

[0026] In this embodiment, the cursor moves among the items in a menu at a rate which depends on the pressure-sensing value output when the controller which has pressure-sensitive devices is operated. Thereby, it is intended to provide a system with a user interface that is improved in comparison to the repeated or continuous turning ON of a simple ON/OFF switch.

[0027] FIG. 1 shows an example of connecting a controller to an entertainment system 500 to enable a user to enjoy game software or video. More specific structure is shown in FIG. 5.

[0028] As shown in FIG. 1, a controller 200 which has buttons (control elements) connected to pressure-sensitive devices is connected to entertainment system 500 used for playing games or enjoying DVD video or other types of video images, and the video output terminals are connected to a television monitor 408. Here, the analog output from the pressure-sensitive devices is converted by an A/D converter to digital values in the range 0-255 and provided to the entertainment system 500.

[0029] With reference to FIGS. 2-4, the case of moving the cursor among menu items by the operation of a pressure-sensitive button of controller 200 will be described. As shown in FIGS. 2A-2B, in order to select one item from a plurality of items H1 through H5 in a menu, the cursor Ca must be moved to select one of the items H1 through H5.

[0030] In the display shown in FIG. 2A, the cursor Ca lies upon item H1, but if it is moved by three items in the direction of the arrow, the cursor Ca will move to lie upon item H4 as in the display shown in FIG. 2B, so that item H4 is selected. For example, in order to select items displayed upon the screen of a personal computer or video game machine, it is necessary to push an ON/OFF switch repeatedly a number of times equal to the number of items the cursor is to cross.

[0031] In this embodiment, the cursor Ca is moved automatically at a rate depending on the magnitude of the pressure-sensing value from the pressure-sensitive controller. It is noted that the same applies to the case wherein there is no cursor Ca. To wit, the same applies if the selected item is put into a display mode so that it can be understood as being selected, for example, if the selected item is highlighted, for example.

[0032] FIG. 3 shows a table used to select the amount of time per unit movement, namely the number of frames Ft, for each of the pressure-sensing values 0-255. Here, a pressure-sensing value of "0" corresponds to a unit-movement number of frames Ft of "0 frames," a pressure-sensing value of "1" corresponds to a unit-movement number of frames Ft of "255 frames," . . . , and a pressure-sensing value of "255" corresponds to a unit-movement number of frames Ft of "1 frame." Note that this pressure-sensing value-movement number of frames conversion table is merely an illustration, so naturally other conversion tables may also be adopted, such as one wherein the unit-movement number of frames decreases as the pressure-sensing value increases, for example.

[0033] Now in reference to FIG. 4, there will be described the method of moving the cursor Ca to select items depending on the pressure-sensing value. The flowchart shown in FIG. 4 illustrates the processing of a program for item selection.

[0034] In FIG. 4, in Step S1, a pressure-sensing value which is the pushing pressure of the user or operator is acquired, and in Step S2 a decision is made as to whether or not the pressure-sensing value is nonzero, and if "YES" then control processing moves to Step S3 where the number of frames data Ft corresponding to the pressure-sensing value is read from the table shown in FIG. 3.

[0035] If a decision of "NO" results in Step S2, then control processing moves to Step S12 where a decision is made as to whether or not the user has confirmed that the currently selected item is to be entered, and if "YES" then control processing moves to Step S10, but if "NO" then control processing moves back to Step S1. The button used for entry may be an ON/OFF switch of the controller 200 or a button connected to the pressure-sensitive device.

[0036] In Step S3, the number of frames data Ft corresponding to the pressure-sensing value is read from the table. In Step S4, the number of frames FN is incremented by 1, and in Step S5, a decision is made as to whether the number of frames FN is greater than the number of frames Ft read from the table, and if "YES" then control processing moves to Step S6, but if "NO" then control processing moves back to Step S4.

[0037] The meaning of the processing of Step S4 is to increment the number of frames FN used for counting up to the number of frames Ft read from the table. The incrementing may be performed once every frame, for example. During this period, the image stored in the video memory of the entertainment system 500 will continue to be displayed. Thus, the same image is displayed for the number of frames corresponding to Ft.

[0038] In Step S6, the number of frames FN is set to 0, and in Step S7 the address pointer AP which indicates the various items within the table is incremented by 1. In Step S8 a cursor image is overwritten to the position in video memory corresponding to the address pointer AP, namely to the position of the corresponding item. The image thus updated is displayed upon the television monitor 408.

[0039] In Step S9, a decision of whether to enter the item or not is made, and if "YES" then control processing moves to Step S10, but if "NO" then control processing moves back to Step S1. The decision of whether to enter the item or not in Step S9 is the same as that in Step S12.

[0040] In Step S11, the address pointer AP is set to 1 and thus initialized for the next item selection.

[0041] As described above, in this embodiment, the selection of items within a menu is performed depending on the pressure-sensing value, so it is possible to improve the user interface compared to selection with a simple ON/OFF switch.

[0042] It should be noted that it is also possible to find the percent change from the previous pressure-sensing value to the current pressure-sense value and display an item depending on this percent change. For example, if the previous pressure-sensing value is 100 and the current pressure-sensing value is 50, then the percent change is 50%, so it is sufficient for the number of frames to be set to twice the previous number of frames.

[0043] In addition, it is possible to use a table opposite the table displayed in FIG. 3, namely a table wherein a large