designating or setting) a double-pinch gesture to execute a command (e.g., function and/or operation) of a visual indicator (e.g., visual indicator **622**) (e.g., a highlighting and/or a selector). As illustrated, affordances **612***a-c* include affordance **612***a* to customize a command for advancing the visual indicator forwards (e.g., onto a subsequent item that is in a series of items) in response to detecting the respective gesture, affordance **612***b* to customize a command for moving the visual indicator backwards (e.g., onto a preceding item that is in the series of items) in response to detecting the respective gesture, and/or affordance **612***c* to customize a command that initiates a selection (e.g., of an item identified by the visual indicator and/or of a highlighted item) in response to detecting the respective gesture.
(139) At FIG. **6**D, options **612** includes options to execute a system action (e.g., displaying a user interface for notification and/or displaying a control user interface). As illustrated, options **612** provides an option for configuring a gesture to display action menu **612***d*, as described in greater detail below. Referring briefly to FIG. **6**C, device **600** is configured so a double-clench executes a command to display action menu **612***d*.
(140) At FIG. **6**D, affordances **612***e*-**612***g* include affordances to execute an input provided by rotatable input device **601** in response to detecting a hand gesture. As illustrated, affordances **612***e*-**612***g* include affordance **612***e* to configure simulating a press (e.g., depress) of rotatable input device **601** to a hand gesture, affordance **612***f* to configure simulating rotation of rotatable input device **601** in a first direction (e.g., up and/or clockwise) to a hand gesture, and/or affordance **612***g* to configure simulating rotation of rotatable input device **601** in a second direction (e.g., down and/or counter-clockwise) to a hand gesture.
(141) At FIG. **6**D, options **612** include options to execute a shortcut. Shortcuts can include one or more (e.g., two or three successive commands) commands that are configured by the user, such as a shortcut for opening specific applications, automatically taking an action within the application, and/or modifying system settings (e.g., silence notifications and/or turn on airplane mode). As illustrated, interface **602***d* includes an option to execute workout shortcut **612***h*, as described in greater detail with respect to FIG. **6**F. In some embodiments, interface **602** includes other shortcuts,

such as a commute shortcut **612***i*.
(142) At FIG. **6**D, in some embodiments, shortcuts are configurable by device **600** and/or device **614**. In some embodiments, device **600** and device **614** are in wireless communication, where system settings, modes, locations, and/or commands (e.g., inputs and/or system actions) are communicated between the devices. In some embodiments, device **600** and device **614** are logged into the same user account and communicate over a network. In some embodiments, device **600** and device **614** communicate directly, for example, using short-range wireless communications.
(143) At FIG. **6**D, options **612** are displayed with respect to a double-pinch gesture. However, options **612** can be configured for other hand gestures, such as for a pinch gesture, a clench gesture, and a double clench gesture.
(144) At FIG. **6**D, while displaying the option to execute workout shortcut **612***h*, device **600** detects an input **650***d* (e.g., a tap and/or mouse click) on the option to execute workout shortcut **612***h*. In response, device **600** configures a double pinch gesture to correspond to a command that executes workout shortcut **612***h*. Once the double pinch gesture is corresponded to (assigned to) the command that executes workout shortcut **612***h*, device **600** will execute workout shortcut **612***h* in response to detecting that the user of device **600** has performed the double pinch gesture.
(145) At FIG. **6**E, a user has navigated device **600** to user interface **616***a*. While displaying interface **616***a*, device **600** detects double pinch gesture **609***b* (e.g., in the air, without touching a touch-sensitive display, and/or without touching a button of device **600**). In response to detecting double pinch gesture **609***b*, device **600** executes workout shortcut **612***k*, which includes causing device **600** and/or device **614** to display respective workout interface **616***b*, as depicted in FIG. **6**F.
(146) At FIG. **6**F, device **600** has executed workout shortcut **612***h*. Workout shortcut **612***h* optionally includes a command to open a media application and a command play (e.g., automatically play) a song using the media application. As such, multiple commands can be executed in response to detecting a gesture (e.g., a single hand gesture). As illustrated, "workout song 1" is playing in user interface **616***b* of the media application.
(147) At FIG. **6**F, in some embodiments, hand gestures detected by device **600** cause a command to be executed at device **614** (and/or device **600**). In some embodiments, device **600** (and/or device **614**) displays instructions that indicate the hand gesture for executing a particular command using assistive touch. For example, while displaying interface **618***b*, device **600** (and/or device **614**) can display an indication that a specific gesture causes device **600** (and/or device **614**) to play and/or pause the music (e.g., double pinch to pause music) (e.g., as opposed to launch a shortcut). In some embodiments, the indication indicates that double pinch gesture **609***b* pauses music. In some embodiments, the indication indicates that a triple pinch gesture pauses music. In some embodiments, the indication indicates that a triple pinch gesture plays the music. In some embodiments, hand gestures detected by device **600** cause device **600** to launch a shortcut. For example, in response to detecting double pinch gesture **609***b* at FIG. **6**E, device **614** executes workout shortcut **612***h*, which causes display of the media application at device **614**, as depicted in FIG. **6**F. In some embodiments, based on a set of criteria (e.g., proximity of device **600** and device **614**, device **600** and device **614** are signed in the same user account, device **600** and device **614** are both unlocked, and/or device **600** and device **614** are paired), device **600** causes device **614** to display the media application when workout shortcut **612***h* is executed. In some embodiments, the shortcut causes display of respective media applications at both devices **600** and **614**. In some embodiments, workout shortcut causes display of the media application at only one of devices **600** and **614** (and not at the other).
(148) At FIG. **6**G, a user has navigated back to interface **616***a* and device **614** is displaying interface **618***a*. In some embodiments, device **614** displays a lock screen instead of interface **618***a*. In some embodiments, device **614** is in a low power state and/or has a dim display (e.g., in response to timing out and/or not receiving user input for a threshold period of time) while displaying interface **618***a* or the lockscreen.
(149) At FIG. **6**G, while displaying interface **616***a*, device **600** detects an input (e.g., a series of touch inputs to display action menu **612***d* and/or double clench gesture **609***d*). In response to detecting the input at FIG. **6**G, device **600** displays action menu **612***d*, as depicted in FIG. **6**H.
(150) At FIG. **6**H, action menu **612***d* includes affordances to perform specific actions. As illustrated, action menu **612***d* includes affordance **620** which, when selected, causes display of one or more shortcuts (e.g., commute shortcut **612***i* and/or workout shortcut **612***h*). Action menu **612***d* also includes affordance **623** which, when selected, causes display of a list of external (e.g., remote) devices that are controllable by device **600**, as described in greater detail below.
(151) At FIG. **6**H, device **600** displays visual indicator **622** (e.g., highlighting, shading, symbol, cross-hairs, and/or shape) to distinguish affordance **624** from affordance **623**. Visual indicator **622** provides an indication that device **600** will execute a command (e.g., selection and/or touch and drag) with respect to the user interface object (e.g., application icon, menu option, and/or affordance) that visual indicator **622** is associated with. In some embodiments, device **600** will move (e.g. translate and/or shift) visual indicator **622** from one user interface object to another in response to detecting user input (e.g., hand gestures). In some embodiments, device **600** displays an animation of visual indicator **622** moving. In some embodiments, device **600** does not display an animation of visual indicator **622** moving.
(152) At FIG. **6**H, prior to displaying visual indicator **622** on affordance **623**, device **600** displays visual indicator **622** on affordance **624** (e.g., upon initial display of action menu **612***d*). Device **600** moves visual indicator **622** sequentially through action menu **612***d* in response to detecting an input corresponding to a request to move visual indicator **622**. For example, in response to detecting an input (e.g., pinch gesture **609***a* and/or touch input **650***a*), device **600** ceases to display visual indicator **622** at affordance **624** and displays visual indicator **622** on affordance **620**. In response to detecting another input (e.g., pinch gesture **609***a* and/or touch input), device **600** ceases to display visual indicator **622** on affordance **620** and displays visual indicator **622** on affordance **623**.
(153) At FIG. **6**H, while displaying visual indicator **622** on affordance **623**, device **600** detects an input (e.g., clench gesture **609***c*, mouse click, and/or tap **650***h*) to select affordance **623**. In response to detecting the input to select affordance **623**, device **600** displays device selector menu **626**, as depicted in FIG. **6**I.
(154) At FIG. **6**I, device **600** displays device selector menu **626**. Device selector menu **626** provides options to select an external device, such as device **614** or a different external device, to control. In some embodiments, device selector menu **626** includes options to control a tablet computer, a phone (e.g., device **614**), and/or a computer (e.g., laptop and/or desktop). In some embodiments, other computer systems (e.g., smart TVs and/or a head mounted device) can be controlled by device **626**.
(155) At FIG. **6**I, in some embodiments, device **600** and device **614** (and/or other devices in device selector menu **626**) are logged into the same user account. In some embodiments, device selector menu **626** includes (e.g., only) options to control devices that are logged into the same account as device **600**. In some embodiments, device selector menu **626** includes options to control devices that are within a threshold distance of each other (e.g., both devices are located in the same room, home, and/or city). For instance, device **600** and/or device **614** can communicate distance based on GPS data, based on being within short-range communication range, and/or based on being connected to the same LAN. In some embodiments, device selector menu **626** includes a first set of device types and excludes a second set of device types different than the first set of device types. For instance, larger devices (e.g., larger display area and/or physical dimensions) than device **600** are included while devices with displays that are smaller than device **600** are excluded (even if the devices with smaller displays are within the threshold distance and/or logged into the same user account as device **600**). As a further example, phones, tablets, laptops, and/or desktops are included in device selector menu **626** while smart televisions and/or streaming computing devices for a television are not (even if the devices are within the threshold distance and/or logged into the same user account as device **600**).
(156) At FIG. **6**I, in some embodiments, device **600** and device **614** are in communication (e.g., wireless communication, such as LAN, Bluetooth, and/or via a network) prior to receiving the input selecting the option to control device **614**. In some embodiments, device **600** and device **614** are/stay in communication after receiving input of FIG. **6**I (e.g., while device **600** controls device **614** at FIGS. **6**J-**6**P). In some embodiments, device **600** and device **614** stay in communication when device **600** is no longer controlling device **614**.
(157) At FIG. **6**I, in some embodiments, device **600** and device **614** are in wireless communication, where system settings (e.g., accessibility

settings), modes, and/or commands (e.g., inputs, system actions, and/or shortcuts) are communicated between the devices prior to receiving an input selecting an option to control device **614**. In some embodiments, system settings (e.g., accessibility settings), modes, and/or commands (e.g., inputs and/or system actions) are communicated between devices **600** and **614** in response to receiving an input at device **600** selecting an option to control device **614**.

(158) At FIG. **6**I, while displaying device selector menu **626**, device **600** detects an input (e.g., clench gesture **609***c*, mouse click, and/or tap **650***i*) selecting an option to control device **614**. In response to detecting the input selecting an option to control device **614**, device **600** displays a specific user interface depending on how accessibility settings are configured at device **614** and/or device **600**. As described herein, at FIGS. **6**J-**6**L, device **600** displays user interface **630** in response to the input selecting the option to control device **614** and when screen reader is disabled on device **600** and adaptive navigation is enabled on device **614**. At FIGS. **6**M-**6**P, device **600** displays user interface **632** in response to detecting the input selecting the option to control device **614** and when screen reader is enabled on device **600** and adaptive navigation is disabled on device **614**. Automatically displaying user interface **630** or user interface **632** based on how devices **600** and device **614** are configured causes device **600** to display the appropriate controls based on how devices **600** and device **614** are configured, which reduces the number of inputs at device **600** (and/or device **614**) and provides visual feedback as to how each device is configured.

(159) At FIGS. **6**J-**6**L, screen reader is disabled on device **600** and adaptive navigation is enabled on device **614**. Adaptive navigation is an additional (or, optionally, alternative) input setting that allows a user (e.g., a user with a motor impairment) to navigate a user interface using user-configurable controls and/or devices. Turning briefly to FIG. **6**R, adaptive navigation is enabled (e.g., using a toggle and/or button) under a system setting (e.g., accessibility setting) of device **614**. Screen reader is enabled at device **600** by navigating into menu option **605** for accessibility settings, described in FIG. **6**A.

(160) At FIG. **6**J, device **614** displays visual indicator **622** based on adaptive navigation being enabled at device **614**. In some embodiments, adaptive navigation is enabled at device **614** (e.g., by user input detected at device **614**) prior to device **600** controlling device **614**. In some embodiments, device **614** displays visual indicator **622** prior to device **600** controlling device **614** if adaptive navigation is enabled prior to device **600** controlling device **614**. In some embodiments, prior to (or after) using device **600** to control device **614**, a user controls device **614** using visual indicator **622** and inputs at device **614**. In some embodiments, visual indicator **622** displayed on device **614** has a similar or different appearance as visual indicator **622** that is displayed on device **600**. In some embodiments, visual indicator **622** that is displayed on device **600** ceases to be displayed in response to detecting that device **600** is controlling device **614**. In some embodiments, visual indicator **622** continues to be displayed on device **600** while device **600** controls device **614**. In such embodiments, visual indicator **622** at device **600** is controlled using hand gestures to navigate and select affordances (e.g., affordances **638** and/or system affordances **640**) which, in turn, initiates a command to move visual indicator **622** at device **614**.

(161) At FIG. **6**J, in some embodiments, a device displays notification **636** (e.g., a notification overlaid on a user interface) that a device is being controlled (or is controlling) another device. As illustrated, device **600** displays notification **636** indicating that device **600** is ready to control device **614**. Device **614** displays notification **636** indicating that device **614** is controlled by device **600**. In some embodiments, notification **636** is persistent (e.g., always displayed while device **600** controls device **614**). In some embodiments, notification **636** is temporary (e.g., device **614** displays notification **636** for a threshold amount of time and then ceases to display notification **636** once the threshold amount of time is reached).

(162) At FIG. **6**J, in response to the input received at FIG. **6**I, and based on screen reader being disabled at device **600** and adaptive navigation being enabled at device **614**, device **600** displays interface **630**. Interface **630** is an interface that includes one or more user interface objects for controlling device **614**. As illustrated, interface **630** includes one or more affordances **638** (e.g., next affordance **638***a* to advance forwards, back affordance **368***b* to advance backwards, and select affordance **638***c*) (e.g., similar to input controls **612***a*-**612***c* of FIG. **6**D) for controlling visual indicator **622** displayed on device **614**. Interface **630** includes one or more system affordances **640** for controlling system actions (similar to system actions **611** of FIG. **6**D) of device **614**. In some embodiments, one or more system affordances **640** include an affordance for displaying open applications (e.g., an application switcher) of device **614** and/or an affordance for displaying a home screen of device **614**.

(163) At FIG. **6**J, in some embodiments, device **614** responds to inputs received at device **614** (e.g., a user can still control device **614** as the user typically would despite device **614** concurrently being controlled by device **600**). For instance, controlling device **614** by input at **600** does not disable device **614** from detecting input received at device **614**. In some embodiments, device **614** does not respond to input at device **614** while controlled by device **600** (e.g., a user cannot control device **614** using input at device **614** based on being controlled by device **600**). In some embodiments, device **614** does not display interface **630** (e.g., and/or one or more of its user interface objects) while device **600** displays interface **630**.

(164) At FIG. **6**J, while displaying interface **630**, device **600** detects an input (e.g., pinch gesture **609***a* and/or tap **650***j* on next affordance **638**) to move visual indicator **622**. In response to detecting the input to move visual indicator **622**, device **600** initiates a command for device **614** to move (e.g., advance) visual indicator **622** in user interface **618***a* (e.g., from mail application **642***a* to calendar application **642***b*), as depicted in FIG. **6**K.

(165) At FIG. **6**K, while displaying interface **630**, device **600** detects an input (e.g., clench gesture **609***c* and/or tap **650***k*) corresponding to a selection. In response to device **600** detecting the input corresponding to the selection, device **600** initiates a command for device **614** to perform a selection. Because visual indicator **622** is on calendar application **642***b* when the input (e.g., clench gesture **609***c* and/or tap **650***k*) is received, device **614** selects calendar application **642***b* which causes display of user interface **618***a*, as depicted in FIG. **6**L.

(166) At FIG. **6**L, device **614** displays user interface **618***c* of calendar application **642***b*. In some embodiments, in response to detecting further inputs (e.g., hand gestures and/or touch inputs) at device **600**, device **600** optionally moves visual indicator **622** displayed on device **614**. As described in further detail with reference to FIG. **6**N, in some embodiments, visual indicator **622** is moved through a user interface (e.g., interface **618***a* and/or user interface **618***c*) more rapidly in response to device **600** detecting a rotational input of rotatable input device **601** and/or a hand gesture corresponding to (e.g., simulating) crown rotation (e.g., hand gesture corresponding to (e.g., simulating) a rotation of rotatable input device **601** in the first direction and/or a rotation of rotatable input device **601** in the second direction).

(167) In some embodiments, interface **630** includes done affordance **644** that terminates the session of device **600** controlling device **614** using interface **630**. In some embodiments, device **600** is in communication with device **614** after receiving an input directed at affordance **644** and/or after device **600** is no longer controlling visual indicator **622** of device **614**. In some embodiments device **600** is paired with device **614**.

(168) At FIGS. **6**M-**6**P, device **600** displays user interface **632** in response to the input selecting the option to control device **614**. As illustrated, screen reader is enabled on device **600** and adaptive navigation is disabled on device **614**. Screen reader is an additional (or, optionally, alternative) input setting that allows a user (e.g., a user with a visual impairment) to navigate a user interface on a device. In some embodiments, screen reader includes display of visual indicator **622**. In some embodiments, visual indicator **622** for screen reader has a similar or different appearance as visual indicator **622** for adaptive navigation. When operating with screen reader enabled, information about a graphical user interface object (e.g., the name of the object and/or the function the object will perform) in which the visual indicator **622** is on will be output via a simulated voice by a device (e.g., device **600**, device **614**, a wirelessly connected headphone, and/or another device will provide audio output).

(169) Turning briefly to FIG. **6**R, in some embodiments, screen reader is enabled or disabled via user input at device **614** (e.g., using a toggle and/or button) under a system setting (e.g., an accessibility setting) of device **614**.

(170) At FIG. **6**M, in some embodiments, screen reader is enabled (e.g., automatically) on device **614** when screen reader at device **600** is enabled and device **600** begins controlling device **614**. For instance, in some embodiments, when screen reader is enabled on device **600** and in response to device **600** detecting the input to select affordance **623** of FIG. **6**I, device **600** initiates a command to enable screen reader on device **614**. In response to receiving the command to enable screen reader on device **614**, device **614** enables screen reader.

(171) At FIG. **6**M, device **614** provides audio output **646***a* of mail application **642***a* (“e-mail application”). In some embodiments, the audio output

includes audio output corresponding to the function being performed (e.g., “open e-mail application”). In some embodiments, device **600** provides audio output **646***a* of mail application **642***a* (“e-mail application”) (e.g., in addition to device **614** providing the audio output and/or instead of device **614** providing the audio output).

(172) At FIG. **6**M, in some embodiments, device **600** and device **614** display notification **636**. As described above, in some embodiments, device **614** responds to input at device **614** (e.g., a user can still control device **614** despite being controlled by device **600**). For instance, controlling device **614** by input detected at device **600** does not disable device **614** from detecting input received at device **614**. In some embodiments, device **614** does not respond to input at device **614** while being controlled by device **600** (e.g., a user cannot control device **614** using input at device **614** based on being controlled by device **600**). In some embodiments, device **614** does not display interface **632** (e.g., and/or one or more of its user interface objects) while device **600** displays interface **632**.

(173) At FIG. **6**M, in response to screen reader being enabled at device **600** and adaptive navigation being disabled at device **614**, device **600** displays interface **632**. As illustrated, interface **632** includes touchpad area **633** for controlling device **614**. In some embodiments, touchpad area **633** is occupies an area of the user interface and corresponds to a region where the device **600** detects one or more touch inputs (e.g., a tap, a swipe, a two-finger swipe, and/or a two-finger rotation). The one or more touch inputs allow a user of device **600** to navigate user interfaces of device **614**. In some embodiments, the one or more touch inputs control visual indicator **622** (e.g., move forward, move backward, and/or select) (e.g., similar to commands associated with affordances **612***a-c* of FIG. **6**D). In some embodiments, one or more touch inputs (e.g., a set of inputs and/or all of the inputs) that are detectable at device **614** when screen reader is enable at device **614** are detectable via touchpad area **633** (and performs the same operation had the input been detected by device **614**). In some embodiments, touchpad area **633** controls device **614** beyond (e.g., additionally and/or alternatively) controlling visual indicator **622** (e.g., execute a zoom command using a pinch and/or execute a scroll based on two finger swipe). In some embodiments, interface **632** includes one or more user interface objects for controlling device **614**. As illustrated, interface **632** includes one or more system affordances **640** for controlling system actions (similar to system actions **611** of FIG. **6**D) of device **614**.

(174) At FIG. **6**M, while displaying interface **632**, device **600** detects an input (e.g., pinch **609***a* and/or swipe **650***m*) to move visual indicator **622**. In response to detecting the input to move visual indicator **622**, device **600** instructs device **614** to move visual indicator **622** from mail application **642***a* to calendar application **642***b*, as depicted in FIG. **6**N.

(175) At FIG. **6**N, device **614** displays visual indicator **622** on calendar application **642***b*. In some embodiments, device **614** (and/or device **600**) provides audio output **646***b* corresponding to calendar application **642***b* (e.g., a simulated voice used to output audio corresponding to “calendar application” and/or “open calendar application”).

(176) At FIG. **6**N, in some embodiments, visual indicator **622** moves through the user interface more rapidly in response to a rotational input of rotatable input device **601** and/or a gesture corresponding to (e.g., simulating) rotational input control (e.g., hand gesture corresponding to (simulating) rotation of rotatable input device **601** in the first direction and/or rotation of rotatable input device **601** in the second direction)). In some embodiments, while displaying interface **630**, device **600** detects an input (e.g., a hand gesture configured to execute (simulating) a rotational input and/or rotational input **650***n* of rotatable input device **601**). In response to detecting the input, device **600** instructs device **614** to move visual indicator **622** from mail application **642***a* to movie application **642***c*, as depicted in FIG. **6**O.

(177) At FIG. **6**O, visual indicator **622** is displayed on movie application **642***c*. As illustrated, device **614** provides audio output **646** corresponding to movie application **642***c* (e.g., “movie application” and/or “open movie application”). while displaying interface **632**, device **600** detects an input (e.g., clench **609***c* and/or tap **650***o*) corresponding to a selection. In response to device **600** detecting the input corresponding to the selection, device **600** instructs device **614** to perform a selection. Because visual indicator **622** is on movie application **642***c*, device **614** displays user interface **618***d* of movie application **642***c*, as depicted in FIG. **6**P.

(178) At FIG. **6**P, device **614** displays user interface **618***d* of movie application **642***c*. Device **614** provides audio output **646***d* corresponding to movies category **648** (e.g., “movies” and/or “open movies category”). In some embodiments, in response to detecting further inputs (e.g., hand gestures and/or touch inputs) at device **600**, device **600** can control visual indicator **622** on device **614**. In some embodiments, interface **630** includes done affordance **644** that terminates the session of device **600** controlling device **614** using interface **632**. In some embodiments, device **600** is in communication with device **614** after receiving an input directed at done affordance **644** and/or after device **600** is no longer controlling device **614**.

(179) At FIG. **6**Q, embodiments described with respect to device **600** and device **614** apply to device **652** (e.g., a smartphone) and device **654** (e.g., a tablet computer). In some embodiments, device **652** can be utilized to control device **654** using the similar techniques (e.g., user interfaces, inputs, and/or gestures (e.g., detected using one or more cameras **656**, such as a camera that has a user in a field-of-view) described with respect to device **600** and device **614**. In some embodiments, device **652** displays interface **630** or interface **632** based on the accessibility settings that are enabled at one or more devices. As illustrated, screen reader is enabled at device **652** while adaptive navigation is disabled at device **654**. As such, device **652** displays interface **632** to control device **654** and provides audio output **646***a* (e.g., “e-mail application”). Additionally or alternatively, if screen reader is disable at device **652** and adaptive navigation is enabled at device **654**, then device **652** displays interface **630** to control device **654**.

(180) At FIG. **6**Q, in some embodiments, if adaptive navigation is enabled at device **652** (and/or device **600**) while screen reader is enabled at device **654** (and/or device **614**), device **652** (and/or device **600**) displays interface **630** (and forgoes displaying interface **632**) (e.g., interface **630** will be prioritized over interface **632**). In some embodiments, if adaptive navigation is enabled at device **652** (and/or device **600**) while screen reader is enabled at device **654** (and/or device **614**), device **652** (and/or device **600**) displays interface **632** (and forgoes displaying interface **630**) (e.g., interface **632** will be prioritized over interface **630**). In some embodiments, if adaptive navigation is enabled at device **652** while screen reader is enabled at device **652**, device **652** (and/or device **600**) displays interface **630** (and forgoes displaying interface **632**) (e.g., interface **630** will be prioritized over interface **632**).

(181) At FIG. **6**R, device **614** displays screen reader and adaptive navigation as being disabled. Screen reader or adaptive navigation can be enabled by user input at device **614** (e.g., using a toggle and/or button) under a system setting (e.g., an accessibility setting). At FIG. **6**R, in some embodiments, when screen reader is disabled at device **600** and adaptive navigation is disabled at device **614**, device **600** can still control device **614**. In such embodiments, device **600** displays a user interface including one or more affordances for controlling system actions (one or more system affordances **640**). Additionally or alternatively, hand gestures detected by device can initiate commands to launch a shortcut at device **614**, such as shortcut **612***i* and/or shortcut **614***h*. In some implementations, hand gestures (e.g., a double-pinch gesture) can initiate commands such as: answer or end a phone call, dismiss a notification, take a photo, play or pause media, and start, pause, or resume a workout.

(182) FIG. **7** is a flow diagram illustrating a method for controlling a second computer using a first computer system in accordance with some embodiments. Method **700** is performed at a first computer system (e.g., **100**, **300**, **500**, **600**, and/or **652**) (e.g., a smartwatch, a smartphone, a tablet, a laptop computer, and/or a head mounted device (e.g., a head mounted augmented reality and/or extended reality device)) that is in communication with a display generation component (e.g., a display of device **600**) (e.g., a display controller, a touch-sensitive display system, a monitor, and/or a head mounted display system) and one or more input devices (e.g., a touch-sensitive surface, a keyboard, a controller, a rotatable input device, microphone, and/or a mouse). In some embodiments, the computer system is in communication with one or more sensors (e.g., one or more cameras, one or more biometric sensors (e.g., a heart rate sensor), a gyroscope, an accelerometer)). Some operations in method **700** are, optionally, combined, the orders of some operations are, optionally, changed, and some operations are, optionally, omitted.

(183) As described below, method **700** provides an intuitive way for displaying a user interface with device controls. The method reduces the cognitive burden on a user for controlling devices, thereby creating a more efficient human-machine interface. For battery-operated computing devices, enabling a user to control devices faster and more efficiently conserves power and increases the time between battery charges.

(184) The first computer system (e.g., **600**) detects (**702**), via the one or more input devices, an input (e.g., **650***i* and/or **609***c*) corresponding to a

request to control a second computer system (e.g., **614**, **654**) (e.g., a smartwatch, a smartphone, a tablet, a laptop computer, and/or a head mounted device (e.g., a head mounted augmented reality and/or extended reality device)). In response (**704**) to detecting the input corresponding to the request to control (e.g., execute commands at and/or navigate user interfaces of) the second computer system and while in communication with the second computer system (e.g., using a wired or wireless connection with the second computer system), and in accordance with a determination that a first set of control criteria is met, the first computer system displays (**706**) (e.g., via the display generation component) one or more first user interface objects (e.g., one or more of the user interface objects of interface **630**, including **638***a-c*, and/or **640**) (e.g., a user interface object that is activated a first type of input and/or a user interface object that has a first size) that controls a graphical element (e.g., **622**) displayed by the second computer system (e.g., cursor, pointer, and/or highlighter) (e.g., that indicates a respective function (e.g., opening an application, executing a function within an application, and/or closing the application) will be executed on the second computer system, such as when a confirmation input is received) to navigate one or more user interfaces (e.g., **618***a* and/or **618***b*) of the second computer system, wherein a first control criteria of the first set of control criteria is met when a first mode of controlling a computer system (e.g., by navigating a graphical user interface and/or executing a function on the computer system) is enabled (e.g., an input setting is active, a setting that provides one or more additional (and/or alternative) options to control how input is detected, and/or a mode in which a particular input would not cause a function to be performed unless a particular input setting is active) on the second computer system (e.g., adaptive navigation is enabled on device **614** as described in FIGS. **6**J-**6**L).

(185) In response (**704**) to detecting the input corresponding to the request to control (e.g., execute commands at and/or navigate user interfaces of) the second computer system and while in communication with the second computer system (e.g., using a wired or wireless connection with the second computer system), and in accordance with a determination that the first set of control criteria is not met, the first computer system forgoes (**708**) display of the one or more user interface objects that controls a graphical element to navigate the one or more user interfaces of the second computer system (e.g., **638***a-c* and/or **640**). In some embodiments, the first computer system wirelessly connects to the second computer system in response to the input corresponding to the request to control the second computer system. In some embodiments, the first mode of controlling a computer system is enabled via a system setting (e.g., the first mode is enabled or disabled through a system settings menu). In some embodiments, the first computer system uses one or more sensors (e.g., a biometric sensor (e.g., a heartrate sensor and/or an optical heartrate sensor), an accelerometer, and/or gyroscope) to detect and differentiate among various gestures performed by a hand (and/or other body part) of the user while the first computer system is worn (e.g., on the user's wrist and/or other body part) by the user. In some embodiments, the various gestures can be used to initiate (e.g., transmit and/or send) one or more commands to be executed by the second computer system. In some embodiments, the various gestures do not include input at a button or touch-sensitive surface of the computer system. In some embodiments, the one or more user interface objects that controls the graphical element displayed at the second computer system are not displayed at the second computer system (and/or are displayed only at the first computer system). In some embodiments, the first computer system (and/or the second computer system) displays an indication (e.g., a notification and/or a banner) (e.g., a non-persistent indication and/or a persistent indication) that the first computer system (and/or the second computer system) is controlling the second computer system (and/or the first computer system). In some embodiments, the first mode of the second computer system is enabled independently of communication with the first computer system. In some embodiments, the first mode of the second computer system is not enabled in response to the second computer system communicating with the first computer system. In some embodiments, the first mode of the second computer system is enabled prior the second computer system communicating to communicating with the first computer system. In some embodiments, the first mode of the second computer system is enabled after the second computer system communicates with the first computer system. In some embodiments, the first mode of the second computer system is manually enabled (e.g., by the user). In some embodiments, the first mode of the second computer system is enabled locally at the second computer system (and/or cannot be enabled via the first computer system). Automatically displaying particular controls when an accessibility setting is enabled on the second computer system allows a user to better control the second device when the user has a physical impairment and provides a user visual feedback as to the state of the second computer system, which enhances the user-machine interface for users having physical impairments and provides improved visual feedback as to the state of the second computer system.

(186) In some embodiments, in response to detecting the input corresponding to the request to control the second computer system and while in communication with the second computer system: in accordance with the determination that the first set of control criteria is not met, the first computer system displays, via the display generation component, a control user interface object (e.g., **640**) (e.g., a selectable user interface object and/or toggle) (e.g., one or more) that controls a function (e.g., navigate to a home screen, view one or more open applications (e.g., application switcher and/or an application navigation view), and/or open a notification center) of the second computer system (e.g., a system action as depicted in FIG. **6**D and as described in reference to FIG. **6**J). In some embodiments, the user interface object that controls the function of the second computer system is displayed when the first set of control criteria is met. Automatically displaying controls when an accessibility setting is not enabled on the second computer system allows a user to better control the second computer system so as to efficiently perform different operations at the second computer system, which enhances the user-machine interface and provides improved visual feedback as to the state of the second computer system.

(187) In some embodiments, in response to detecting the input corresponding to the request to control the second computer system and while in communication with the second computer system: in accordance with a determination that a second set of control criteria is met, the first computer system displays, via the display generation component, one or more second user interface objects (e.g., one or more of the interface objects of interface **632**, including **633** and/or **640**) (e.g., a user interface object that is activated using a second type of input and/or a user interface objects that has a second size) that controls a graphical element (e.g., **622**) displayed by the second computer system, wherein the one or more second user interface objects is different from the one or more first user interface objects (e.g., the second user interface object is activated using at least one type of input that does not activate the first user interface object (or vice versa) and/or the second user interface object has a different (greater or smaller) size than the first user interface object), and wherein the second set of control criteria includes a first control criterion that is met when a second mode, different from the first mode, of controlling a computer system (e.g., by navigating a graphical user interface and/or executing a function on the computer system) is enabled (e.g., an input setting is active, a setting that provides one or more additional (and/or alternative) options to control how input is detected, and/or a mode in which a particular input would not cause a function to be performed unless a particular input setting is active) on the first computer system (e.g., screen reader on device **600** or device **652** is enabled as described in FIGS. **6**M-**6**Q). In some embodiments, a screen reader is enabled when a computer system is in the second mode. In some embodiments, the screen reader is not enabled when a computer system is in the first mode. In some embodiments, the computer system displays a second option (e.g., an affordance and/or toggle) (e.g., the same as the first option and/or different from the first option) that controls a function (e.g., navigate to a home screen, view one or more open applications (e.g., "application switcher" and/or an application navigation view), and/or open a notification center) of the second computer system. In some embodiments, the second option is displayed when the second set of control criteria is met. Automatically displaying particular controls when a particular accessibility setting (e.g., a screen reader or text reader) is enabled on the first computer system allows a user to better control the second computer system when the user has a physical impairment and provides a user visual feedback as to the state of the second computer system, which enhances the user-machine interface for users having physical impairments and provides improved visual feedback as to the state of the first computer system.

(188) In some embodiments, the first set of control criteria includes a second control criterion that is met when the second set of control criteria is not met. In other words, first set of control criteria is not met and, therefore, the one or more first user interface objects are not displayed when the second set of control criteria are met. Not displaying particular controls (e.g., non-screen reader and/or non-text reader controls) at the first computer system when a particular setting (e.g., a screen reader or text reader) is enabled on the first computer system decreases the number of controls

displayed at the first computer system, which enhances the user-machine interface for users having physical impairments and declutters the user interface at the first computer system.

(189) In some embodiments, the second set of control criteria does not include a control criterion that is based on whether the second mode of controlling a computer system is enabled (or, optionally, disabled) on the second computer system. In some embodiments, the second set of control criteria is met or not met independent of whether the second mode of controlling a computer system is enabled on the second computer system. Displaying particular controls when an accessibility setting (e.g., a screen reader or text reader) is enabled on the first computer system allows a user to better control the second computer system as it prioritizes a local accessibility setting and how the user is using the first computer system based on his or her a physical impairment, which enhances the user-machine interface for users having physical impairments and provides improved visual feedback as to the state of the first computer system.

(190) In some embodiments, in response to detecting the input corresponding to the request to control the second computer system and while in communication with the second computer system: in accordance with the determination that the second set of control criteria is met (and/or, optionally, in accordance with a determination that the second mode is disabled on the second computer system), the first computer system initiates a command (e.g., initiating a transmission and/or instructing) to enable the second mode on the second computer system (e.g., device **600** initiates a command to enable screen reader on device **614** in FIG. **6**M). Enabling a particular accessibility setting (e.g., a screen reader or text reader) at a remote device when the particular accessibility setting is enabled on a first computer system allows a user to control the second computer system according to how the user is controlling the first computer system, which enhances the user-machine interface for users having physical impairments.

(191) In some embodiments, while the second mode is enabled on the second computer system, the one or more second user interface objects are not displayed at the second computer system (e.g., the user interface objects of interface **632** are not displayed on device **614** and/or device **654**). Not displaying, at a remote device, control options that are displayed at a first computer system allows a user to control the second computer system and limits the amount of control options displayed at the second computer system, which provides additional control options without cluttering the user interface.

(192) In some embodiments, the second set of control criteria does not include a criterion that is based on whether the first mode is enabled on the second computer system (e.g., interface **632** is displayed at device **600** and/or device **652** regardless of whether adaptive navigation is enabled at device **614** and/or device **654**) (e.g., the one or more second user interface objects are displayed independent of the first set of criteria being met). Displaying controls independent of a particular accessibility setting that is enabled on the second computer system allows a user to better control the second computer system as the first computer system displays the one or more second user interface objects regardless of whether the first mode is enabled on the second computer system which enhances the user-machine interface for users having physical impairments and provides improved visual feedback as to the state of the first computer system.

(193) In some embodiments, wherein the first set of control criteria includes a third criterion that the second mode is enabled on the first computer system and the first mode is enabled on the second computer system (e.g., **638***a-c* and/or **640** is displayed when screen reader is enabled on device **600** and adaptive navigation is enabled on device **614**). In some embodiments, the second set of control criteria includes a criterion that the second mode is enable at first computer system and the first mode is enabled on the second computer system. Displaying controls for a particular accessibility setting when two different modes are enabled on the respective devise allows a user to better control the second computer system as it prioritizes the display of particular interface objects at the first computer system based on how the user is using the second computer system, which enhances the user-machine interface for users having physical impairments and provides improved visual feedback as to the state of the second computer system.

(194) In some embodiments, displaying the one or more second user interface objects includes displaying a touch input area (e.g., **633**) (e.g., a touchpad area and/or trackpad area). In some embodiments, while displaying the touch input area, the first computer system detects, via the one or more input devices, a gesture (e.g., **650***m*) at the touch input area. In response to detecting the gesture at the touch input area, the first computer system transmits, to the second computer system, an indication of the gesture (e.g., swipe **650** causes device **614** to move visual indicator **622** as depicted in FIGS. **6**M-**6**N) (e.g., transmitting a location, direction, duration, and/or path of the gesture to the second computer system). In some embodiments, the touch input area is used for controlling the second computer system using motion-based gestures (e.g., a swipe and/or a rotation). In some embodiments the touch input area (e.g., for detecting motion-based gestures) allows for detecting multi-finger inputs (e.g., two finger tap and/or three finger swipe). Providing a touch input area at a first computer system, which receives input that is typically received at the remote device, allows a user to better control the second computer system through motion-based gestures received at the first computer system, which enhances the user-machine interface for users having physical impairments.

(195) In some embodiments, in response to detecting the input corresponding to the request to control the second computer system and while in communication with the second computer system, in accordance with a determination that the first set of control criteria is met, the first computer system forgoes display of the touch input area (e.g., interface **630** does not include touchpad area **633**). In some embodiments, the one or more first user interface objects includes an affordance for controlling the graphical element displayed by the second computer system that is not included in the one or more second user interface objects. Not providing the touchpad area at the first computer system when a particular accessibility setting (e.g., an accessibility setting other than a screen reader setting) is enabled on the second computer system limits the number of unnecessary graphical objects based on the user's physical impairments, which enhances the user-machine interface for users having physical impairments by including relevant controls.

(196) In some embodiments, the first computer system includes a rotatable input device (e.g., **601**) (e.g., a rotatable input mechanism and/or crown). In some embodiments, the first computer system detects, via the rotatable input device, a rotational input (e.g., **650***n*). In response to detecting the rotational input, the first computer system transmits, to the second computer system, a scroll instruction to scroll content displayed at the second computer system (e.g., content displayed on device **614** is scrolled and/or as indicator **622** moves through content of a user interface displayed on device **614**, device **614** scrolls the content displayed). In some embodiments, the scroll instructions include a direction of scroll (first direction vs second direction), a rate of scroll (a first rate vs. a second rate), and/or a duration of scroll (first duration vs. second duration). In some embodiments, in response to detecting the rotational input, the computer system transmits instructions to the second computer system to move the graphical element displayed by the second computer system. Scrolling through items on a second computer system in response to a crown or wheel rotation at a first computer system allows a user to better control the second computer system as it provides an efficient way to quickly move the graphical indicator through a remote user interface, which enhances the user-machine interface for users having physical impairments and provides additional control options without cluttering the user interface.

(197) In some embodiments, while displaying the one or more first user interface objects, the first computer system detects, via one or more sensors (e.g., a biometric sensor (e.g., a heartrate sensor and/or an optical heartrate sensor), an accelerometer, and/or gyroscope), a non-touch hand gesture (e.g., **609***a* and/or **609***c* as described in FIGS. **6**J-**6**L) (e.g., a gesture made in the air, such as an air-pinch or hand clench). In response to detecting the non-touch hand gesture, the first computer system initiates a command (e.g., initiating a transmission and/or instructing the second computer system) to perform an operation (e.g., move visual indicator **622** as described in FIGS. **6**J-**6**K and/or select calendar application as described in FIGS. **6**K-**6**L) (move the graphical indicator, make a selection, and/or open a notification center) at the second computer system. In some embodiments, the hand gesture does not include input at a button or touch-sensitive surface of the computer system. Controlling a second computer system in response to detecting a gesture (e.g., an air-pinch or clench) made by the user at a first computer system provides the user with additional control options without requiring the user to press a button and/or touch-sensitive surface, which enhances the user-machine interface for users having physical impairments and provides additional control options without cluttering the user interface.

(198) In some embodiments, initiating the command to perform the operation includes: in accordance with a determination that that the non-touch hand gesture is a first type of non-touch hand gesture (e.g., **609***a*), the first computer system transmits, to the second computer system, a first command (e.g., move visual indicator **622** as described in FIGS. **6**J-**6**K); and in accordance with a determination that that the non-touch hand gesture is a second type of non-touch hand gesture (e.g., **609***c*) different from the first type of non-touch hand gesture, the first computer system transmits, to the second computer system, a second command (e.g., select calendar application as described in FIGS. **6**K-**6**L). Performing different operations at a second computer system in response to detecting, at a first computer system, a gesture (e.g., an air-pinch or clench) made by the user provides the user with additional control options without requiring the user to press a button and/or touch-sensitive surface to perform the same operation at the second computer system, which enhances the user-machine interface for users having physical impairments and provides additional control options without cluttering the user interface.

(199) In some embodiments, the first computer system displays, via the display generation component, a plurality of options to control a plurality of computer systems (e.g., **626**), including a first option to control the second computer system (e.g., the option to phone in FIG. **6**I) and a second option to control a third computer system (e.g., the option to control tablet and/or the option to control computer in FIG. **6**I) that is different from the first computer system and the second computer system. In some embodiments, detecting the input corresponding to a request to control the second computer system includes detecting, via the one or more input devices, selection of the first option to control the second computer system (e.g., **650***i* and/or **609***c*). Displaying multiple computer system to control provides the user an ability to select which computer system the user would like to control using a respective accessibility setting, which enhances the user-machine interface for users having physical impairments and provides additional control options.

(200) In some embodiments, displaying the plurality of options to control the plurality of computer systems includes: in accordance with a determination that a respective computer system satisfies a set of one or more display conditions, the first computer system displays, via the display generation component, an option to control the respective computer system. In some embodiments, the set of one or more display conditions includes a first display condition that is satisfied when the respective computer system is logged into the same user account as the first computer system (e.g., device **600** is logged into the same user account as device **614**, device **600** is logged into the same user account as a tablet computer associated with the tablet option displayed in device selector menu **626**, and/or device **600** is logged into the same user account as a computer associated with the computer option displayed in device selector menu **626**). In some embodiments, displaying the plurality of options to control the plurality of computer systems includes: in accordance with a determination that the respective computer system does not satisfy the set of one or more display conditions, the first computer system forgoes display of the option to control the respective computer system (e.g., devices that are not signed into the same user account are not displayed in device selector menu **626**). Displaying multiple computer systems based on whether the device is logged into the same user account provides the user an ability to select which computer system the user would like to control, which enhances the user-machine interface for users having physical impairments and provides additional control options.

(201) In some embodiments, the set of one or more display conditions includes a second display condition that is satisfied when the respective computer system is within a threshold distance of the first computer system (e.g., device **600** is located within 200 feet of device **614**). In some embodiments, the first computer system receives an indication (e.g., from a server, from a global positioning satellite, and/or from the respective computer system (e.g., using a local area network and/or Bluetooth) that the respective computer system is within the threshold distance of the first computer system. Displaying multiple devices based on whether the device is within a threshold distance of the computer system provides the user an ability to select nearby devices that the user would like to control and limiting the number of inputs to identify nearby devices, which enhances the user-machine interface for users having physical impairments and reduces the number of inputs needed to perform an operation.

(202) In some embodiments, the first computer system receives, via the one or more input devices, user input to correspond a user-specified non-touch hand gesture (e.g., **609***b*, **609***d*, and/or **609***c*) (e.g., an air gesture and/or gesture detected independent of a touch-sensitive surface of the first computer system) to a first function (e.g., a rotate) of the rotatable input device of the first computer system (e.g., device **600** receives an input to correspond to one of the gestures associated with affordances **608***a-d* with a rotation of rotatable input device **601** that is associated with affordance **612***f* and/or affordance **612***g*), where the user-specified non-touch hand gesture does not use the rotatable input device of the first computer system. In some embodiments, while the user-specified non-touch hand gesture corresponds to the first function of the rotatable input device of the first computer system: the first computer system receives, via the one or more input devices, the user-specified non-touch hand gesture. In response to receiving the user-specified non-touch hand gesture, the first computer performs a first operation (e.g., a scroll operation) that corresponds to the first function of the rotatable input device of the first computer system (e.g., the first computer system would perform the same operation had the computer system detected input using the first function (e.g., rotation) of the rotatable input device). In some embodiments, subsequent to performing the first operation that corresponds to the first function of the rotatable input device, the first computer system receives, via the one or more input devices, user input to correspond the user-specified non-touch hand gesture (e.g., an air gesture and/or gesture detected independent of a touch-sensitive surface of the first computer system) to a second function (e.g., a rotate or press input) (e.g., device **600** receives an input to correspond one of the gestures associated with affordances **608***a-d* with a press (e.g., depress) of rotatable input device **601** that is associated with affordance **612***g*), different from the first function, of the rotatable input device of the first computer system, where the user-specified non-touch hand gesture does not use the rotatable input device of the first computer system. In some embodiments, while the user-specified non-touch hand gesture corresponds to the second function of the rotatable input device of the first computer system: the first computer system receives, via the one or more input devices, the user-specified non-touch hand gesture. In response to receiving the user-specified non-touch hand gesture, the computer system performs a second operation that corresponds to the second function (e.g., press input of) of the rotatable input device of the first computer system (e.g., the computer system would perform the same operation had the computer system detected input using the second function (e.g., press input) of the rotatable input device). In some embodiments, the computer system receives user input to confirm non-touch gestures that don't use the rotatable input device to mimic (or substitute for) functions of the rotatable input device. Customizing a hand gesture (e.g., an air-pinch or clench) made by the user to perform an operation typically detected by a crown or wheel provides a user with alternative ways to provide an input so as to control a device (local or remote), which enhances the user-machine interface for users having physical impairments and provides additional control options.

(203) 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 techniques and their practical applications. Others skilled in the art are thereby enabled to best utilize the techniques and various embodiments with various modifications as are suited to the particular use contemplated.

(204) Although the disclosure and examples have been fully described with reference to the accompanying drawings, it is to be noted that various changes and modifications will become apparent to those skilled in the art. Such changes and modifications are to be understood as being included within the scope of the disclosure and examples as defined by the claims.

(205) As described above, one aspect of the present technology is the gathering and use of data available from various sources to improve the delivery to users of invitational content or any other content that may be of interest to them. The present disclosure contemplates that in some instances, this gathered data may include personal information data that uniquely identifies or can be used to contact or locate a specific person. Such personal information data can include demographic data, location-based data, telephone numbers, email addresses, twitter IDs, home addresses, data or records relating to a user's health or level of fitness (e.g., vital signs measurements, medication information, exercise information), date of birth, or any other identifying or personal information.

(206) The present disclosure recognizes that the use of such personal information data, in the present technology, can be used to the benefit of users.

For example, the personal information data can be used to customize user profiles and/or improve what accessibility settings are provided to a user. Accordingly, use of such personal information data enables users to have calculated control of the delivered content. Further, other uses for personal information data that benefit the user are also contemplated by the present disclosure. For instance, health and fitness data may be used to provide insights into a user's general wellness, or may be used as positive feedback to individuals using technology to pursue wellness goals.

(207) The present disclosure contemplates that the entities responsible for the collection, analysis, disclosure, transfer, storage, or other use of such personal information data will comply with well-established privacy policies and/or privacy practices. In particular, such entities should implement and consistently use privacy policies and practices that are generally recognized as meeting or exceeding industry or governmental requirements for maintaining personal information data private and secure. Such policies should be easily accessible by users, and should be updated as the collection and/or use of data changes. Personal information from users should be collected for legitimate and reasonable uses of the entity and not shared or sold outside of those legitimate uses. Further, such collection/sharing should occur after receiving the informed consent of the users. Additionally, such entities should consider taking any needed steps for safeguarding and securing access to such personal information data and ensuring that others with access to the personal information data adhere to their privacy policies and procedures. Further, such entities can subject themselves to evaluation by third parties to certify their adherence to widely accepted privacy policies and practices. In addition, policies and practices should be adapted for the particular types of personal information data being collected and/or accessed and adapted to applicable laws and standards, including jurisdiction-specific considerations. For instance, in the US, collection of or access to certain health data may be governed by federal and/or state laws, such as the Health Insurance Portability and Accountability Act (HIPAA); whereas health data in other countries may be subject to other regulations and policies and should be handled accordingly. Hence different privacy practices should be maintained for different personal data types in each country.

(208) Despite the foregoing, the present disclosure also contemplates embodiments in which users selectively block the use of, or access to, personal information data. That is, the present disclosure contemplates that hardware and/or software elements can be provided to prevent or block access to such personal information data. For example, in the case of accessibility settings, the present technology can be configured to allow users to select to “opt in” or “opt out” of participation in the collection of personal information data during registration for services or anytime thereafter. In another example, users can select not to provide accessibility settings data for targeted content delivery services. In addition to providing “opt in” and “opt out” options, the present disclosure contemplates providing notifications relating to the access or use of personal information. For instance, a user may be notified upon downloading an app that their personal information data will be accessed and then reminded again just before personal information data is accessed by the app.

(209) Moreover, it is the intent of the present disclosure that personal information data should be managed and handled in a way to minimize risks of unintentional or unauthorized access or use. Risk can be minimized by limiting the collection of data and deleting data once it is no longer needed. In addition, and when applicable, including in certain health related applications, data de-identification can be used to protect a user's privacy. De-identification may be facilitated, when appropriate, by removing specific identifiers (e.g., date of birth, etc.), controlling the amount or specificity of data stored (e.g., collecting location data a city level rather than at an address level), controlling how data is stored (e.g., aggregating data across users), and/or other methods.

(210) Therefore, although the present disclosure broadly covers use of personal information data to implement one or more various disclosed embodiments, the present disclosure also contemplates that the various embodiments can also be implemented without the need for accessing such personal information data. That is, the various embodiments of the present technology are not rendered inoperable due to the lack of all or a portion of such personal information data. For example, information about accessibility settings can be selected and delivered to users by inferring preferences based on non-personal information data or a bare minimum amount of personal information, such as the content being requested by the device associated with a user, other non-personal information available to the content delivery services, or publicly available information.

Claims

1. A first computer system configured to communicate with a display generation component and one or more input devices, comprising: one or more processors; and memory storing one or more programs configured to be executed by the one or more processors, the one or more programs including instructions for: detecting, via the one or more input devices, an input corresponding to a request to control a second computer system; and in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system: in accordance with a determination that a first set of control criteria is met, displaying, via the display generation component, one or more first user interface objects that controls a first graphical element displayed by the second computer system to navigate one or more user interfaces of the second computer system, wherein a first control criteria of the first set of control criteria is met when a system setting for a first mode of controlling a computer system is enabled on the second computer system, and wherein the first computer system initiates a command to move the first graphical element from a first selectable graphical object to a second selectable graphical object displayed at the second computer system in response to the first computer system detecting an input directed to at least one of the one or more first user interface objects; and in accordance with a determination that a second set of control criteria, different from the first set of control criteria, is met, displaying, via the display generation component, one or more second user interface objects that controls a second graphical element displayed by the second computer system to navigate the one or more user interfaces of the second computer system, wherein the determination that the second set of control criteria is met is based on one or more system settings for controlling the first computer system and/or one or more system settings for controlling the second computer system, wherein the one or more second user interface objects is different from the one or more first user interface objects, and wherein the first computer system initiates a command to move the second graphical element from a third selectable graphical object to a fourth selectable graphical object in response to the first computer system detecting an input directed to at least one of the one or more second user interface objects.

2. The first computer system of claim 1, the one or more programs including instructions for: in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system: in accordance with the determination that the first set of control criteria is not met, displaying, via the display generation component, a control user interface object that controls a function of the second computer system.

3. The first computer system of claim 1, wherein the second set of control criteria includes a first control criterion that is met when a second mode, different from the first mode, of controlling a computer system is enabled on the first computer system.

4. The first computer system of claim 3, wherein the first set of control criteria includes a second control criterion that is met when the second set of control criteria is not met.

5. The first computer system of claim 3, wherein the second set of control criteria does not include a control criterion that is based on whether the second mode of controlling a computer system is enabled on the second computer system.

6. The first computer system of claim 3, the one or more programs including instructions for: in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system: in accordance with the determination that the second set of control criteria is met, initiating a command to enable the second mode on the second computer system.

7. The first computer system of claim 6, wherein, when the second mode is enabled on the second computer system, the one or more second user interface objects are not displayed at the second computer system.

8. The first computer system of claim 3, wherein the second set of control criteria does not include a criterion that is based on whether the first mode is enabled on the second computer system.

9. The first computer system of claim 3, wherein the first set of control criteria includes a third criterion that the second mode is enabled on the first computer system and the first mode is enabled on the second computer system.
10. The first computer system of claim 3, wherein displaying the one or more second user interface objects includes displaying a touch input area, the one or more programs including instructions for: when displaying the touch input area, detecting, via the one or more input devices, a gesture at the touch input area; and in response to detecting the gesture at the touch input area, transmitting, to the second computer system, an indication of the gesture.
11. The first computer system of claim 10, the one or more programs including instructions for: in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system, in accordance with a determination that the first set of control criteria is met, forgoing display of the touch input area.
12. The first computer system of claim 3, wherein the first computer system includes a rotatable input device, the one or more programs including instructions for: detecting, via the rotatable input device, a rotational input; and in response to detecting the rotational input, transmitting, to the second computer system, a scroll instruction to scroll content displayed at the second computer system.
13. The first computer system of claim 1, the one or more programs including instructions for: when displaying the one or more first user interface objects, detecting, via one or more sensors, a non-touch hand gesture; and in response to detecting the non-touch hand gesture, initiating a command to perform an operation at the second computer system.
14. The first computer system of claim 13, wherein initiating the command to perform the operation includes: in accordance with a determination that the non-touch hand gesture is a first type of non-touch hand gesture, transmitting, to the second computer system, a first command; and in accordance with a determination that that the non-touch hand gesture is a second type of non-touch hand gesture different from the first type of non-touch hand gesture, transmitting, to the second computer system, a second command.
15. The first computer system of claim 1, the one or more programs including instructions for: displaying, via the display generation component, a plurality of options to control a plurality of computer systems, including a first option to control the second computer system and a second option to control a third computer system that is different from the first computer system and the second computer system; and wherein detecting the input corresponding to a request to control the second computer system includes detecting, via the one or more input devices, selection of the first option to control the second computer system.
16. The first computer system of claim 15, wherein displaying the plurality of options to control the plurality of computer systems includes: in accordance with a determination that a respective computer system satisfies a set of one or more display conditions, displaying, via the display generation component, an option to control the respective computer system, wherein the set of one or more display conditions includes a first display condition that is satisfied when the respective computer system is logged into a same user account as the first computer system; and in accordance with a determination that the respective computer system does not satisfy the set of one or more display conditions, forgoing display of the option to control the respective computer system.
17. The first computer system of claim 16, wherein the set of one or more display conditions includes a second display condition that is satisfied when the respective computer system is within a threshold distance of the first computer system.
18. The first computer system of claim 1, the one or more programs including instructions for: receiving, via the one or more input devices, user input to correspond a user-specified non-touch hand gesture to a first function of a rotatable input device of the first computer system, wherein the user-specified non-touch hand gesture does not use the rotatable input device of the first computer system; when the user-specified non-touch hand gesture corresponds to the first function of the rotatable input device of the first computer system: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a first operation that corresponds to the first function of the rotatable input device of the first computer system; subsequent to performing the first operation that corresponds to the first function of the rotatable input device, receiving, via the one or more input devices, user input to correspond the user-specified non-touch hand gesture to a second function, different from the first function, of the rotatable input device of the first computer system, wherein the user-specified non-touch hand gesture does not use the rotatable input device of the first computer system; and when the user-specified non-touch hand gesture corresponds to the second function of the rotatable input device of the first computer system: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a second operation that corresponds to the second function of the rotatable input device of the first computer system.
19. The first computer system of claim 1, the one or more programs including instructions for: receiving, via the one or more input devices, user input to correspond a user-specified non-touch hand gesture to a first set of commands for one or more applications and/or one or more settings, wherein the user-specified non-touch hand gesture does not include a touch input; when the user-specified non-touch hand gesture corresponds to the first set of commands for the one or more applications and/or the one or more settings: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a first set of operations that corresponds to the first set of commands for the one or more applications and/or the one or more settings; subsequent to performing the first set of operations that corresponds to the first set of commands for the one or more applications and/or the one or more settings, receiving, via the one or more input devices, user input to correspond the user-specified non-touch hand gesture to a second set of commands, different from the first set of commands, for one or more applications and/or one or more settings, wherein the user-specified non-touch hand gesture does not include a touch input; and when the user-specified non-touch hand gesture corresponds to the second set of commands for the one or more applications and/or the one or more settings: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a second set of operations that corresponds to the second set of commands for the one or more applications and/or the one or more settings.
20. The first computer system of claim 1, wherein a first control criteria of the second set of control criteria is met when the system setting for the first mode of controlling the computer system is not enabled on the second computer system.
21. A non-transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a first computer system that is in communication with a display generation component and one or more input devices, the one or more programs including instructions for: detecting, via the one or more input devices, an input corresponding to a request to control a second computer system; and in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system: in accordance with a determination that a first set of control criteria is met, displaying, via the display generation component, one or more first user interface objects that controls a first graphical element displayed by the second computer system to navigate one or more user interfaces of the second computer system, wherein a first control criteria of the first set of control criteria is met when a first mode of controlling a computer system is enabled on the second computer system, and wherein the first computer system initiates a command to move the first graphical element from a first selectable graphical object to a second selectable graphical object displayed at the second computer system in response to the first computer system detecting an input directed to at least one of the one or more first user interface objects; and in accordance with a determination that a second set of control criteria, different from the first set of control criteria, is met, displaying, via the display generation component, one or more second user interface objects that controls a second graphical element displayed by the second computer system to navigate the one or more user interfaces of the second computer system, wherein the determination that the second set of control criteria is met is based on one or more system settings for controlling the first computer system and/or one or more system settings for controlling the second computer system, wherein the one or more second user interface objects is different from the one or more first user interface objects, and wherein the first computer system initiates a command to move the second graphical element from a third selectable graphical object to a fourth selectable graphical object in response to the first

computer system detecting an input directed to at least one of the one or more second user interface objects.
22. The non-transitory computer-readable storage medium of claim 21, the one or more programs including instructions for: in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system: in accordance with the determination that the first set of control criteria is not met, displaying, via the display generation component, a control user interface object that controls a function of the second computer system.
23. The non-transitory computer-readable storage medium of claim 21, wherein the second set of control criteria includes a first control criterion that is met when a second mode, different from the first mode, of controlling a computer system is enabled on the first computer system.
24. The non-transitory computer-readable storage medium of claim 23, wherein the first set of control criteria includes a second control criterion that is met when the second set of control criteria is not met.
25. The non-transitory computer-readable storage medium of claim 23, wherein the second set of control criteria does not include a control criterion that is based on whether the second mode of controlling a computer system is enabled on the second computer system.
26. The non-transitory computer-readable storage medium of claim 23, the one or more programs including instructions for: in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system: in accordance with the determination that the second set of control criteria is met, initiating a command to enable the second mode on the second computer system.
27. The non-transitory computer-readable storage medium of claim 26, wherein, when the second mode is enabled on the second computer system, the one or more second user interface objects are not displayed at the second computer system.
28. The non-transitory computer-readable storage medium of claim 23, wherein the second set of control criteria does not include a criterion that is based on whether the first mode is enabled on the second computer system.
29. The non-transitory computer-readable storage medium of claim 23, wherein the first set of control criteria includes a third criterion that the second mode is enabled on the first computer system and the first mode is enabled on the second computer system.
30. The non-transitory computer-readable storage medium of claim 23, wherein displaying the one or more second user interface objects includes displaying a touch input area, the one or more programs including instructions for: when displaying the touch input area, detecting, via the one or more input devices, a gesture at the touch input area; and in response to detecting the gesture at the touch input area, transmitting, to the second computer system, an indication of the gesture.
31. The non-transitory computer-readable storage medium of claim 30, the one or more programs including instructions for: in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system, in accordance with a determination that the first set of control criteria is met, forgoing display of the touch input area.
32. The non-transitory computer-readable storage medium of claim 23, wherein the first computer system includes a rotatable input device, the one or more programs including instructions for: detecting, via the rotatable input device, a rotational input; and in response to detecting the rotational input, transmitting, to the second computer system, a scroll instruction to scroll content displayed at the second computer system.
33. The non-transitory computer-readable storage medium of claim 21, the one or more programs including instructions for: when displaying the one or more first user interface objects, detecting, via one or more sensors, a non-touch hand gesture; and in response to detecting the non-touch hand gesture, initiating a command to perform an operation at the second computer system.
34. The non-transitory computer-readable storage medium of claim 33, wherein initiating the command to perform the operation includes: in accordance with a determination that the non-touch hand gesture is a first type of non-touch hand gesture, transmitting, to the second computer system, a first command; and in accordance with a determination that that the non-touch hand gesture is a second type of non-touch hand gesture different from the first type of non-touch hand gesture, transmitting, to the second computer system, a second command.
35. The non-transitory computer-readable storage medium of claim 21, the one or more programs including instructions for: displaying, via the display generation component, a plurality of options to control a plurality of computer systems, including a first option to control the second computer system and a second option to control a third computer system that is different from the first computer system and the second computer system; and wherein detecting the input corresponding to a request to control the second computer system includes detecting, via the one or more input devices, selection of the first option to control the second computer system.
36. The non-transitory computer-readable storage medium of claim 35, wherein displaying the plurality of options to control the plurality of computer systems includes: in accordance with a determination that a respective computer system satisfies a set of one or more display conditions, displaying, via the display generation component, an option to control the respective computer system, wherein the set of one or more display conditions includes a first display condition that is satisfied when the respective computer system is logged into a same user account as the first computer system; and in accordance with a determination that the respective computer system does not satisfy the set of one or more display conditions, forgoing display of the option to control the respective computer system.
37. The non-transitory computer-readable storage medium of claim 36, wherein the set of one or more display conditions includes a second display condition that is satisfied when the respective computer system is within a threshold distance of the first computer system.
38. The non-transitory computer-readable storage medium of claim 21, the one or more programs including instructions for: receiving, via the one or more input devices, user input to correspond a user-specified non-touch hand gesture to a first function of a rotatable input device of the first computer system, wherein the user-specified non-touch hand gesture does not use the rotatable input device of the first computer system; when the user-specified non-touch hand gesture corresponds to the first function of the rotatable input device of the first computer system: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a first operation that corresponds to the first function of the rotatable input device of the first computer system; subsequent to performing the first operation that corresponds to the first function of the rotatable input device, receiving, via the one or more input devices, user input to correspond the user-specified non-touch hand gesture to a second function, different from the first function, of the rotatable input device of the first computer system, wherein the user-specified non-touch hand gesture does not use the rotatable input device of the first computer system; and when the user-specified non-touch hand gesture corresponds to the second function of the rotatable input device of the first computer system: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a second operation that corresponds to the second function of the rotatable input device of the first computer system.
39. The non-transitory computer-readable storage medium of claim 21, the one or more programs including instructions for: receiving, via the one or more input devices, user input to correspond a user-specified non-touch hand gesture to a first set of commands for one or more applications and/or one or more settings, wherein the user-specified non-touch hand gesture does not include a touch input; when the user-specified non-touch hand gesture corresponds to the first set of commands for the one or more applications and/or the one or more settings: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a first set of operations that corresponds to the first set of commands for the one or more applications and/or the one or more settings; subsequent to performing the first set of operations that corresponds to the first set of commands for the one or more applications and/or the one or more settings, receiving, via the one or more input devices, user input to correspond the user-specified non-touch hand gesture to a second set of commands, different from the first set of commands, for one or more applications and/or one or more settings, wherein the user-specified non-touch hand gesture does not include a touch input; and when the user-specified non-touch hand gesture corresponds to the second set of commands for the one or more applications and/or the one or more settings: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a second set of operations that corresponds to the second set of commands for the one or more

applications and/or the one or more settings.
40. The non-transitory computer-readable storage medium of claim 21, wherein a first control criteria of the second set of control criteria is met when the system setting for the first mode of controlling the computer system is not enabled on the second computer system.
41. A method, comprising: at a first computer system that is in communication with a display generation component and one or more input devices: detecting, via the one or more input devices, an input corresponding to a request to control a second computer system; and in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system: in accordance with a determination that a first set of control criteria is met, displaying, via the display generation component, one or more first user interface objects that controls a first graphical element displayed by the second computer system to navigate one or more user interfaces of the second computer system, wherein a first control criteria of the first set of control criteria is met when a first mode of controlling a computer system is enabled on the second computer system, and wherein the first computer system initiates a command to move the first graphical element from a first selectable graphical object to a second selectable graphical object displayed at the second computer system in response to the first computer system detecting an input directed to at least one of the one or more first user interface objects; and in accordance with a determination that a second set of control criteria, different from the first set of control criteria, is met, displaying, via the display generation component, one or more second user interface objects that controls a second graphical element displayed by the second computer system to navigate the one or more user interfaces of the second computer system, wherein the determination that the second set of control criteria is met is based on one or more system settings for controlling the first computer system and/or one or more system settings for controlling the second computer system, wherein the one or more second user interface objects is different from the one or more first user interface objects, and wherein the first computer system initiates a command to move the second graphical element from a third selectable graphical object to a fourth selectable graphical object in response to the first computer system detecting an input directed to at least one of the one or more second user interface objects.
42. The method of claim 41, further comprising: in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system: in accordance with the determination that the first set of control criteria is not met, displaying, via the display generation component, a control user interface object that controls a function of the second computer system.
43. The method of claim 41, wherein the second set of control criteria includes a first control criterion that is met when a second mode, different from the first mode, of controlling a computer system is enabled on the first computer system.
44. The method of claim 43, wherein the first set of control criteria includes a second control criterion that is met when the second set of control criteria is not met.
45. The method of claim 43, wherein the second set of control criteria does not include a control criterion that is based on whether the second mode of controlling a computer system is enabled on the second computer system.
46. The method of claim 43, further comprising: in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system: in accordance with the determination that the second set of control criteria is met, initiating a command to enable the second mode on the second computer system.
47. The method of claim 46, wherein, when the second mode is enabled on the second computer system, the one or more second user interface objects are not displayed at the second computer system.
48. The method of claim 43, wherein the second set of control criteria does not include a criterion that is based on whether the first mode is enabled on the second computer system.
49. The method of claim 43, wherein the first set of control criteria includes a third criterion that the second mode is enabled on the first computer system and the first mode is enabled on the second computer system.
50. The method of claim 43, wherein displaying the one or more second user interface objects includes displaying a touch input area, further comprising: when displaying the touch input area, detecting, via the one or more input devices, a gesture at the touch input area; and in response to detecting the gesture at the touch input area, transmitting, to the second computer system, an indication of the gesture.
51. The method of claim 50, further comprising: in response to detecting the input corresponding to the request to control the second computer system and when in communication with the second computer system, in accordance with a determination that the first set of control criteria is met, forgoing display of the touch input area.
52. The method of claim 43, wherein the first computer system includes a rotatable input device, further comprising: detecting, via the rotatable input device, a rotational input; and in response to detecting the rotational input, transmitting, to the second computer system, a scroll instruction to scroll content displayed at the second computer system.
53. The method of claim 41, further comprising: when displaying the one or more first user interface objects, detecting, via one or more sensors, a non-touch hand gesture; and in response to detecting the non-touch hand gesture, initiating a command to perform an operation at the second computer system.
54. The method of claim 53, wherein initiating the command to perform the operation includes: in accordance with a determination that the non-touch hand gesture is a first type of non-touch hand gesture, transmitting, to the second computer system, a first command; and in accordance with a determination that that the non-touch hand gesture is a second type of non-touch hand gesture different from the first type of non-touch hand gesture, transmitting, to the second computer system, a second command.
55. The method of claim 41, further comprising: displaying, via the display generation component, a plurality of options to control a plurality of computer systems, including a first option to control the second computer system and a second option to control a third computer system that is different from the first computer system and the second computer system; and wherein detecting the input corresponding to a request to control the second computer system includes detecting, via the one or more input devices, selection of the first option to control the second computer system.
56. The method of claim 55, wherein displaying the plurality of options to control the plurality of computer systems includes: in accordance with a determination that a respective computer system satisfies a set of one or more display conditions, displaying, via the display generation component, an option to control the respective computer system, wherein the set of one or more display conditions includes a first display condition that is satisfied when the respective computer system is logged into a same user account as the first computer system; and in accordance with a determination that the respective computer system does not satisfy the set of one or more display conditions, forgoing display of the option to control the respective computer system.
57. The method of claim 56, wherein the set of one or more display conditions includes a second display condition that is satisfied when the respective computer system is within a threshold distance of the first computer system.
58. The method of claim 41, further comprising: receiving, via the one or more input devices, user input to correspond a user-specified non-touch hand gesture to a first function of a rotatable input device of the first computer system, wherein the user-specified non-touch hand gesture does not use the rotatable input device of the first computer system; when the user-specified non-touch hand gesture corresponds to the first function of the rotatable input device of the first computer system: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a first operation that corresponds to the first function of the rotatable input device of the first computer system; subsequent to performing the first operation that corresponds to the first function of the rotatable input device, receiving, via the one or more input devices, user input to correspond the user-specified non-touch hand gesture to a second function, different from the first function, of the rotatable input device of the first computer system, wherein the user-specified non-touch hand gesture does not use the rotatable input device of the first computer system; and when the user-specified non-touch hand gesture corresponds to the second function of the rotatable input device of the first computer system: receiving, via the one or more input devices, the user-specified non-touch hand

gesture; and in response to receiving the user-specified non-touch hand gesture, performing a second operation that corresponds to the second function of the rotatable input device of the first computer system.

59. The method of claim 41, further comprising: receiving, via the one or more input devices, user input to correspond a user-specified non-touch hand gesture to a first set of commands for one or more applications and/or one or more settings, wherein the user-specified non-touch hand gesture does not include a touch input; when the user-specified non-touch hand gesture corresponds to the first set of commands for the one or more applications and/or the one or more settings: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a first set of operations that corresponds to the first set of commands for the one or more applications and/or the one or more settings; subsequent to performing the first set of operations that corresponds to the first set of commands for the one or more applications and/or the one or more settings, receiving, via the one or more input devices, user input to correspond the user-specified non-touch hand gesture to a second set of commands, different from the first set of commands, for one or more applications and/or one or more settings, wherein the user-specified non-touch hand gesture does not include a touch input; and when the user-specified non-touch hand gesture corresponds to the second set of commands for the one or more applications and/or the one or more settings: receiving, via the one or more input devices, the user-specified non-touch hand gesture; and in response to receiving the user-specified non-touch hand gesture, performing a second set of operations that corresponds to the second set of commands for the one or more applications and/or the one or more settings.

60. The method of claim 41, wherein a first control criteria of the second set of control criteria is met when the system setting for the first mode of controlling the computer system is not enabled on the second computer system.