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A handwritten signature in black ink that reads 'Hugh Oechler'.

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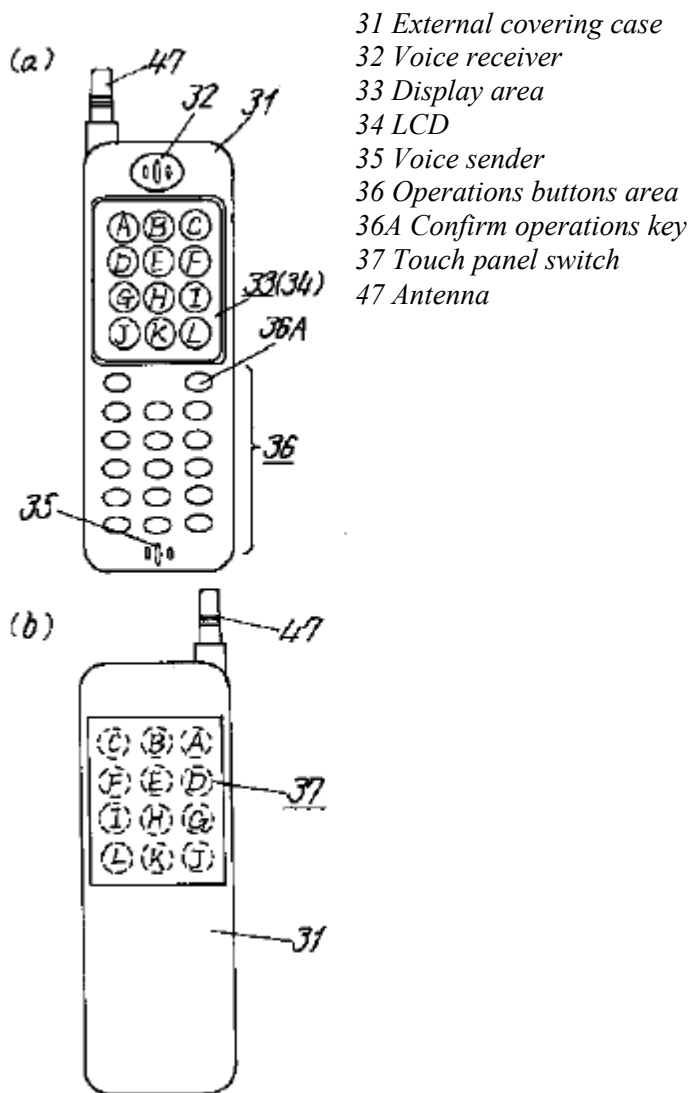
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(54) [Name of Invention] Electronic Device

(57) [Summary]

[Issue] For an electronic device such a mobile phone, etc., that are equipped with display areas and input switches capable of inputting desired selection items, set an objective to provide a device with good visibility in display areas, and with superior operability that enables quick selection of desired items.

[Resolution Method] Obtain an electronic device where a touch panel switch 37 is positioned on the back surface of the display area 33 on the front surface of the electronic device, and since it is configured to enable selection of desired items based on push pressure operation of the requisite position on the touch panel switch 37 corresponding to the desired item among selection items displayed in the display area 33, there is good display visibility even when there is a large number of selection items, because the display is not hidden by fingers during selection, and the display surface also is resistant to dirtiness, and superior operability that enables quick selection of desired items.



- 31 External covering case
- 32 Voice receiver
- 33 Display area
- 34 LCD
- 35 Voice sender
- 36 Operations buttons area
- 36A Confirm operations key
- 37 Touch panel switch
- 47 Antenna

[Scope of Patent Claims]

[Claim 1] An electronic device equipped with a front surface display area displaying multiple selection items, and a planar input operation area, and an electronic device with the above-mentioned input operation area positioned on the back surface of the above-mentioned display area so that operation can be performed while holding in at least one hand and viewing the above-mentioned display area.

[Claim 2] The electronic device listed in Claim 1 with the operation position of the input operation area arrayed in correspondence to the positions of multiple selection items displayed in the display area.

[Claim 3] The electronic device listed in Claim 2 with a convex area established in each operations position of the input operation area, in correspondence to the positions of multiple selection items displayed in the display area.

[Claim 4] The electronic device listed in Claim 2, where the display area on the front surface, and the input operation area on the back surface, are generally the same size, with the multiple selection items displayed in the above-mentioned display area, and each operations position of the above-mentioned input operation area corresponding to these, being installed in approximately opposing positions on the front and back of the device.

[Claim 5] The electronic device listed in Claim 2, where the input operation area on the back surface is larger than the display area on the front surface, with the multiple selection items displayed in the above-mentioned display area, and each operations position of the above-mentioned input operation area corresponding to these, being arrayed in corresponding positions on the front and back of the device.

[Claim 6] The electronic device listed in Claim 2 equipped with a method enabling each selection item in the display area to be identified as selected by operation of the input operation area.

[Claim 7] The electronic device listed in Claim 6 set so that pressing the push-pressure switch, established at each operation position in the input operation area, two times within the requisite time, or push-pressing longer than the requisite time, selects and confirms the selection item in the display area corresponding to that operation position.

[Claim 8] The electronic device listed in Claim 6, where a push-pressure switch for confirming each selection item selected by operation of the input operation area is established on the side surface of the device held in one hand.

[Claim 9] The electronic device listed in Claim 2, where tracing a fingertip in the desired direction on the planar input operation area selects or moves the display area selection item in accordance with the vector component obtained from the input change versus the multiple operation positions that were traced.

[Claim 10] The electronic device listed in Claim 2, where the upper side part that includes the front surface display area and back surface input operation area, and the lower side part that includes other function areas, are coupled so that they can fold in half.

[Claim 11] The electronic device listed in Claim 10, where the upper side part that includes the front surface display area and back surface input operation area, and the lower side part that includes other function areas, can be held at an angle position of angular opening 150° to 170°.

[Detailed Description of the Invention]

[0001]

[Technology Field Where Invention Resides] This invention is in relation to electronic devices, mainly mobile phones, video cameras, and audio devices, etc., that are equipped with display areas and input switches that enable input of the desired selection items.

[0002]

[Prior Technology] The drawings shall be used to describe the mobile phone, as an example of this type of electronic device in the past.

[0003] Fig.13 is a front surface drawing of previous mobile phones, and in this drawing, 1 was the external cover case, or chassis, with the front surface being the operations surface.

[0004] In the upper part of this operation surface, a voice receiver 2 with a built-in speaker was configured, and in the position below that, a display area 3, or display method, was configured from an LCD 4.

[0005] Meanwhile, in the lower part of this operation surface, a voice sender 5 with a mike placed for use in sending was configured, and in the position above that, an operation buttons area 6 consisting of alphanumeric keys, etc., was placed, with one in this operation buttons area 6 being a confirm operations key 6A for confirming the various types of operations.

[0006] In addition, as shown in the Fig.14 main part cross-section diagram, in the LCD 4 composing the display area 3, and overlaying it, was positioned a transparent touch panel switch 7 enabling push-pressure operation with fingertips, etc.

[0007] Also, on the upper edge of this external cover case 1, an antenna 8 was attached so that it can extend and retract, as well as housed, in relation to the external cover case 1, and within the external cover case 1 was contained an electrical circuit for controlling the input and output information between the above-mentioned LCD 4, operation buttons area 6, transparent touch panel switch 7, and antenna 8, etc., and the configuration of the mobile phone including this electrical circuit was as expressed in the block diagram showing the circuit configuration in Fig.15, and this drawing will be used for the description below.

[0008] In Fig.15, 9 was the CPU performing various arithmetic processes and judgments, etc., and the above-mentioned LCD 4, operation buttons area 6, transparent touch panel switch 7, and antenna 8, were connected to the CPU 9 either directly or by way of a requisite circuit, and controlled.

[0009] In other words, the LCD 4, was connected to the above-mentioned CPU 9 by way of an LCD driver 10, and the transparent touch panel switch 7 by way of a transparent touch panel switch driver 11, and controlled.

[0010] In addition, the signal from the above-mentioned operation buttons area 6 was formed so that the signal was directly input to the CPU 9 and processed.

[0011] Furthermore, the antenna 8 was connected to the CPU 9 by way of a send and receive signal circuit 12, and controlled.

[0012] In addition, to this CPU 9 was connected a ROM 13 in which requisite information was registered beforehand, and a RAM 14 where telephone number lists and other information could be registered or deleted as needed.

[0013] Next is a description, using this same drawing, of the mobile phone operations in the above-mentioned configuration.

[0014] This mobile phone, when in the initial state when receive and send had not been performed, as shown in the drawing describing the display screen in Fig.16, had in the display area 3 an initial menu 15 configured from multiple items by the LCD 4, and a cursor 16 for revealing which among the displayed items were items that had been currently selected.

[0015] Also, to perform the requisite operations such as when calling the mobile phone, etc., first the operator, to switch the above-mentioned display screen from the initial state to a screen where the desired operations could be performed, performed push-pressure operation by fingertip of the displayed requisite part, and a signal was input from the transparent touch panel switch 7, moving the cursor 16 position displayed in the display area 3 and aligning it with the desired item, after which the confirm operations key 6A was push-pressure operated, and a signal confirming selection of the item was sent to the CPU 9.

[0016] If the CPU 9 recognized the confirmation signal, the item selected by the cursor 16 in the display area 3 was identified, and a screen, etc., corresponding to it was called up from the ROM 13 or RAM 14, and this was transmitted by way of the LCD driver 10 to the LCD 4, to switch to the desired display content.

[0017] To describe the above-mentioned content in even more detail, if searching for previously memorized telephone numbers to call, the operator, to switch from among the items in the above-mentioned initial menu 15 to a display corresponding to the "telephone No. call-up" item, could push-pressure a fingertip on the "telephone No. call-up" item, and input a signal from the transparent touch panel switch 7, followed by push-pressure of the confirm operation key 6A.

[0018] With this operation, the CPU 9 could extract the previously registered telephone number list information from the RAM 14 or ROM 13, and transmit the information to the LCD 4 by way of the LCD driver 10, switching the LCD 4 display to a display where the telephone number list and its search is enabled.

[0019] Next, the operator could push-pressure a fingertip on the desired telephone number, in the same way as above, and then afterward press the confirm operation key 6A to select and confirm the desired telephone number.

[0020] If the desired telephone number is confirmed in this way in the CPU 9, the CPU 9 could perform the requisite process to send a send signal by way of the send and receive circuit area 12 and antenna 8, in regards to the above-mentioned selected and confirmed telephone number.

[0021] Note that, at the same time as the above, the CPU 9 was configured to perform the requisite control so that, even for the voice receiver 2 and voice sender 5 not shown in Fig.15, send and receive of voice and other input and output signals could be performed by way of the send and receive circuit area 12 and antenna 8.

[0022]

[Issues To Be Resolved by the Invention] However, in the above-mentioned conventional mobile phones, there were such issues as, when the fingertip came into contact on the display area 3 when selecting the

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