

unit 29 and an algorithm that sets the specific sense-of-touch generation mode for every application. As the memory unit 35, an EEPROM, ROM, RAM or the like is used.

[0166] In this embodiment, the CPU 32 executes the display control of the display unit 29, the driving control of the touch-sensitive variable sheet unit 103 and/or the output control of the speaker 36b with actuator function based on the position detection information D1, the press detection information D2 and the flag data D3 which are received from the A/D driver 31.

[0167] For example, the CPU 32 controls the air-circulation unit 3 so as to supply the air to the element bag portions E1 to E25 for presenting the sense of touch of the touch-sensitive variable sheet unit 103 corresponding to the image contents displayed on the display unit 29, so that the element bag portions E1 to E25 are available at predetermined positions of the base member 101 corresponding to the image contents. Also, the CPU 32 controls the piezoelectric unit 315 of the touch-sensitive variable sheet unit 103 and adjusts the amount of air which is supplied to the element bag portions E1 to E25 for representing the sense of touch for every group based on the position detection information D1 and the press detection information D2 which are received from the input detection unit 45, so that the sense of touch which is given to the operator's finger 30a (operation body) is changed.

[0168] Further, the CPU 32 may read the control information Dc out of the memory unit 35, access the storage unit 37 and supply a vibration generation signal Sout2 to the speaker 36b with actuator function. This control may be omitted.

[0169] The CPU 32, further, executes the driving control of the piezoelectric unit 315 and/or the read-out control of the storage unit 37 so as to control the touch-sensitive variable sheet unit 103 and/or the speaker 36b to start up the sense of touch #a when the input detection unit 45 detects the press detection information D2 which exceeds the press judgment threshold Fth and thereafter, so as to control the touch-sensitive variable sheet unit 103 and/or the speaker 36b to start up the sense of touch #b when the input detection unit 45 detects the press detection information D2 which is equal to or less than the press judgment threshold Fth. This control enables to be generated a unique vibration pattern in conformity with the "pressing force" of the operator's finger 30a or the like.

[0170] The CPU 32 is connected to the storage unit 37 of which vibration control data Da is read out based on the control information Dc from the CPU 32. The vibration generation data Da is also outputted to the touch-sensitive variable sheet unit 103 through the CPU 32. The vibration generation data Da has an output waveform composed of a sinusoidal waveform, a saw-tooth wave, pulse wave, a rectangular wave or the like. The storage unit 37 is connected to the image-and-audio-processing unit 44. Respective items of vibration generation data Da are supplied to the image-and-audio-processing unit 44. The items of the vibration generation data Da thereof are audio-processed (digital-analogue conversion, amplification or the like) to become a vibration generation signal Sout2 that is supplied to the speaker 36b with actuator function. It is constituted such that the speaker 36b is vibrated based on the vibration generation signal Sout2.

[0171] In this embodiment, the storage unit 37 stores the press judgment threshold Fth corresponding to each application. For example, the press judgment threshold Fth is stored beforehand in a ROM or the like provided in the memory unit 35 as trigger parameter. The CPU 32 reads press judgment

threshold Fth out of the storage unit 37 and receives the press detection information D2 from the A/D driver 31. The CPU 32 compares the preset press judgment threshold Fth with the pressing force F obtained from the press detection information D2 which is received from the A/D driver 31 and executes the judgment processing of $F_{th} > F$, the judgment processing of $F_{th} \leq F$ or the like.

[0172] For example, when the press judgment threshold $F_{th} = 100$ [gf] is set in the storage unit 37, it is constituted such that the input detection surface vibrates based on the vibration pattern for obtaining a sense of touch like a classic switch. Also, when the press judgment threshold $F_{th} = 20$ [gf] is set, it is constituted such that the input detection surface vibrates based on the vibration pattern for obtaining a sense of touch like a cyber switch.

[0173] The CPU 32 is connected to an image-processing unit 26, other than the storage unit 37, in which the display information D4 for displaying the button icon or the like three-dimensionally is image-processed. The image-processed display information D4 is supplied to the display unit 29. In this embodiment, the CPU 32 display-controls the display unit 29 so as to display the button icon in the display screen three-dimensionally with it having the perspective in the depth direction.

[0174] The input device 300 thus constituted is input-operated on the display screen for input item selection accompanied with the sense of touch by pressing down (contacting) one of the plurality of button icons displayed on the display screen and by pushing-down the input detection unit 45 on the display screen in the Z-direction. The operator 30 feels vibration for every button icon as the sense of touch by receiving vibration at the finger 30a thereof.

[0175] Each function is judged by the sense of sight depending on the eyes of the operator for the display contents of the display unit 29 and by the sense of hearing depending on the ears of the operator for the sound release from the speakers 36a, 36b or the like. To the above-mentioned CPU 32, the display unit 29 and the input detection unit 45 constituting the operation panel 98 are connected and for example, the operation panel 98 is used when a phone number of the partner is inputted manually. The display unit 29 may display a received image based on an image signal Sv other than the above-mentioned icon selection screen.

[0176] Also, the antenna 16 shown in FIG. 20 is connected to the antenna diplexer 23 and receives a radio wave from the partner through a base station thereof or the like when receiving calls. The antenna diplexer 23 is connected to the receiving unit 18 which receives the reception data introduced from the antenna 16, performs demodulation-process on the image and audio or the like and outputs demodulated image and audio data Din to the CPU 32 or the like. The receiving unit 18 is connected through the CPU 32 to the image-and-audio-processing unit 44 which digital-analog-converts digital audio data to output an audio signal Sout or digital-analog-converting digital image data to output an image signal Sv.

[0177] The image-and-audio-processing unit 44 is connected to the speaker 36a for constituting a big sound use and the speaker 36b with actuator function for constituting a receiver. The speaker 36a outputs sounds of a receiving sound, an incoming melody and the like based on a sound signal Sout 1 when receiving calls.

[0178] Also, the speaker 36b constitutes a vibration body and vibrates together with the touch-sensitive variable sheet unit 103 when representing the sense of touch or in a single