

cases, only one GUI element is displayed and in other cases multiple GUI elements are displayed. The GUI element is typically associated with a particular mode. For example, a slider bar or scroll wheel may be displayed in a scroll mode, a keyboard or keypad may be displayed in a data entry mode, a tool bar may be displayed in an edit mode, various buttons or a control panel may be displayed in a control mode, and information windows may be displayed in an information mode.

[0153] The GUI element may be displayed in a variety of ways. For example, it can be positioned over the currently displayed graphical images, or it can displace the currently displayed graphical images (e.g., minimize, shift, etc.). In some cases, the GUI element is made semi transparent so that the current graphical image disposed below the GUI element can be seen (thereby eliminating minimizing and shifting). This may be helpful when using a scroll wheel to traverse through a list disposed below the scroll wheel. Furthermore, the GUI element can be placed in the vicinity of the touch or it can be placed in some predetermined location. The predetermined location may be based on ergonomics, i.e., what is the best location for the user.

[0154] In addition to the above, the GUI element may be displayed using a transition effect such as growing, fading in, popping up, and in some cases may even pulsate, throb, etc. If the effect is popping up, the GUI element is immediately brought into view. If the effect is growing, as shown in FIGS. 29A-29D, a small GUI element 820A (scroll wheel) is initially displayed, and thereafter the GUI element 820A continuously enlarges through various sizes 820B and 820C until it reaches its desired size 820D. The speed of growth may be based on the pressure of the touch. For example, if the touch pressure is low, the GUI element may grow slowly and if the touch pressure is high, the GUI element may grow more rapidly. In addition, the final size of the GUI element may be based on the length of the touch. For example, the GUI element stops growing when the touch is no longer detected. Alternatively, the speed and size may be user adjustable as for example through a control panel. If the effect is fading, as shown in FIGS. 30A-30D, the GUI element 822 is slowly brought into view from nothing, through various levels of distortion or transparency 822A-822C, to a final complete image 822D. The fading can be controlled similarly to growth. For example, the speed and level of fade may be controlled by the pressure and length of touch.

[0155] The transition effect may even carry over to the currently displayed images, i.e., the images currently displayed before the touch was detected. In one embodiment, the opposite effect happens to the currently displayed images. For example, as shown in FIGS. 31A-31D, the currently displayed graphical images 826 are minimized smaller and smaller as the GUI element 820 grows larger and larger. Alternatively, if the GUI element immediately pops in, the currently displayed graphical images can immediately pop out or be immediately minimized.

[0156] Once the GUI element is displayed (806), the user interface method 800 proceeds to block 808 where the functionality of the GUI element is enabled. For example, touch event is monitored relative to the GUI element and actions associated with the touch event are performed. The enablement of the GUI element may occur simultaneously

with the display of the GUI element so that a user can immediately start using the GUI element once displayed. By way of example, in a scroll mode, a virtual scroll wheel may be displayed and when enabled, the touch events are monitored relative to the scroll wheel. During monitoring, control signals associated with the position of the finger on the scroll wheel are generated as the finger swirls around the virtual scroll wheel. These signals can be used to perform scrolling. For example, the number, combination and frequency of the signals may be converted into distance, direction and speed necessary for moving a selection bar through a list. By way of example, see FIGS. 6, 26 and 27 for more detailed descriptions of virtual scroll wheels and how they function.

[0157] At some point after enabling and displaying the GUI element, a determination 812 is made as to whether or not to deactivate the GUI element. The determination 812 can be made in a variety of ways including, for example: 1) the touch is no longer detected, 2) a touch has not been detected for a preset amount of time, 3) a time out occurs (a preset amount of time has gone by since the GUI element was first displayed/enabled), or 4) a user selection (e.g., a user selects a button that closes the GUI element).

[0158] If the determination indicates deactivation, then the method proceeds to block 814 where the GUI element is disabled and removed from display. Once disabled, actions will no longer be performed when a touch event occurs. The removal of the GUI element from display may function similar to displaying the GUI element in that it can be removed using a transition effect such as slowly fading out, shrinking or immediately disappearing (popping out). The removal transition effect may work opposite the displaying transitioning effect. For example, the GUI element fades out similarly to fading in, shrinks similarly to growth or pops out similarly to popping in. Further, the GUI element can slowly recess and disappear from view while the displaced or shrunken current graphical images can slowly grow back to their original size and shape. If the determination does not indicate deactivation, then the method maintains the display of the GUI element as well as the enablement thereof.

[0159] FIG. 32 is a determination method 850 in accordance with one embodiment of the present invention. The determination method may, for example, correspond to the block 804 in FIG. 28. The determination method begins at block 852 where the current application is determined. The determination method proceeds to block 854 where the current state of the application is determined. Following block 854, the determination method proceeds to block 856 where the touch characteristics associated with the touch are determined. The determination method proceeds to block 860 where a UI mode is selected based on the results from blocks 852-858. By way of example, a set of rules may indicate appropriate UI modes for a particular set of conditions.

[0160] FIG. 33 is a user interface method 900 in accordance with one embodiment of the present invention. The method may, for example, be performed on a computing device having a display and a touch sensitive input device such as a touch screen. The interface method 900 begins at block 902 where a list of songs are displayed. FIG. 34A shows one example of a window 930A including a list of songs 932A, and FIG. 35A shows another example of a window 930B including a list of songs 932B. FIG. 34A