

control signal associated with the selected control button is generated when the presence of the object over one of the enlarged control buttons is detected.

[0110] FIGS. 19A-19D illustrate a zooming target sequence using the GUI operational method 550 described above. As shown in FIG. 19A, a user 510 places their finger 576 over a control box 578. Because the buttons 580 of the control box 578 included therein are smaller than the finger 576 and located close together, it is difficult for the user 510 to make a selection directly without possibly pressing an undesirable button 580, e.g., a button adjacent the desired button. By way of example, the finger 576 may cover two or more of the buttons 580. As shown in FIG. 19B, at least a portion of the control box 578 is enlarged including the buttons 580 included therein when the user places their thumb over the control box. As shown in FIG. 19C, once the control box has reached its enlarged state, the user can select one of the enlarged buttons, which is now closer to the size of the thumb. By way of example, the user may tap on the desired control button. As shown in FIG. 19D, the control box reduces to its initial size after the button is selected or after a predetermined time period in which no selection was made (e.g., times out) or when the user moves their finger away from the control box.

[0111] FIG. 20 is a diagram of a GUI operational method 600, in accordance with one embodiment of the present invention. The GUI operational method 600 is configured for initiating a page turn. The GUI operational method 600 generally begins at block 602 where a page from a multitude of pages is displayed in a GUI. By way of example, the pages may be associated with an electronic book. Following block 602, the GUI operational method 600 proceeds to block 604 where the presence of an object (or objects) in a predetermined region over the page is detected. The predetermined area may, for example, correspond to the area where the page number is displayed. Following block 604, the GUI operational method 600 proceeds to block 606 where a page turn signal is generated when the object (or objects) is translated in the predetermined region. The translation is configured to simulate a finger turning the page in an actual paper bound book. The direction of the translation indicates whether to go to the next page or previous page in the list of pages. For example, if the finger is swiped right to left, then a page back signal is generated, and if the finger is swiped left to right, then a page up signal is generated. This GUI operational method 600 may be enhanced several ways. For instance, if multiple fingers are swiped, then this may create a paging signal greater than one page. For example, a two finger swipe equals two page turns, three finger swipe equals three page turns, etc. Or a two finger swipe equals ten page turns, three finger swipe equals 50 page turns, etc.

[0112] FIGS. 21A-21D illustrate a page turning sequence using the GUI operational method 600 described above. As shown in FIG. 21A, which is a close up of a user 510 holding the tablet PC 512, the user swipes their finger over the page number in a direction to the left of the page 630. As shown in FIG. 21B, the tablet PC 512 recognizes the swipe and direction of the swipe in the area of the page number and therefore the tablet PC 512 displays the next page in a group of pages. This can be performed repeatedly to whisk through the group of pages. As shown in FIG. 21C, the user swipes their finger 576 over the page number in a direction to the

right of the page 630. As shown in FIG. 21D, the tablet PC 512 recognizes the swipe and direction of the swipe in the area of the page number and therefore the tablet PC 512 displays the previous page in a group of pages. This can be performed repeatedly to whisk through the group of pages.

[0113] FIG. 22 is a diagram of a GUI operational method 650, in accordance with one embodiment of the present invention. The GUI operational method 650 is configured for initiating inertia typically during a scrolling or panning operation. Inertia is generally defined as the tendency of a body at rest to remain at rest or of a body in motion to stay in motion in a straight line unless disturbed by an external force. In this particular embodiment, the GUI or some portion thereof is associated with inertial properties, which is its resistance to rate of change in motion. For a GUI with high inertia characteristics, the acceleration of the GUI will be small for a given input. On the other hand, if the GUI has low inertia characteristics, the acceleration will be large for a given input.

[0114] The GUI operational method 650 generally begins at block 652 where a graphical image is displayed on a GUI. Following block 652, the GUI operational method 650 proceeds to block 654 where a scrolling or panning stroke on a touch sensitive surface is detected. By way of example, the stroke may be a linear or rotational stroke. During a linear stroke, the direction of scrolling or panning typically follows the direction of the stroke. During a rotational stroke (see FIG. 6), the rotational stroke is typically converted to a linear input where clockwise motion may correspond to vertical up and counterclockwise motion may correspond to vertical down. Following block 654 the process flow proceeds to block 656 where the speed and direction of the scrolling or panning stroke is determined. Following block 656, the GUI operational method 650 proceeds to block 658 where the image is moved in accordance with the speed and direction of the scrolling or panning stroke as well as the associated inertial characteristics. Following block 658, the GUI operational method 650 proceeds to block 660 where the motion of the image continues even when the panning or scrolling stroke is no longer detected. For example, when the user picks up their finger from the touch sensitive surface, the scrolling or panning function continues as if the scrolling or panning stroke was still being made. In some cases, the motion of the image continues infinitely until some braking (stopping or slowing) control is performed. This particular methodology simulates zero gravity. In other cases, the motion of the image is slowed in accordance with the associated inertia GUI operational method 650. Metaphorically speaking, the image may correspond to a piece of paper moving over a desktop. In order to move the piece of paper, the user exerts a force on the paper in the desired direction. When the user lifts their finger off the paper, the paper will continue to slid along the desktop in the desired direction for some period of time. The amount it slides after lifting the finger generally depends on, among other things, its mass, the force applied by the finger, the friction force found between the paper and the desktop, etc. As should be appreciated, traditionally when scrolling and panning are implemented, the scrolling or panning stops when the fingers are picked up. In contrast, using the above mentioned methodology, the scrolling or panning continues to move when the fingers are picked up.