

[0010] In one embodiment, the number of contacted press detection switches, upon depression of the soft conductive input actuator when in use, is indicative of the pressure against the soft conductive input actuator.

[0011] In one embodiment, the press detection switch, which is contacted upon depression of the soft conductive input actuator when in use, is indicative of where on the soft conductive input actuator the pressure is applied.

[0012] In one embodiment, the plurality of press detection switches is evenly distributed in a matrix pattern throughout the upper surface of the switch pad.

[0013] In one embodiment, the matrix pattern comprises at least one column with a plurality of press detection switches and/or at least one row with a plurality of press detection switches, wherein the column and/or the row of press detection switches comprises different number of press detection switches.

[0014] In one embodiment, the plurality of press detection switches is distributed in a circular pattern on the upper surface of the switch pad.

[0015] In one embodiment, the soft conductive input actuator is made of a deformable material, which, in another embodiment, is conductive.

[0016] In one embodiment, the soft conductive input actuator has a touch surface and a contact surface facing the switch pad, which contact surface is configured to come in contact with the switch pad when the touch surface of the actuator is pressed towards the switch pad such that a signal is output from the switch device.

[0017] In one embodiment, the contact surface has a varying shape, and in another embodiment, the contact surface has an even shape.

[0018] In one embodiment, the contact surface has a conical or frustoconical shape, and, in another embodiment, a rounded shape.

[0019] In one embodiment, the contact surface is deformable.

[0020] In one embodiment, the soft conductive input actuator is a thin sheet, and in another embodiment, the soft conductive input actuator has an elongated shape.

[0021] In one embodiment, the soft conductive input actuator is hollow, and in another embodiment the soft conductive input actuator has a substantially constant thickness.

[0022] Another aspect of the present invention relates to a switch device for operating functions in an electronic device, comprising at least one switch pad mounted on a support structure, wherein the switch pad comprises a plurality of press detection switches, wherein each press detection switch of the plurality of press detection switches is configured to output a signal upon depression of the press detection switch.

[0023] In one embodiment, each switch pad comprises: a lower surface attached to the support structure, and an upper surface, wherein the plurality of press detection switches are provided on the upper surface.

[0024] In one embodiment, at least one press detection switch of the plurality of press detection switches is contacted simultaneously upon depression of the switch pad.

[0025] In one embodiment, the number of depressed press detection switches, upon depression of the switch pad when in use, is indicative of the pressure against the switch pad.

[0026] In one embodiment, the press detection switch, which is contacted upon depression of the switch pad when in use, is indicative of where on the switch pad the pressure is applied.

[0027] In one embodiment, each switch pad comprises a plurality of press detection switches and the plurality of press detection switches are evenly distributed in a matrix pattern mounted on the upper surface.

[0028] In one embodiment, the matrix pattern comprising at least one column with a plurality of press detection switches and/or at least one row with a plurality of press detection switches, wherein the column and/or the row of press detection switches comprises different number of press detection switches.

[0029] Yet another aspect of the present invention relates to an input actuator for operating functions in an electronic device, comprising: a soft conductive actuator, which is configured to actuate a switch device by coming into contact with the switch device upon depression of the soft conductive actuator such that a signal is output from the switch device.

[0030] In one embodiment, the soft conductive actuator is made of a deformable material, which, in another embodiment, is conductive.

[0031] In one embodiment, the soft conductive actuator has a touch surface and a contact surface facing the switch device, which contact surface is configured to come in contact with the switch device when the touch surface of the actuator is pressed towards the switch device.

[0032] In one embodiment, the contact surface has a varying shape, and, in another embodiment, the contact surface has an even shape. In yet another embodiment, the contact surface has a conical or frustoconical shape, and, in another embodiment, the contact surface has a rounded shape.

[0033] In one embodiment, the contact surface is deformable.

[0034] In one embodiment, the soft conductive input actuator is a thin sheet, while, in another embodiment, the soft conductive input actuator has an elongated shape, and, in yet another embodiment, the soft conductive input actuator is hollow.

[0035] In one embodiment, the sheet has a substantially constant thickness.

[0036] Still another aspect of the present invention relates to an electronic device comprising an input device for operating functions in the electronic device, the input device comprising a switch device comprising at least one switch pad mounted on a support structure; and an input actuator for actuating the switch device, wherein each switch pad comprises a plurality of press detection switches, wherein each press detection switch of the plurality of press detection switches is configured to output a signal upon depression of the switch pad by means of the input actuator.

[0037] In one embodiment, each switch pad comprises a lower surface attached to the support structure, and an upper surface, wherein the plurality of press detection switches are provided on the upper surface.

[0038] In one embodiment, at least one press detection switch of the plurality of press detection switches is depressible simultaneously upon depression of the switch pad.

[0039] In one embodiment, the number of contacted press detection switches, upon depression of the switch pad when in use, is indicative of the pressure against the switch pad.

[0040] In one embodiment, the press detection switch, which is contacted upon depression of the switch pad when in use, is indicative of where on the switch pad the pressure is applied.