

INPUTTING METHOD AND INPUT DEVICE

[0001] This application claims the benefit of priority to Japanese Patent Application Nos. 2003-167958, 2004-105861 and 2004-170144, herein incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to an inputting method and an input device suitable to perform an input operation surely by pressing of an operator.

[0004] 2. Description of the Related Art

[0005] A flat input device is used as an input device for electric devices such as a mobile phone and a personal digital assistant (PDA).

[0006] As an example of such an input device, there is given a flat input device including a capacitance sensor or a pressure sensor and capable of coordinate input. In the input device including a capacitance sensor or a pressure sensor (hereinafter referred to simply as "sensor"), input of a numerical value or a symbol is achieved with just a single touch of the sensor. Therefore, an operator has no sensation of performing an input operation and unintended inputting errors tend to occur.

[0007] To solve this problem, an input device is disclosed. The input device has a switch in addition to a sensor. The switch is disposed behind the sensor. The switch responds to a pressing operation of an operator by reaction force. The input device thus makes the operator realize that an input operation is performed, thereby preventing inputting errors. The input device is disclosed in, for example, Japanese Unexamined Patent Application Publication No. 2002-123363.

[0008] Although the known input device can make an operator realize that an input operation is performed, it has a problem in which what is input is not known until the operator looks at a display displaying the input result (confirmed input) as data (output of the input device).

[0009] That is to say, the known input device has a problem in which it is impossible to know whether the input operation is correct or not before looking at the displayed data and therefore an inputting error can occur. The inputting error is that the region actually pressed is different from the intended region, for example, that an adjacent region is pressed by mistake. The smaller the operating portion is, the more often such an inputting error occurs. In the case where such an inputting error occurs, it is necessary to perform a corrective input operation, that is to say, to delete the input data and then to input it again. This is less user-friendly.

[0010] Therefore, an inputting method and an input device with which an operator can perform a correct input operation surely and easily and which are user-friendly are needed.

SUMMARY OF THE INVENTION

[0011] Embodiments of the present invention provide an inputting method and an input device with which an operator can perform a correct input operation surely and easily.

[0012] According to one aspect of the present invention, there is provided an inputting method to input data with a flat

input unit including a capacitance sensor or a pressure sensor and capable of coordinate input and to display the input data with a display unit. The inputting method includes the steps of giving an operator feedback by provisionally displaying input data obtained from a first input operation, and confirming the input by a second input operation. Since the operator can know the unconfirmed input data in advance by the provisional display, inputting errors are prevented surely and easily.

[0013] According to another aspect of the present invention, there is provided an input device including a flat first input unit including a capacitance sensor or a pressure sensor and capable of coordinate input, at least one second input unit disposed behind the first input unit and switchable by pressing force when the first input unit is pressed, and a control unit controlling each unit in the input device. The input device further includes a display unit having a display portion displaying data, the display unit being integrated with or separated from the control unit. The control unit allows the display unit to provisionally display input data obtained from a touch operation of the first input unit, and confirms the input by an operation of the second input unit. Since an operator is given feedback by provisionally displaying input data obtained from a first input operation of the first input unit and then the input is confirmed by a second input operation of the second input unit, the operator can know the unconfirmed input data in advance by the provisional display. Therefore, inputting errors are prevented surely and easily.

[0014] It is preferable that the first input unit include an input key on the surface thereof. In addition, it is preferable that the at least one second input unit include one second input unit, and the second input unit confirm the coordinate input through the first input unit.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. 1 is a schematic perspective view showing the main part of a first embodiment of an input device to which an inputting method of the present invention is applied;

[0016] FIG. 2 is a schematic enlarged exploded perspective view of the main part of an input unit of the input device of FIG. 1;

[0017] FIG. 3 is a schematic enlarged vertical sectional view of the main part of the input unit of the input device of FIG. 1;

[0018] FIG. 4 is an explanatory view showing the ON operation state of a second input switch of the input device of FIG. 1;

[0019] FIG. 5 is a functional block diagram of the input device of FIG. 1;

[0020] FIG. 6 is a flow chart showing an embodiment of an inputting method of the present invention;

[0021] FIG. 7 is an explanatory view of the initial state of an input unit and a display unit in the embodiment of an inputting method of the present invention;

[0022] FIG. 8 is an explanatory view of a first input operation state in the embodiment of an inputting method of the present invention;