

lower portion of the screen is implemented as a motion graphic image having a wavy or oscillating shape graphically depicting or simulating a reaction or collision with the selected bar. Through the motion graphic image, the user can visually recognize that there are no more items to be displayed on the list.

**[0162]** The waving is expressed as the motion graphic image providing a visual sensation that the selection bar collides with the boundary through an acceleration movement faster than a certain speed to cause an impact waveform to appear. The impact waveform according to the collision is processed to be strongest at the center of the boundary and weakens by degree toward both the left and right ends.

**[0163]** The size of the impact waveform (or waving) generated by the collision with the selection bar is proportional to the movement speed of the selection bar. The movement speed of the selection bar is determined by the distance, pressure and speed of a user touch detected on the touch screen.

**[0164]** FIG. 12 shows the motion graphic image generated at the lower end portion of the screen, but such a motion graphic image can also be displayed at an upper end portion of the screen. Namely, when the selection bar reaches a first item of the displayed contents list (or display list), a boundary contiguous with the first item at the upper portion of the screen display can be displayed as a motion graphic image having a wavy shape according to a collision with the selection bar. In addition, based on the same principle, when the selection bar reaches the left end or the right edge, such a motion graphic image can be displayed in the same manner.

**[0165]** FIG. 13 depicts the displaying of a motion graphic image according to another embodiment of the present invention.

**[0166]** According to the embodiment as shown in FIG. 13, when the flicked selection bar reaches the last item of the displayed contents list, a motion graphic image display effect may be implemented such that a certain displayed boundary contiguous with the selection bar at a lower portion of the screen is thrust as it collides with the selection bar.

**[0167]** When the certain boundary collides with the selection bar, it is displayed so as to depict that it moves such that it is thrust down temporarily and then returns to its original position like an impact buffering unit (bumper). The thrust degree of the boundary due to the collision with the selection bar is proportional to the movement speed of the displayed selection bar.

**[0168]** Such a motion graphic image as shown in FIG. 13 may be also displayed in the same manner when the selection bar reaches a first item of the contents list (or the display list). In addition, based on the same principle, when the selection bar reaches the left end or the right edge, such a motion graphic image can be displayed in the same manner.

**[0169]** In a different embodiment, when the certain boundary collides with the selection bar, a motion graphic image may be implemented such as to graphically depict that the boundary is temporarily compressed or contracted and then returns or expands to its original shape like a rebounding of an impact buffering member (e.g., a rubber material, etc.) with elasticity. In this case, the displayed selection bar immediately after the collision has a movement effect as if a ball bounces on the floor, on the certain boundary. An accompanying sound effect, such as a 'boing' sound, or a vibration, may be generated and outputted to audibly or tactily reinforce the visual effect.

**[0170]** In the present invention, when the flicked displayed selection bar makes an acceleration movement of a certain speed or faster, the motion graphic image can be displayed. In this case, the motion graphic images as shown in FIGS. 12 and 13 will be displayed when the flicked selection bar reaches the last item of the contents list through the acceleration movement at the certain speed or faster.

**[0171]** In the embodiments according to the present invention as shown in FIGS. 12 and 13, the operation of controlling the movement of the selection bar (or cursor) according to an input (e.g., dragging, scrolling, flicking, etc.) through a touch screen has been described. However, without being limited thereto, the motion graphic effect according to the present invention can also be applied in the same manner even when the movement of the selection bar (or the cursor) is controlled through the manipulation portion 130 as well as by input through the touch screen.

**[0172]** FIGS. 14A and 14B depict a screen display image of a contents list according to one embodiment of the present invention, in which directional symbols are displayed at upper and lower end portions of the displayed contents list.

**[0173]** In the present invention, if the number of the entire items of the contents list exceeds the number of the contents that can be displayed on a single screen, as shown in FIG. 14A, a directional symbol (e.g., arrows (↑, ↓), triangles (◻, ◻), etc.) can be displayed for indicating that there are remaining undisplayed items in the contents list.

**[0174]** When the directional symbols (e.g., the arrow (↑), the triangle (◻), etc.) are displayed at the upper end portion of the contents list screen image, it means that there are more items of preceding order, beyond an upper edge of the screen, than the contents of the displayed list appearing on the screen. If the directional symbols (e.g., the arrow (↓), the triangle (◻), etc.) are displayed at a lower end portion of the contents list screen display, it means that there are more undisplayed items of succeeding order, beyond the lower edge of the screen, than the contents of the displayed list appearing on the screen.

**[0175]** The directional symbols displayed at the upper or lower end portions of the screen display may change according to the movement direction of the selection bar. For example, as shown in FIG. 14A, when the selection bar is moved downwardly, the directional symbol displayed at the lower portion of the screen changes (e.g., by color change, highlighting effect, blinking effect, effect of march of ants, neon sign effect, etc.). Likewise, when the selection bar is moved upwardly, the directional symbol displayed at the upper end portion of the screen changes.

**[0176]** Such changes in the directional symbols allow the user to conveniently and intuitively manipulate the terminal and increase the user's convenience in terminal manipulation.

**[0177]** If the last item of the contents list appears on the screen, the directional symbol displayed at the lower end portion (or upper end portion) of the screen may be changed into a different shape, namely, a non-directional symbol (e.g., a square (■ or □), a lozenge (◊ or ◊), or a circle (● or ○) as shown in FIG. 14B, through which the user can recognize whether or not the selection bar has reached the first item or the last item of the contents list.

**[0178]** If there is a small number of items in the contents list so they can all be displayed on a single screen image, the directional symbols may be displayed on the screen, or the non-directional symbols (e.g., the square (◻ or ◻), the loz-