in **FIG. 2**, the keypad functions as a "QWERTY" (or text) keypad typical of the conventional keyboard layouts of computers and typewriters. In preferred embodiments of the present invention, the keypad layout is changed "on the fly" between such configurations as a numeric keypad and a QWERTY keypad as the flip cover **104** is switched between the portrait configuration and the landscape configuration.

[**0025**] **FIGS. 1 and 2** also indicate as dashed lines the positions of various magnets and Hall-effect switches disposed about the device **100** in this embodiment. Specifically, **FIGS. 1 and 2** indicate the positions of a portrait magnet **302**, landscape magnet **304**, portrait Hall-effect switch **306**, and landscape Hall-effect switch **308** (all of which are shown in greater detail in **FIGS. 3 through 5**). In the exemplary embodiment shown in **FIGS. 1 and 2**, the Hall-effect switches are disposed in the main body **102** (e.g., on one or more circuit boards) and the magnets are disposed in the flip cover **104**. As discussed in greater detail below, these magnets and Hall-effect switches are used to detect whether the flip cover **104** is in the portrait configuration, the landscape configuration, or the closed configuration.

[**0026**] **FIGS. 3 through 5** illustrate an underside view of a circuit board **300** located inside the main body **102** in accordance with a preferred embodiment of the present invention. **FIGS. 3 through 5** also illustrates the position of the flip cover **104** (shown by dashed lines) in relation to the circuit board **300**. **FIG. 3** illustrates the flip cover **104** opened in the portrait configuration. **FIG. 4** illustrates the flip cover **104** opened in the landscape configuration. **FIG. 5** illustrates the flip cover **104** in the closed configuration.

[**0027**] **FIGS. 3 through 5** show the portrait magnet **302**, landscape magnet **304**, portrait Hall-effect switch **306**, and landscape Hall-effect switch **308** in the preferred embodiment illustrated. In the preferred embodiment, also disposed on the circuit board **300** are two processors: a main processor such as an ARM controller, and a multimedia core processor such as a DSP processor (e.g., the TI HELEN processor available from Texas Instruments of Dallas, Tex.). The portrait magnet **302** and landscape magnet **304** are disposed within the flip cover **104**, and the portrait Hall-effect switch **306** and landscape Hall-effect switch **308** are disposed on the circuit board **300**. **FIGS. 3 through 5** also illustrate the magnetic field **310** of the portrait magnet and the magnetic field **312** of the landscape magnet in the form of magnetic flux lines which radiate from the portrait magnet **302** and landscape magnet **304**, respectively.

[**0028**] The use of Hall-effect switches for sensing magnet fields is well known. Briefly, a Hall-effect switch is in either an open or closed state depending on whether or not there is a magnetic field in the vicinity. When a Hall-effect switch is in contact with a magnetic field that is above a certain threshold level, the Hall-effect switch is "activated" (also referred to as "triggered", "turned on", or "closed") and the Hall-effect switch outputs a first signal. When the Hall-effect switch is not in contact with a magnetic field above the threshold level, the Hall-effect switch is "inactivated" (also referred to as "turned off" or "open"), and a second signal is output from the Hall-effect effect switch. Thus, the output of a Hall-effect switch can be used to determine the presence or absence of a local magnet.

[**0029**] In preferred embodiments, the device **100** has at least three physical configurations, referred to as the portrait, landscape, and closed configurations. The device **100** is switched between these three configurations by repositioning the flip cover **104** to the portrait, landscape, or closed configuration. In the illustrated embodiment, these alternative positions of the flip cover **104** activate different modes of operation of the device **100** by triggering a different combination of Hall-effect switches (or not triggering any Hall-effect switches) in each physical configuration. A different combination of Hall-effect switches is triggered (or not triggered) in each configuration because the Hall-effect switches and magnets are disposed about the device **100** such that changing the position of the flip cover **104** in relation to the main body **102** (i.e., switching between different physical configurations) changes the distance between one or more Hall-effect switches and the corresponding magnets, so as to bring a different combination of Hall-effect switches into (or out of) contact with a magnetic field in each configuration.

[**0030**] In the preferred embodiment of the present invention illustrated in **FIG. 3**, when the flip cover **104** is opened in the portrait configuration, no magnetic fields from any of the magnets contact any of the corresponding Hall-effect switches. Thus, magnetic field **310** does not contact the corresponding portrait Hall-effect switch **306**, and magnetic field **312** does not contact the corresponding landscape Hall-effect switch **308**. As illustrated in **FIG. 4**, when the flip cover **104** is opened in the landscape configuration, only magnetic field **312** contacts the corresponding landscape Hall-effect switch **308**; magnetic field **310** does not contact the corresponding portrait Hall-effect switch **306**. As illustrated in **FIG. 5**, when the flip cover **104** is in the closed configuration, magnetic fields from both of the magnets contact both of the corresponding Hall-effect switches. Thus, magnetic field **310** contacts the corresponding portrait Hall-effect switch **306**, and magnetic field **312** contacts the corresponding landscape Hall-effect switch **308**.

[**0031**] Thus, the magnets and Hall-effect switches are disposed about the device **100** such that different combinations of Hall-effects switches are activated (or inactivated) depending on whether the flip cover **104** is positioned in the portrait, landscape, or closed configuration with respect to the main body **102**. This enables the physical configuration of the device **100** to be detected, and this information regarding the physical configuration state enables the mode of operation of the device **100** to be adjusted "on the fly" (such as by the exemplary process described below with respect to **FIG. 6**). For example, adjusting the mode of operation of the device **100** can include any or all of the following: changing the operating mode of the inputs **106** (e.g., switching between numeric and QWERTY keypad layouts), changing the display **108** (e.g., switching between portrait and landscape display formats or views), changing the active software application (e.g., changing the operating system and/or switching between a phone application in the portrait mode, and a text (non-phone) application in the landscape mode), and changing drivers (e.g., changing keypad drivers in order to change the functional characters on the keypad).

[**0032**] By adjusting the mode of operation when the physical configuration is changed, the device **100** can provide the capabilities of multiple different types of portable electronic devices in a single unit. For example, in preferred embodiments, in the portrait configuration, the device **100**