

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.

[0126] 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.

[0127] 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.

[0128] 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.

[0129] 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).

[0130] 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 when the angle of the fingers change relative to the reference point. In most cases, the set down of the fingers associate, link or lock the fingers (or finger) to the virtual scroll wheel when the fingers are positioned over the virtual scroll wheel. As a result, when the fingers are rotated, the rotate signal can be used to rotate the virtual scroll wheel in the direction of finger rotation (e.g., clockwise, counterclockwise). In most cases, the amount of wheel rotation varies according to the amount of finger rotation, i.e., if the fingers move 5 degrees then so will the wheel. Furthermore, the rotation typically occurs substantially simultaneously with the motion of the fingers. For instance, as the fingers rotate, the scroll wheel rotates with the fingers at the same time.

[0131] In some cases, the principals of inertia as described above can be applied to the virtual scroll wheel. In cases such as these, the virtual scroll wheel continues to rotate when the fingers (or one of the fingers) are lifted off of the virtual scroll wheel and slowly comes to a stop via virtual friction. Alternatively or additionally, the continuous rotation can be stopped by placing the fingers (or the removed finger) back on the scroll wheel thereby braking the rotation of the virtual scroll wheel.

[0132] FIGS. 27A-27D illustrates a scroll wheel sequence using the method described above. FIG. 27A illustrates a display presenting a scroll wheel. The scroll wheel may be displayed automatically as part of a program or it may be displayed when a particular gesture is performed. By way of example, during the operation of a music program (such as iTunes manufactured by Apple Computer Inc., of Cupertino, Calif.), the virtual scroll wheel may appear on the GUI of the music program when two fingers are placed on the touch screen rather than one finger which is typically used for tracking in the music program. In some cases, the virtual scroll wheel only appears when two fingers are placed on a predetermined area of the GUI. As shown in FIG. 27B, a user positions their fingers over the multipoint touch screen 520 over the scroll wheel. At some point, the fingers are locked to the scroll wheel. This can occur at set down for example. As shown in FIG. 27C, when the fingers are rotated in a clockwise direction, the scroll wheel is rotated in the clockwise direction in accordance with the rotating fingers. As shown in FIG. 27D, when the fingers are rotated in a counterclockwise direction, the virtual scroll wheel is rotated in the counter clockwise direction in accordance with the rotating fingers. Alternatively, rotation of the virtual