finger from left to right before pressing a button that button may have a different functionality compared to a user moving his/her finger from right to left before pressing that same button or simply pressing the button (i.e. the base functionality).

[0019] Additionally, or alternatively, gestures may alter the functionality of a button. For example if a user made a pinching gesture with his/her fingers and/or thumbs then the functionality of a button may be modified.

[0020] Further, the number of fingers that a user uses on the HID may affect the functionality of a button.

[0021] The HID may comprise a cover layer which may have a contoured surface arranged to provide tactile surface for a user moving across that surface. The contoured surface may comprise a plurality of raised portions.

[0022] Conveniently, the raised portions substantially correspond to the location of a dome.

[0023] According to a second aspect of the invention there is provided a method of providing an input to a electronic device comprising providing the device with both a capacitive sensing layer and a plurality of user activatable domes each arranged to provide a button where the functionality of the buttons is modified according to a users input to the device as sensed by the capacitive sensing layer.

[0024] Such a method is believed advantageous as it provides the flexibility of a capacitive sensing layer which can for instance be used to control a GUI with the positive affirmation that a user has made an input to the device.

[0025] The GUI may or may not be provided as part of the electronic device that is being controlled. For example, the GUI could be provided by a screen to which the electronic device is attached.

[0026] Elements of any one of the above aspects of the invention may be applied mutatis mutandis to any other aspect of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] There now follows by way of example only a detailed description of an embodiment the present invention with reference to the accompanying drawings in which:

[0028] FIG. **1** shows a cross-section through a human interface device according to an embodiment of the invention;

[0029] FIG. **2** shows a pattern of tracks as they appear on a circuit layer of the embodiment of FIG. **1**;

[0030] FIG. **3** shows an example of a cell phone incorporating a Human Interface Device (HID); and

[0031] FIGS. **4** and **5** show possible examples of the sub-layers within a display layer of the HID.

DETAILED DESCRIPTION OF THE DRAWINGS

[0032] For the sake of brevity and clarity, it is convenient to describe the Human Interface Device (HID) in relation to a cell (i.e. a mobile) telephone. However, the skilled person will appreciate that such a human-interface device has much wider applicability and can be used on a wide range of electronic devices such as watches, PDA's, netbook computers, notebook computers, remote controls, or the like.

[0033] FIG. **1** shows a plurality of layers that will not be explained in detail.

[0034] The top most layer **100** is a key cap layer can may incorporate decals or other graphics. However, other embodiments, may be absent any such decals/graphics. Typically, the key cap layer comprises raised portions **102**, **104** which are arranged to provide a user of the device with feedback as to the location of his/her digit (i.e. a finger or thumb) on the device. However, again, other embodiments of the device need not comprise such raised portions. Typically, the key-cap layer is fabricated from a plastics material which may be in particular Polyethlene Terephthalate (PET) or the like.

[0035] Beneath the key cap layer **100** is provided a capacitive sensing layer **106** which in this embodiment comprise two sub-layers **108**, **110**. Each of the sub-layers comprises a plurality of conductors each parallel to one another. The direction of the conductors in each sub-layer lie substantially orthogonal to one another in order that the combination of the two sub-layers provides a grid of intersecting points. The two sub layers are spaced apart from one another so that there is no direct electrical contact between the conductors in one sub-layer (e.g. **108**) to the other (e.g. **110**). However, a capacitance does exit between the sub-layers which is modified by a user touching the HID. Thereby, in a know manner, control circuitry **212** connected to the capacitive sensing layer **106** can determine that a user has touched the screen by detecting the change in capacitance and also the location of the touch by determining which of the pairs of conductors from the sub-layers (**108**, **110**) are associated with this capacitance change.

[0036] The capacitive sensing layer **106** will generally provide the co-ordinate (typically as an XY position) of where the user touches the HID. Some embodiments of the invention provide more than one coordinate as to where a user touches the HID. For example, if a user were to touch the HID in two places (e.g. with two fingers/thumbs) then two coordinates may be returned. Likewise, three coordinates may be returned for three fingers/thumbs and four coordinates may be returned for four fingers/thumbs. The control circuitry **212** may also provide data as to movement of a digit on the HID.

[0037] The capacitive sensing layer **106** is provided as the top most layer in which there are electrical conductors are provided in order that the electrical field can be influenced by a user.

[0038] The next layer **112** comprises a display layer, which itself may comprise a number of sub-layers. Indeed, the display layer **112** is an optional layer and need not be provided in some embodiments.

[0039] The display layer **112** may allow information to be presented to a user of the HID **300** or alternatively, it may provide a backlight or a combination of the two. In some embodiments, the display layer may comprise a display as described in PCT/GB2005/002298 in the name of Pelikon Ltd. This teaching is incorporated herein by reference.

[0040] Possible sub-layers of the display layer **106** are shown in FIGS. **4** and **5**. From front to back (i.e. bottom to top in the drawing):

- **[0041]** a relatively thick protective electrically-insulating transparent front layer (**11**; the substrate (this may be omitted if the display is incorporated into a HID);
- **[0042]** over the rear face of the substrate **11**, a relatively thin transparent electrically-conductive film (**12**) forming the front electrode of the display;
- **[0043]** covering the rear face of the front electrode **12**, a relatively thin layer (**13**) of LC material (**14**) physically-stabilised by being dispersed within a supporting matrix (**15**);
- **[0044]** formed directly on, and covering the rear face of, the liquid crystal layer **13**, a relatively thin layer (**16**) of electroluminescent/phosphor material (**17**) dispersed within a supporting matrix (**18**);