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(71) Applicant *(for all designated States except US)*: **MOTOROLA, INC.** [US/US]; 1303 East Algonquin Road, Schaumburg, Illinois 60196 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **SADLER, Daniel J.** [US/US]; 3912 E. Cloudburst Drive, Gilbert, Arizona 85297 (US). **MANGAT, Pawitter J. S.** [US/US]; 3688 E. Encinas Avenue, Gilbert, Arizona 85234 (US).

(74) Agents: **BRETSCHER, John T.** et al.; 1303 East Algonquin Road, Schaumburg, Illinois 60196 (US).

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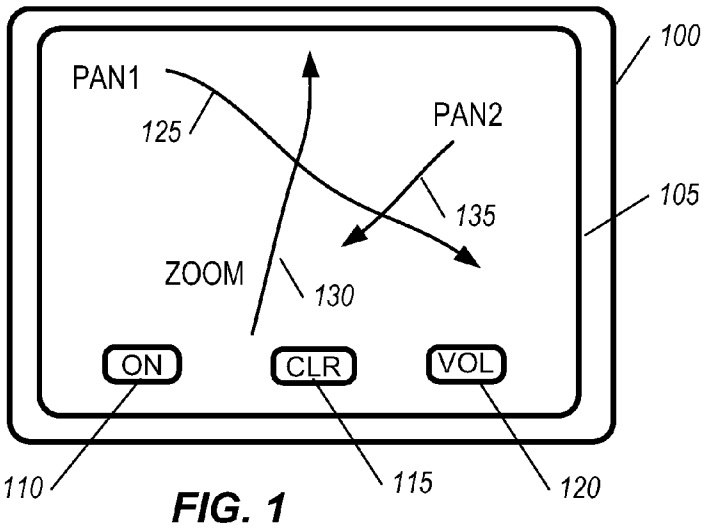


FIG. 1

(57) Abstract: A method is disclosed for manipulating an image displayed on an electronic device (100). The method includes panning the image in response to a detection of a first stroke (125, 410, 610) of a touch- and pressure-sensitive input modality (105) which is performed using an amount of touch pressure that meets a first pressure criterion, while the electronic device is in a pan mode; changing between the pan mode and a zoom mode in response to a touch pressure of the input modality that meets a second pressure criterion; and zooming the image in response to a second stroke (130, 415, 615) of the input modality, wherein the stroke is performed using an amount of touch pressure that meets a third pressure criterion, while the electronic device is in the zoom mode.

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We claim:

1. A method for manipulating an image displayed on a display of an electronic device using a touch-sensitive input modality that has a capability of sensing touch position and touch pressure, the method comprising:

panning the image in a direction that is determined in response to a detection of a first stroke of the input modality performed using an amount of touch pressure that meets a first pressure criterion, while the electronic device is in a pan mode;

changing between the pan mode and a zoom mode in response to a touch pressure of the input modality that meets a second pressure criterion; and

zooming the image in response to a second stroke of the input modality, wherein the stroke is performed using an amount of touch pressure that meets a third pressure criterion, while the electronic device is in the zoom mode.

2. The electronic device according to claim 1 wherein the touch position at which the second pressure criterion is met is exclusive of any active objects within the image region.

3. The method according to claim 1 wherein in the panning of the image a rate of the panning of the image is responsive to a fourth criterion based on touch pressure.

4. The method according to claim 1 wherein in the zooming of the image a rate of the zooming of the image is responsive to a fifth criterion based on touch pressure.

5. The method according to claim 1 wherein the first and third pressure criteria correspond, respectively, to a first pressure threshold and a second pressure threshold, and wherein the changing between the pan mode and zoom mode further comprises:

changing from the pan mode to the zoom mode when the touch pressure is greater than the first pressure threshold; and

changing from the zoom mode to the pan mode when the touch pressure is less than the second pressure threshold.

6. The method according to claim 1 wherein the second pressure criterion is a tap criterion that comprises a tap pressure threshold.

7. The method according to claim 6 wherein the second pressure criterion includes a maximum duration for which the touch pressure must exceed the tap pressure threshold.

8. The method according to claim 6 wherein the second pressure criterion includes at least one of a minimum and maximum duration for which the touch pressure is one or both of below a low pressure threshold and in a no-touch state.

9. The method according to claim 6 wherein the first pressure criterion and third pressure criterion comprise pressure thresholds that are both less than the touch pressure tap threshold.

10. The method according to claim 1 wherein the input modality senses touch position using one of optical, capacitive, and resistive techniques, and the input modality senses touch pressure using one of force sensing resistive and strain gauge techniques.

11. An electronic device comprising:

an input-output modality that comprises:

a display that displays an image; and

a touch input modality that has a capability of sensing a touch position and a touch pressure; and

a processing system for manipulating the image in response to the touch position and pressure, the processing system comprising:

a pan control function that pans the image in a direction that is determined in response to a detection of a first stroke of the input modality performed using an amount of touch pressure that meets a first pressure criterion, while the electronic device is in a pan mode;

a mode control function that changes an input mode between the pan mode and a zoom mode in response to a touch pressure of the touch input modality that meets a second pressure criterion; and

a zoom control function that zooms the image in response to a second stroke of the input modality generally in one of an opposing first and second direction, wherein the stroke is performed using an amount of touch pressure that meets a third pressure criterion, while the electronic device is in the zoom mode.