

(PDA), an electronic organizer, a computer, a portable media player such as an MP3 player or an iPod™, etc. Reference will however be to a mobile telephone below, which is only for illustrative purpose and should not be considered as limiting to the embodiments of the invention set forth herein.

**[0079]** The mobile telephone **40** comprises an input device **1**. The input device is, but is not limited to, a rocker key device **1**, which also may be a select button or a flexible sheet to be pressed as a key pad or stroked/tapped as a touch pad (see FIG. **15**), mounted on the mobile telephone and operatively connected to electronic circuits therein. The rocker key device **1** comprises a rocker key **2** and a select button **3** for selection or activation of different functions or applications of the mobile telephone **40**. The input device **1** is, however, not limited by the select button **3**, but can in some embodiments operate without it, or, as explained above, operate only as a select button. Further, the mobile telephone **40** comprises, but is not limited to, additional details intended for the normal operation of a mobile telephone. As is illustrated in FIG. **4**, in this embodiment the mobile telephone **40** comprises a display **8**, a microphone **9**, a keypad **10**, which also may be replaced by the present invention, with one or more keys or as a flexible sheet mounted taut, a speaker **11**, an integrated antenna (not shown), a radio transceiver (not shown) etc., all of which are operatively connected to electronic circuits in the mobile telephone **40**. All these additional details are not necessary for the operation of the various embodiments of the invention, but are provided for illustration purposes of details of a mobile telephone, in which embodiments of the invention may advantageously be used.

**[0080]** Embodiments of the present invention may be implemented into a wide variety of input devices **1**, e.g., into prior art arrangements such as those illustrated in FIGS. **1A-B**, **2A-B**, **3A** and **3B**, and as a separate component, e.g. a wirelessly coupled/communicating device, which may be operatively connected to prior art input devices to be complementary to these. However, as a best mode of the invention presently known, embodiments of the invention may be implemented into the arrangements illustrated in FIGS. **5-17D**.

**[0081]** Each input device **1** illustrated in FIGS. **5A-17D** will now be described in further detail. The input device **1** comprises a lower surface **41** which is adapted to be attached to the support structure **5**, e.g. a printed circuit board (PCB) or the like in a known way, and an upper surface **43**. The lower surface may e.g. be flat. Furthermore, the input device **1** comprises an actuator surface **42** adapted to come in contact with the upper surface **43** and to come in contact with the switch device **4** comprising at least one press detection pad **400-40n**. The actuator surface **42** faces the upper and the lower surface **41** and **43**, as is illustrated in FIGS. **5A**, **5B**, **7-8**, **10-11**, **13**, **15**, and **17A-17D**. The lower pad surface **41** according to embodiments of the invention preferably includes a plurality of press detection pads **400-40n**, i.e. each pad surface **41** comprises a number of small press detection pads **400-40n**, i.e. from a relatively small number of pads as shown in FIG. **6A-D** to a large number of pads in FIGS. **6**, **7-8**, **16**, i.e. at least two or more pads **400-40n** on each pad surface **41**.

**[0082]** As is illustrated in FIG. **6**, the multiple press detection pads may be provided on the area of the lower surface **41**, which area is defined with a dotted line in a square shape as shown in FIGS. **6-6C**, **12**, **14**, and **16** or a rounded shape as shown in FIGS. **7** and **8**, this shape being irrelevant for the

invention. In the embodiment shown in FIG. **6**, there are 49 press detection pads **400-448**. However, it should be appreciated that the exact number of press detection pads, more or less than 49 pads, can be varied in dependence of the purpose of the switch dome device and must hence be tested and evaluated in each specific case. The plurality of press detection pads **400-40n** may be evenly distributed in a pattern, e.g. in a matrix pattern as illustrated in FIGS. **6**, **7**, and **16** or other shapes as shown in FIGS. **6A-C**, throughout the lower surface **41** of the input device **1**. In the embodiment of FIG. **6A**, the plurality of press detection pads **400-412**, i.e. thirteen pads, are arranged in columns and rows (**7**×**7**). In FIG. **7**, the columns and rows of press detection pads may comprise different number of press detection pads **400-40n**, e.g. more than two pads in each row and column. The invention is however not limited to the given positions of the press detection pads, but other configurations could also be possible within the scope of the invention. For example, in an alternative embodiment schematically illustrated in FIG. **7**, the columns may comprise different number of press detection pads **400-40n** (shown with square shapes) and, hence, also the rows may comprise different number of press detection pads, in this case 9 rows and 12 columns with a different number of pads except for the three middle rows and the four middle columns. Moreover, the pad pattern may be star shaped as shown in FIGS. **6B** and **8**, randomly shaped (not shown), circular as in FIG. **6C**, square as in FIG. **6**, i.e. quadratic or rectangular, triangular or the shapes may be combinations of different patterns, such as rhombic or other shapes, e.g. angular, figures, numerals, or letters. One or each of the press detection pads **400-40n** may be split in four portions as shown in FIG. **6D**, whereby this shape may give a reliable function for a joy stick in that each quarter and any suitable combination of these quarters when contacted by the actuator surface **6**, **42** corresponds to one or more desired signals for input of information in the electronic device **40**.

**[0083]** Each press detection pad of the plurality of press detection pads **400-40n** is configured to output a signal upon depression of the press detection pad. Thus, upon depression of the input device **1**, e.g. by means of the key **2** with its actuator boss **6**, one or more press detection pads of said plurality of press detection pads are de-pressed simultaneously. Thus, when a user applies a force to the input device **1** by depressing the rocker key **2**, the select button **3** or the key pad sheet having the combined function of a touch pad, the rocker key **2**, and the select button **3** (see FIG. **15**), one or more press detection pads **400-40n** will be actuated, i.e. contacted and short-circuited simultaneously. Accordingly, all press detection pads that are actuated by the applied force will output a respective signal upon depression of the input device **1**. Hence, contrary to a prior art switches which output only one single signal when the switch dome collapses after the input device is actuated or pressed, stroked or tapped, the press detection pads **400-40n** of the switch **4** according to the embodiments of the present invention are operable to output multiple signals in response to how many press detection pads **400-40n** that are contacted achieving an effect similar to an analogue signal, even though each separate detection pad is a digital device. This has the advantage that the reliability of an input device can be improved. This is because it is unlikely that all press detection pads **400-40n** get damaged simultaneously or stop to function properly at the same time. So, if the input device **1** according to the invention for any reason would be effectuated by any external influence that could