

emitted through one or more holes **209** in planar input device **203**. Preferably, planar input device **203** is rigid enough such that the diameter of holes **209** at their narrowest point and the thickness of planar input device **203** do not change as sound waves are emitted from speaker **205**. If the dimensions of the holes or thickness of the planar input device change, the sound may be distorted. Planar input device **203** may be an optical HALIOS sensor touchpad system, an EMFi sensor touchpad, a capacitive touchpad, or any other known touchpad in which holes can be pierced. The HALIOS sensor and Ethertouch capacitance touchpads fulfill these requirements, as there are no separate touch-sensitive layers on the back cover of the device with which sound would interfere. When a HALIOS touchpad is used, sensors may be placed at the edges of the back cover. When an Ethertouch capacitive touchpad is used, the sensors may be placed under the back cover. HALIOS touchpads are available from Mechaless Systems of Karlsruhe, Germany, and EMFi touchpads are available from Emfitech Ltd., of Vaajakoski, Finland. Capacitive touchpads are generally known in the art, and are available from at least Ethertouch of Labuan, Malaysia, and Synaptics, Inc. of San Jose, Calif.

[0029] With reference to FIG. 3 (not to scale), other touchpads known in the art, such as mechanically soft touchpads, may also be used. A mechanically soft touchpad **301** may be placed over the back cover **303** of a portable device. The back cover **303** may have rigid holes **305** and the soft touchpad layer on top of it has slightly larger holes **307**. In this manner, the narrowest point of the holes through which sound passes is on the back cover, eliminating any distortion the sound may cause to the touchpad. Thus, any touchpad that allows holes pierced in it can be used with the invention.

[0030] In one embodiment, with reference to FIG. 4, linear input devices **107** and **109** may be used to identify a location of one of a plurality of soft buttons displayed on display screen **103**. Soft buttons are generally known in the art and may be defined as a display element displayed on a display screen that, when selected, provides corresponding predefined input to a portable device. The inventive portable device may be used to select soft buttons using one or more of linear input devices **105**, **107**, and **109**, and planar input device **203**. The input may be predefined by an application program, configured by a user, or the like. For example, FIG. 4 illustrates a portable device **101** configured to display a plurality of soft buttons that represent a soft keyboard **407** through which a user may provide alphanumeric input. Soft keyboards are also generally known in the art, e.g., as used with PALM® personal digital assistants. Soft keyboard **407** may include alphanumeric keys A-Z and 0-9, SPACE, and ENTER. It should be apparent to one of skill in the art that other soft buttons may also or alternatively be included, such as special characters, symbols, letters, function keys, alternative control keys (e.g., CTRL, ALT), formatting keys (e.g., INS, DEL), and any other keys with corresponding input, including any key located on known computer keyboards, macro keys, and the like.

[0031] In one embodiment, a user may select a soft button by touching its corresponding horizontal and vertical positions using linear input devices **107** and **109**, respectively. For example, a user may select the letter 'S' by touching linear input device **107** at position **401**, and touching linear input device **109** at position **403**. As a result, the letter 'S'

may be input and displayed in input box **405**. When the user has completed her input, the user may submit the input by selecting the DONE soft button.

[0032] In another embodiment, additional confirmation is used to input the selected soft button. For instance, a user may select the 'S' soft button using linear input devices **107** and **109**. In response, portable device **101** may highlight the 'S' soft button or otherwise indicate the 'S' soft button is selected. The user, having received confirmation that the letter 'S' is selected, may then confirm the input by tapping on the planar input device **203**. Upon receiving the confirmation, the letter 'S' is input and may be displayed in input box **405**. It should be appreciated by one of skill in the art that other forms of confirmation may alternatively be used. For example, when one or more linear input devices are mounted on a raised mound, the confirmation may consist of the user pressing the linear input device such that the raised mound yields, or "pops," inward. In another embodiment, the soft button might not be selected until the user taps one of the two linear input devices. Using confirmation input provides tactile feedback to the user that she has successfully selected a soft button, and also allows the user to confirm that the correct soft button will be selected before committing to the input decision.

[0033] With reference to FIG. 5, as previously discussed above, portable device **101** may comprise a mobile telephone. FIG. 5 illustrates soft buttons **501** for providing common mobile telephone functions. That is, linear input devices **105**, **107**, and **109** may be used by a user to input a telephone number **507** in virtual display window **503**. Virtual display window **503** may be any portion of display screen **103** that is used in place of a conventional mobile telephone display. Telephone number **507** may be input by a user as discussed above. In one embodiment of the invention, when a mobile telephone call is in progress, planar input device **203** (not shown) is deactivated because the user may accidentally touch planar input device with her cheek while listening to speaker **205** and speaking into microphone **207**.

[0034] In some embodiments, such as that shown in FIG. 5, one or more soft buttons may require only the use of a single linear input device. That is, soft buttons **509-517** may be selected by activating linear input device **107** at a corresponding position. For example, a user may select the SEND button by pressing linear input device **107** at location **505**, without requiring any input from either linear input device **105** or linear input device **109**. In this manner, important phone functions may be performed with a single hand. It should be obvious to one of skill in the art, however, that portable device **101** may be configured in endless variations for providing input using any variety and combination of soft buttons.

[0035] FIG. 6 illustrates a schematic diagram of portable device **101** according to an embodiment of the invention. In addition to linear input devices **105**, **107**, and **109**, planar input device **203**, speaker **205**, and microphone **207**, portable device **101** may include a processor **603**, memory **605**, display circuit **607**, zoom circuit **609**, crosshair circuit **611**, pan circuit **613**, audio circuit **615**, and transceiver **617**. Memory **605** may consist of RAM, ROM, a hard disk, or any other computer readable medium or combination thereof, and may be used for storing operating system information,