

ogy need to be developed. It is therefore a general object of the present invention to provide methods and systems for facilitating human interfacing with multi-input technology, such as multi-touch tablets and multi-touch display devices. More specific objects of the present invention are discussed in the detailed description section provided below.

**[0011]** In accordance with the present invention, a method of interfacing with a multi-input display device comprises displaying on a multi-input display device a graphical window and at least a first portion of an image within the graphical window, identifying a number, position and movement of one or more elements contacting the display device, changing a characteristic of the displayed graphical window in accordance with the identified number, position and movement of the one or more elements contacting the display device, the characteristic corresponding to a first characteristic when only one element is identified as contacting the display device, the first characteristic being a position of the displayed graphical window, and the characteristic corresponding to a second characteristic when a plurality of elements are identified as contacting the display device, the second characteristic being at least a shape and/or size of the displayed graphical window. The first and second characteristics are different. The method further comprises displaying on the display device at least a second portion of the image within the graphical window having the changed characteristic, and positions on the display device of common portions of the first and second portions of the image are substantially the same.

**[0012]** In accordance with another embodiment of the present invention, a method of interfacing with a multi-input display device comprises displaying on a multi-input display device a graphical window and at least a first portion of an image within the graphical window, identifying a number, position and movement of a plurality of elements simultaneously contacting the display device, manipulating the displayed graphical window in accordance with one or more modifications, the one or more modifications comprising a first modification implemented when only two elements are identified as contacting the display device at positions on a frame of the displayed graphical window, the first modification changing at least a shape and/or size of the displayed graphical window in accordance with the identified positions and movement of the two elements, a second modification implemented when three elements are identified as contacting the display device at positions on the frame of the displayed graphical window, the second modification changing at least the position, shape and/or size of the displayed graphical window in accordance with the identified positions and movement of the three elements, the first and second modifications being different, displaying on the display device at least a second portion of the image within the manipulated graphical window, and positions on the display device of common portions of the first and second portions of the image being substantially the same.

**[0013]** In accordance with a system embodiment of the present invention, a multi-input display system comprises a display device for displaying on a display surface a graphical window and at least a first portion of an image within the graphical window, the display device adapted to detect one or more elements contacting the display surface, a controller for identifying a number, position and movement of the one or more elements contacting the display surface, and for changing a characteristic of the displayed graphical window in

accordance with the identified number, position and movement of the one or more elements contacting the display surface, the characteristic corresponding to a first characteristic when only one element is identified as contacting the display surface, the first characteristic being a position of the displayed graphical window, and the characteristic corresponding to a second characteristic when a plurality of elements are identified as contacting the display surface, the second characteristic being at least the shape and/or size of the displayed graphical window, the first and second characteristics being different, the controller controlling the display device to display on the display surface at least a second portion of the image within the graphical window having the changed characteristic, positions on the display surface of common portions of the first and second portions of the image being substantially the same.

**[0014]** In accordance with another system embodiment of the present invention, a multi-input display system comprises a display device for displaying on a display surface a graphical window and at least a first portion of an image within the graphical window, the display device adapted to detect a plurality of elements simultaneously contacting the display surface, a controller for identifying a number, position and movement of the plurality of elements simultaneously contacting the display surface, and for manipulating the displayed graphical window in accordance with one or more modifications, the one or more modifications comprising a first modification implemented when only two elements are identified as contacting the display surface at positions on a frame of the displayed graphical window, the first modification changing at least the shape and/or size of the displayed graphical window in accordance with the identified positions and movement of the two elements, a second modification implemented when three elements are identified as contacting the display surface at positions on the frame of the displayed graphical window, the second modification changing at least the position, shape and/or size of the displayed graphical window in accordance with the identified positions and movement of the three elements, the first and second modifications being different, the controller controlling the display device to display on the display surface at least a second portion of the image within the manipulated graphical window, and positions on the display surface of common portions of the first and second portions of the image being substantially the same.

**[0015]** For each of the above-summarized embodiments of the present invention, various aspects and features of the present invention may be carried out. Some of these features and aspects are summarized below.

**[0016]** As an aspect of the invention, when two elements are identified as contacting the display device initially at positions on the displayed graphical window, the size of the displayed graphical window is uniformly scaled in accordance with the identified movement of the two elements.

**[0017]** As a further aspect of the invention, when two elements are identified as contacting the display device initially at positions on the displayed graphical window, the displayed graphical window is moved and sized in accordance with the identified movement of the two elements.

**[0018]** As a feature of this aspect, the displayed graphical window is rotated in accordance with changes in orientation of the identified positions of the two elements relative to one another.