

communication with one or more additional devices, computers and/or servers using a wireless network. The device **100** may support a variety of communications protocols, including code division multiple access (CDMA), Global System for Mobile Communications (GSM), Enhanced Data GSM Environment (EDGE), Wi-Fi (such as IEEE 802.11a, IEEE 802.11b, IEEE 802.11g and/or IEEE 802.11n), Bluetooth, Wi-MAX, a protocol for email, instant messaging, and/or a short message service (SMS), or any other suitable communication protocol, including communication protocols not yet developed as of the filing date of this document. In an exemplary embodiment, the device **100** may be, at least in part, a mobile phone (e.g., a cellular telephone).

[0025] The I/O subsystem **106** may include a touch screen controller **132** and/or other input controller(s) **134**. The touch-screen controller **132** is coupled to a touch-sensitive screen or touch sensitive display system **112**. The touch screen **112** and touch screen controller **132** may detect contact and any movement or break thereof using any of a plurality of touch sensitivity 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 the touch-sensitive screen **112**. A touch-sensitive display in some embodiments of the display system **112** may be analogous to the multi-touch sensitive tablets described in the following U.S. Pat. Nos. 6,323,846 (Westerman et al.), 6,570,557 (Westerman et al.), and/or 6,677,932 (Westerman), and/or U.S. Patent Publication 2002/0015024A1, each of which is hereby incorporated by reference. However, a touch screen in the display system **112** displays visual output from the portable device **100**, whereas touch sensitive tablets do not provide visual output. The touch-sensitive screen **112** may have a resolution in excess of 100 dpi. In an exemplary embodiment, the touch-sensitive screen **112** has a resolution of approximately 168 dpi. The other input controller(s) **134** may be coupled to other input/control devices **114**, such as one or more buttons. In some alternate embodiments, input controller(s) **134** may be coupled to any (or none) of the following: a keyboard, infrared port, USB port, and/or a pointer device such as a mouse. The one or more buttons (not shown) may include an up/down button for volume control of the speaker **142** and/or the microphone **144**. The one or more buttons (not shown) may include a push button. A quick press of the push button (not shown) may disengage a lock of the touch screen **112**. A longer press of the push button (not shown) may turn power to the device **100** on or off. The user may be able to customize a functionality of one or more of the buttons. The touch screen **112** may be used to implement virtual or soft buttons and/or one or more keyboards.

[0026] A touch-sensitive display in some embodiments of the display system **112** may be as described in the following applications: (1) U.S. patent application Ser. No. 11/381,313, "Multipoint Touch Surface Controller," filed on May 2, 2006; (2) U.S. patent application Ser. No. 10/840,862, "Multipoint Touchscreen," filed on May 6, 2004; (3) U.S. patent application Ser. No. 10/903,964, "Gestures For Touch Sensitive Input Devices," filed on Jul. 30, 2004; (4) U.S. patent application Ser. No. 11/048,264, "Gestures For Touch Sensitive Input Devices," filed on Jan. 31, 2005; (5) U.S. patent application Ser. No. 11/038,590, "Mode-Based Graphical User Interfaces For Touch Sensitive Input Devices," filed on Jan. 18, 2005; (6) U.S. patent application Ser. No. 11/228,758,

"Virtual Input Device Placement On A Touch Screen User Interface," filed on Sep. 16, 2005; (7) U.S. patent application Ser. No. 11/228,700, "Operation Of A Computer With A Touch Screen Interface," filed on Sep. 16, 2005; (8) U.S. patent application Ser. No. 11/228,737, "Activating Virtual Keys Of A Touch-Screen Virtual Keyboard," filed on Sep. 16, 2005; and (9) U.S. patent application Ser. No. 11/367,749, "Multi-Functional Hand-Held Device," filed on Mar. 3, 2006. All of these applications are incorporated by reference herein.

[0027] In some embodiments, the device **100** may include circuitry for supporting a location determining capability, such as that provided by the Global Positioning System (GPS). In some embodiments, the device **100** may be used to play back recorded music, such as one or more files, such as MP3 files or AAC files. In some embodiments, the device **100** may include the functionality of an MP3 player, such as an iPod (trademark of Apple Computer, Inc.). In some embodiments, the device **100** may include a multi-pin (e.g., 30-pin) connector that is compatible with the iPod.

[0028] The device **100** also includes a power system **137** for powering the various components. The power system **137** may include a power management system, one or more power sources (e.g., battery, alternating current (AC)), a recharging system, a power failure detection circuit, a power converter or inverter, a power status indicator (e.g., a light-emitting diode (LED)) and any other components associated with the generation, management and distribution of power in portable devices. The device **100** may also include one or more external ports **135** for connecting the device **100** to other devices.

[0029] The memory controller **120** may be coupled to memory **102**, which may include one or more types of computer readable medium. Memory **102** may include high-speed random access memory and/or non-volatile memory, such as one or more magnetic disk storage devices, one or more optical storage devices, and/or flash memory. Memory **102** may store an operating system **122**, such as Darwin, RTXC, LINUX, UNIX, OS X, WINDOWS, or an embedded operating system such as VxWorks. The operating system **122** may include procedures (or sets of instructions) for handling basic system services and for performing hardware dependent tasks. Memory **102** may also store communication procedures (or sets of instructions) in a communication module **124**. The communication procedures may be used for communicating with one or more additional devices, one or more computers and/or one or more servers. The memory **102** may include a display module (or a set of instructions) **125**, a contact/motion module (or a set of instructions) **126** to determine one or more points of contact and/or their movement, and a graphics module (or a set of instructions) **128**. The graphics module **128** may support widgets, that is, modules or applications with embedded graphics. The widgets may be implemented using JavaScript, HTML, Adobe Flash, or other suitable computer program languages and technologies.

[0030] The memory **102** may also include one or more applications **130**. Examples of applications that may be stored in memory **102** include telephone applications, email applications, text messaging or instant messaging applications, memo pad applications, address books or contact lists, calendars, picture taking and management applications, and music playing and management applications. The applications **130** may include a web browser (not shown) for rendering pages written in the Hypertext Markup Language (HTML), Wireless Markup Language (WML), or other languages suitable for composing web pages or other online content.