

contact with the user (such as one of the hands holding the device), then the user can still tap, swipe, or otherwise touch one or more of the other sensors to control the device. A device maker could program the device to either allow the user to explicitly indicate (e.g. through a preference setting) which sensors to ignore; or a device maker could program the device so it ignores sustained unmoving contact with the touch-sensitive strips and only treats dynamic contact on the touch-sensitive strips (such as tapping or sliding) as intentional control inputs from the user. Note also that the word “independent” here refers to the fact that the device can determine a position of contact on each sensor regardless of what is going on with any of the other sensors—so the device can detect contact (including tapping, sliding, and so on) on two or more of the simple independent sensors at the same time (even though a given simple sensor can only detect contact at one point on that sensor at any given time).

[0228] FIG. 10-A illustrates an embodiment of a device 100 with a display 101 (which can be touch sensitive) and with multiple simple sensors positioned around the edges of the device. In this example, the device has six independent touch sensitive areas—items 1001, 1002, 1003, 1004, 1005, and 1006—including two touch sensitive strips on the top edge (items 1003 and 1004) and two touch sensitive strips on the bottom edge (items 1001 and 1002), as well as one touch sensitive strip 1006 on the left edge and one touch sensitive strip 1005 on the right edge. FIG. 10-B illustrates the bottom view of the same device. If a user held this device in their left hand, with the person’s palm or fingers in contact with touch-sensitive areas 1003, 1006, or 1001 (without coming in contact with areas 1002, 1004, or 1005), then the independent simple sensors corresponding to touch-sensitive areas 1002, 1004, or 1005 could still detect when the user taps or swipes one of those areas. (By contrast, suppose a user’s hand were already in contact with part of touch-sensitive area 1006 when the user tapped on a different part of area 1006: The simple touch-sensitive sensor corresponding to area 1006 might not detect that tap, since the word “simple” is employed here to mean that the sensor can only detect contact at one point at a time.)

[0229] Other embodiments can use basic touch-sensitive sensors that merely sense whether or not a user is touching a given area, instead of touch-sensitive strips (i.e., sensors that sense what point the user is touching along that area and which can be used to sense sliding on the strip), for one or more of the touch sensitive areas illustrated in FIG. 10, FIG. 16, and related Figures here. For example, a device like that illustrated in FIG. 16-A could use basic touch-sensitive spots on the top edge (e.g. at the areas illustrated by item 1003 and item 1004) to perform certain functions when the user taps on those parts of the top edge of the device—perhaps showing or hiding a URL text box or a palette of Web browser commands, for example, while using touch-sensitive strips to sense sliding on the vertical edges (e.g. the areas illustrated by items 1005 and 1006) and the lower edge (e.g. the areas illustrated by items 1001 and 1002).

[0230] Note that while the example illustrated in FIG. 10-A shows just two adjacent touch-sensitive sensors on the bottom edge, a device could include more than two touch-sensitive sensors on the bottom edge or any other edge.

[0231] FIG. 11 illustrates a front view of a portable electronic display device according to another embodiment

of the present invention. In this case, the illustrated device uses four substantially independent touch sensitive areas on the top edge, two on each side, and two on the bottom. The point of this illustration is just to show that a device designer could choose to implement any number of substantially independent touch sensitive areas along any given edge. The Figure illustrates a more “extreme” case of using multiple simple touch sensors around the edges of a device. The device illustrated in FIG. 11 has four simple touch sensors along the top edge (items 1101, 1102, 1103, and 1104), two along the right edge (1105 and 1106), two along the bottom edge (1107 and 1108), and two along the left edge (1110 and 1109). Several related additional embodiments of the present invention shall be defined in some detail below. It should be clear that this description does not exhaustively list every class of devices that embody the aspects of the present invention: Only a few representative classes of devices are described.

[0232] The present invention includes a news class of hand-held devices with the following characteristics: Each device in this class has two or more independent simple touch sensors, positioned along or near the edges of the device, as well as a display on the surface of the device.

[0233] An subclass of these hand-held devices is one in which each device in the subclass includes two or more simple touch sensors that are both positioned along the bottom edge (and, optionally, additional touch sensors elsewhere on the device). FIG. 10-A illustrates one device design that includes two simple touch sensors 1001 and 1002 that are both positioned on the bottom edge of the device.

[0234] Another subclass of these hand-held devices is one in which each device in the subclass includes two simple touch sensors along the bottom edge, and one simple touch sensor on the left edge, and one simple touch sensor on the right edge (and optionally additional touch sensors elsewhere on the device). One further subclass of this subclass is one in which each device in the subclass also includes one or more simple touch sensors on the top edge—as illustrated, for example, in FIG. 10-A (where items 1003 and 1004 refer to touch sensitive areas along the top edge).

[0235] An preferred embodiment is a hand-held device with exactly two adjacent simple touch sensors along the bottom edge, and one touch sensor along the left edge, and one touch sensor along the right edge. And a variation of this embodiment additionally includes a means for sensing where and when a user touches the display with a stylus or finger (e.g. a touch screen like those found on many PDAs).

[0236] For each of the above embodiments having one or more simple touch sensors along the edges (i.e., having touch-sensitive edges), a notable subclass is one in which each device in the subclass includes a display with between 320 and 800 pixels horizontally and between 240 and 600 pixels vertically.

[0237] And for each of the above embodiments having two or more touch sensors, a notable subclass is one in which each device in the subclass includes a display with between 480 and 764 pixels horizontally and between 320 and 480 pixels vertically, and where additionally the device’s overall dimensions (i.e., in at least one configuration where the device can be operated and where content can