

[0123] FIGS. 23A-23D illustrate an inertia sequence using the method described above. FIG. 23A illustrates a display presenting a GUI 678 including a window 679 having a list 680 of media items 681. The window 679 and list 680 may for example correspond to a control window and music list found in iTunes™ manufactured by Apple Computer, Inc of Cupertino, Calif. As shown in FIG. 23B, when the user slides their finger or fingers 576 over the touch screen 520, vertical scrolling, which moves media items up or down through the window, is implemented. The direction of scrolling may follow the same direction as finger movement (as shown), or it may go in the reverse direction. In one particular embodiment, a single finger is used for selecting the media items from the list, and two fingers are used to scroll through the list.

[0124] Scrolling generally pertains to moving displayed data or images (e.g., media items 681) across a viewing area on a display screen so that a new set of data (e.g., media items 681) is brought into view in the viewing area. In most cases, once the viewing area is full, each new set of data appears at the edge of the viewing area and all other sets of data move over one position. That is, the new set of data appears for each set of data that moves out of the viewing area. In essence, these functions allow a user to view consecutive sets of data currently outside of the viewing area. In most cases, the user is able to accelerate their traversal through the data sets by moving his or her finger at greater speeds. Examples of scrolling through lists can be found in U.S. Patent Publication Nos.: 2003/0076303A1, 2003/0076301A1, 2003/0095096A1, which are herein incorporated by reference.

[0125] As shown in FIG. 23C, the displayed data continues to move even when the finger is removed from the touch screen. The continuous motion is based at least in part on the previous motion. For example the scrolling may be continued in the same direction and speed. In some cases, the scrolling slow down over time, i.e., the speed of the traversal through the media items gets slower and slower until the scrolling eventually stops thereby leaving a static list. By way of example, each new media item brought into the viewing area may incrementally decrease the speed. Alternatively or additionally, as shown in FIG. 23D, the displayed data stops moving when the finger 576 is placed back on the touch screen 520. That is, the placement of the finger back on the touch screen can implement braking, which stops or slows down the continuous acting motion. Although this sequence is directed at vertical scrolling it should be noted that this is not a limitation and that horizontal scrolling as well as panning may be performed using the methods described above.

[0126] FIG. 24 is a diagram of a GUI operational method 700, in accordance with one embodiment of the present invention. The method 700 is configured for simulating a keyboard. The method generally begins at block 702 where a keyboard is presented on the display. Following block 702, the process flow proceeds to block 704 where the presence of a first object over a first key and a second object over a second key at the same time is detected on a touch screen. The touch screen is positioned over or in front of the display. By way of example, the display may be an LCD and the touch screen may be a multipoint touch screen. Following block 704, the process flow proceeds to block 706 where one or more simultaneous control signals are generated when the first object is detected over the first key and when the second object is detected over the second key at the same time.

[0127] In one embodiment, only a single control signal is generated when the first object is detected over the first key

and when the second object is detected over the second key at the same time. By way of example, the first key may be a shift key and the second key may be a symbol key (e.g., letters, numbers). In this manner, the keyboard acts like a traditional keyboard, i.e., the user is allowed to select multiple keys at the same time in order to change the symbol, i.e., lower/upper case. The keys may also correspond to the control key, alt key, escape key, function key, and the like.

[0128] In another embodiment, a control signal is generated for each actuated key (key touch) that occurs at the same time. For example, groups of characters can be typed at the same time. In some cases, the application running behind the keyboard may be configured to determine the order of the characters based on some predetermined criteria. For example, although the characters may be jumbled, the application can determine that the correct order of characters based on spelling, usage, context, and the like.

[0129] Although only two keys are described, it should be noted that two keys is not a limitation and that more than two keys may be actuated simultaneously to produce one or more control signals. For example, control-alt-delete functionality may be implemented or larger groups of characters can be typed at the same time.

[0130] FIGS. 25A-25D illustrates a keyboard sequence using the method described above. FIG. 25A illustrates a display presenting a GUI object 730 in the form of a keyboard. As shown in FIG. 25B, a user positions their fingers 576 over the multipoint touch screen 520 over the keyboard 730 to enter data into a word processing program. By way of example, the user may place one of their fingers 576A on the Q key in order to produce a lower case "q" in the word processing program. As shown in FIG. 25C, when the user decides that a letter should be in upper case, the user places one finger 576B on the shift key and another finger 576A on the desired letter (as indicated by the arrows). As shown in FIG. 25D, in order to continue typing in lower case, the user simply removes their finger 576B from the shift key and places their finger 576A over a desired letter (as indicated by the arrow).

[0131] FIG. 26 is a diagram of a GUI operational method 750, in accordance with one embodiment of the present invention. The method 750 is configured for simulating a scroll wheel such as those described in U.S. Patent Publication Nos: 2003/0076303A1, 2003/0076301A1, 2003/0095096A1, all of which are herein incorporated by reference. The method generally begins at block 752 where a virtual scroll wheel is presented on the display. In some cases, the virtual scroll wheel may include a virtual button at its center. The virtual scroll wheel is configured to implement scrolling as for example through a list and the button is configured to implement selections as for example items stored in the list. Following block 752, the method proceeds to block 754 where the presence of at least a first finger and more particularly, first and second fingers (to distinguish between tracking and gesturing) over the virtual scroll wheel is detected on a touch screen. The touch screen is positioned over or in front of the display. By way of example, the display may be an LCD and the touch screen may be a multipoint touch screen. Following block 754, the method proceeds to block 756 where the initial position of the fingers on the virtual scroll wheel is set. By way of example, the angle of the fingers relative to a reference point may be determined (e.g., 12 o'clock, 6 o'clock, etc.). Following block 756, the method 750 proceeds to block 758 where a rotate signal is generated