

teristic or enhancement. Rotation, scale, and translation (RST) control of windows W1 and W2 may be carried out in any suitable manner, including those methods described herein.

**[0126]** For illustrative purposes, FIG. 15B shows window W2 fully within window W1, which may be the case for any of the multi-window embodiments described herein. As mentioned above, windows W1 and W2 may be controlled in various manners. For example, FIG. 15C shows window W2 moved to a different position (still within window W1), such as, for example, by employing single finger control as described in connection with style 1 (see FIGS. 1A and 1B). As shown in FIGS. 15B and 15C, window W2 may be moved, and well as its size and orientation modified, without disturbing window W1.

**[0127]** As mentioned above, each of the multiple windows displayed within the display device may be controlled in accordance with any of the embodiments and variations described herein. In certain embodiments, rotation/scale/translation (RST) control of the image/content displayed within the window may be employed, such as discussed in connection with, for example, Style 4 (e.g., see FIGS. 9A-9C). When the window frame and the content therein are "locked" together, both window and content position, size, and rotation are controlled together. In accordance with a particular feature of the present invention, a change of scale of one window frame when locked to the content therein (preferably, uniform scaling as mentioned above) causes a change of scale of all window frames displaying that content as a group. For example, FIGS. 15D and 15E illustrate a uniform scaling operation that is carried out when window W1 and the content therein are locked together. In the example shown in FIG. 15D, finger f1 contacting the outer edge of window W1 locks window W1 and the content therein together, and finger f2, by subsequently contacting an edge of window W2, is able to carry out RST control of the windows and content therein to produce the result shown in FIG. 15E. Hence, as the image/content increases (or decreases) in size, so do the multiple windows that display that content. Other manners of locking together the window and content, and controlling the scale thereof may also be employed. This feature of the present invention may be applied to any of the multi-window control styles described herein wherein multiple windows show different views of the same image/content, including multi-window styles B and C described above. Still further, the uniform scaling operation of the windows shown in FIGS. 15D and 15E may be employed, but without modifying the content within the windows, such as by contacting the inner edge of window W1 and subsequently contacting an edge of window W2. Then, subsequent movement of the fingers carries out RST control of the windows, but not of the content therein. Also, such as mentioned above, other manners of locking the windows together (but not content therein) may be employed.

**[0128]** As herein described, the multi-window styles enable for rotation, scale and translation (RST) control of multiple windows displayed simultaneously to a user, with each window showing either different images or different portions of the same image. In certain embodiments, different windows show the same characteristic or characteristics or features of the image while other characteristics or enhanced characteristics are provided within those portions of the windows that overlap with one another. In yet further embodiments and variations thereof, different windows each show

different characteristics or features of the image, with their overlapping portions still yet showing additional and/or different information to the user. In the various figures presented, two rectangular-shaped windows are provided for ease of illustration, but more than two windows may be employed and/or displayed simultaneously, and the windows may have the same or different shapes as previously mentioned. In certain circumstances, multiple overlapping portions will be defined, generally depending on the size, shape and position of each window employed. The multiple overlapping windows may operate in the same manner, with each overlapping portion displaying the same characteristic of the image as the other overlapping portions. In a variation, the different overlapping portions show different characteristics or employ different functionality. In yet a further variation, three or more windows may overlap at the same location thus forming an overlapping portion that may yet show a different characteristic or feature, and/or operate in a manner different from that of overlapping portions formed from only two windows.

**[0129]** As described herein, multiple embodiments of the present invention have been described in connection with the use of one, two, three, etc., fingers (contact points) contacting various parts of a window or windows described herein. In particular, various embodiments entail one or more fingers contacting one or more edges of a window that, in turn, enables particular control of the window depending on various factors, such as particular placement of the fingers (e.g., whether on the same edge, adjacent edges, etc.), subsequent movement of the fingers, and so on. The present invention, however, is not limited to placement of a particular finger solely on a single edge, but also encompasses manipulating a window by allowing a finger to be placed on a corner of a window, wherein such finger is deemed to be contacting two adjacent edges. Then, the window is manipulated in accordance with the manipulation rules that have been described. As one example, style 2 as herein described (with reference to FIGS. 4A and 4B) may be modified to allow a finger (e.g., finger f1) to contact a corner of the window (e.g., the lower, right hand corner) thus allowing the user to control two edges (e.g., the lower edge and the right-hand edge) via subsequent movement of that finger. In the exemplary diagram shown in FIG. 4A, all four edges are controlled with only 3 fingers (e.g., fingers f1, f2 and f3), without the need to employ a fourth finger (e.g., finger f4).

**[0130]** In addition to enabling a single finger to be a control for multiple, adjacent edges by contacting a corner of a window, in certain embodiments multiple fingers can be a control for a single edge. For example, FIGS. 4A and 4B show each edge being controlled by a single finger, but in a variation of style 2 described herein, there may be multiple fingers controlling a given edge (e.g., two fingers controlling the top edge).

**[0131]** Various embodiments for interfacing with multi-input devices, and various features and variations thereof, have been described. The present invention also encompasses a system designed to carry out the various interfacing techniques and processes described herein. For example, FIG. 16 is a block diagram of a multi-input display system 60 that includes a display device 62 coupled (directly or indirectly) to a controller 66. Display device 62 includes a display surface 64 (also called contact surface) and may be any suitable type of multi-input display device capable of detecting multiple inputs simultaneously. Various suitable multi-input display