

the touch position at which the user has pushed the icon 20 in, from the output of the touch sensor, and compares the push-in position with data stored in the storage unit 19 (FIG. 5) to determine whether or not the push-in position falls within the area of the icon 20. When within the area, the control unit 17 displays a image (3) on the display screen 2 for indicating that the user can start moving the icon 20, as illustrated in FIG. 13 (step 206). For indicating that the user can start moving the icon 20, for example, the icon 20 may be increased in size, changed in color, vibrated, and the like.

[0088] Then, the user releases the finger tip 16 from pushing the icon 20 in with the image (3) displayed on the display screen 2, reduces the pushing force P applied by the finger tip 16, and moves the finger tip 16 which is maintained on the icon 20 (in this event, $P_1 \leq P < P_2$, as shown in FIG. 14). In this manner, the user can move (drag) the icon 20 which follows the finger tip 16. As illustrated in FIG. 13, the control unit 17 displays a image (4) on the display screen 2, showing that the icon 20 moves following the finger tip 16 (step 207). For displaying the icon 20 in this event, for example, the icon 20 may be further changed in color, size or the like. In this embodiment, the icon 20 is returned to the original size, and is further changed in color.

[0089] In this manner, the user can continuously drag the icon 20 with the finger tip 16 as long as $P_1 \leq P < P_2$ is satisfied (steps 208, 209). When the user releases the finger tip 16 from the touch panel 9 so that the pushing force P is reduced to smaller than P_1 ($P < P_1$) (step 208), the icon 20 is settled (dropped) at a position (x2, y2) at which the user releases the finger tip 16, thus completing the drag-and-drop operation (step 210).

[0090] Then, the control unit 17 displays a image (5) illustrated in FIG. 13 on the display screen 2, showing that the icon 20 is settled at the position (x2, y2) as originally displayed. Subsequently, the flow returns to step 200.

[0091] As described above, in the second specific example, a movable object such as an icon displayed on the screen can be moved to a predetermined position likewise through a simple touch operation. Particularly, in this embodiment, the user cannot move the icon 20 even if the user touches the icon 20 with the pushing force P which satisfies $P_1 \leq P < P_2$. The user can drag the icon 20 after the user pushes the touch panel 9 in with the finger tip 16 so that the pushing force P equal to or larger than P_1 and smaller than P_2 ($P_1 \leq P < P_2$) is increased to P_2 or larger ($P \geq P_2$). Therefore, even when there is a time between (2) and (3) as shown in FIG. 14, the user cannot drag the icon 20. This permits the user to operate the touch panel 9 without anxiety because touching the icon 20 will not cause the icon 20 to be inadvertently shifted. Particularly, the user first touches an intended icon 20 to confirm the selection (through a change of the icon 20), and can determine to drag the icon 20, so that this embodiment is effective for a weak-sighted operator.

[0092] It should be noted that the foregoing description on this embodiment has been centered on the drag-and-drop operation for facilitating the description. Of course, the drag-and-drop operation may be used in combination with a push-in operation for activating a function associated with the icon 20. In this event, when the pushing force P is equal to or larger than P_1 ($P \geq P_1$) at step 202, it may also be determined whether or not P is equal to or larger than P_2

($P \geq P_2$). When $P \geq P_2$, an operation for activating the function may be performed in a manner similar to steps 104-107 in FIG. 7.

[0093] In this event, for avoiding a confusion with the aforementioned step 205, when the user pushes the icon 20 in for a short time to cause a transition of the pushing force P from $P < P_1$ to $P \geq P_2$ during a standby state at steps 200-202, the control unit 17 may activate the function associated with the icon 20 without permitting the user to drag the icon 20. Alternatively, the control unit 17 may activate the function associated with the icon 20 when the user releases the finger tip 16 from the touch panel 9 in a short time after the user has pushed the icon 20 in with the pushing force P equal to or larger than P_2 ($P \geq P_2$), i.e., when $P \geq P_1$. Further alternatively, each object may be associated with a function such that an operation for activating the function is accepted in a particular region on the display screen, and a dragging operation is accepted in the remaining region.

[0094] Also, in FIG. 12, when the user pushes the icon 20 in with the finger tip 16 ($P \geq P_2$) while the user is dragging the icon 20, the icon 20 may be settled at a position (x2, y2) at which the user pushes the icon 20 in (step 209).

[0095] FIG. 15 is a flow chart illustrating a third specific example of the function control performed by the control unit 17 in FIG. 5. Like the foregoing first and second specific examples, the function control in the third specific example also provides a function of dragging and dropping an object such as an icon displayed on the display screen 2.

[0096] FIG. 16 in turn illustrates images displayed on the display screen 2 in the process of the function control performed by the control unit 17 in the third specific example. Parts corresponding to those in FIG. 12 are designated the same reference numerals.

[0097] FIG. 17 further shows a change in the pushing force P for executing the operation in the third specific example of the function control. Specifically, FIG. 17 denotes sequential numbers (1)-(6) corresponding to the images in FIG. 16 along a time axis.

[0098] Referring first to FIG. 15, steps 300-302 and 313 are similar to steps 100-102 and 113 in FIG. 7, wherein the finger tip 16 is not in touch with the touch panel 9, and a image (1) illustrated in FIG. 16 is displayed on the display screen 2. In the image (1), assume that an icon 20 is displayed at a position (x0, y0) on the display screen 2.

[0099] As the user brings the finger tip 16 into touch with the position at which the icon 20 is displayed on the image (1) appearing on the display screen 2, the pressure sensor senses a pushing force P equal to or larger than P_1 ($P_1 \leq P$), as shown in FIG. 17 (step 302). In response, the control unit 17 (FIG. 5) determines whether or not the position at which the screen display 2 is touched by the finger tip 16 falls within the area of the icon 20 in a manner similar to the aforementioned specific examples. When within the area, the control unit 17 determines that the user has touched the touch panel 9 at the position within the area of the movable icon 20 (step 303), and displays a image (2) on the display screen 2 for indicating that the icon 20 is movable, as illustrated in FIG. 16 (step 304). For indicating that the icon 20 is movable, the icon 20 may be changed, for example, in color, vibrated, or the like.