

application software, control logic, and the like. Display circuit 607 may be connected to processor 603, and may perform updates to an image on the display screen (not shown) based on input received from zoom circuit 609, crosshair circuit 611, and pan circuit 613. Zoom circuit 609 may receive input from linear input device 105. Crosshair circuit 611 may receive input from linear input device 107 and 109. Pan circuit may receive input from planar input device 203. Audio circuit may be used to generate and receive audio signals to and from speaker 205 and microphone 207, respectively. Audio circuit 615 may further be connected to processor 603 and/or transceiver 617, when mobile device 101 includes wireless communications capabilities.

[0036] FIG. 6 is merely an illustrative example of a portable device that may be used. Other configurations may alternatively be used, with additional and/or fewer elements (e.g., with an integrated input circuit, etc.). Each circuit may be performed by hardware, software, or a combination of the two, and may reside in separate or combined components or modules. In addition, some elements may be optional. For example, speaker 205, microphone 207, audio circuit 615, and transceiver 617 might not be used in an embodiment of the invention comprising an electronic book reader.

[0037] It will be appreciated by those of skill in the art that additional modifications may be made to portable device 101 that fall within the scope and spirit of the invention. For instance, linear input devices 107 and 109 may be connected to pan circuit 613 and control panning of an image on the display screen, while planar input device 203 may be connected to crosshair circuit 611 and control manipulation of the crosshairs. In addition, configurations may be alterable by a user or an application program based on an orientation of the portable device (horizontal versus vertical), the dominant hand of the user (e.g., for right versus left-handed users), user preferences, and the like. For example, a user may prefer to use linear input device 109 for zooming and linear input devices 105 and 107 for crosshair manipulation. One of skill in the art will appreciate that countless variations are possible without departing from the spirit and scope of the invention.

[0038] In another embodiment of the invention, linear input devices 105, 107, and 109 may be placed on sides other than the same side as display screen 103, such as is illustrated in FIG. 7. It should also be apparent to one of skill in the art that any embodiment of portable device 101 may be adapted with other common elements, such as conventional hard buttons 803, 805, audio output port 807, infrared port 809, power adapter input 811, data communication port 813 (e.g., USB, proprietary format, etc.), and the like, as is known in the art.

[0039] In another alternative embodiment of the invention, shown in FIG. 8 and FIG. 9, portable device 101 may include a single linear input device 105 for zooming content, and two planar input devices 1001, 1003. One of the planar input devices performs panning (i.e., scrolling) an image on the display screen, and the other planar input device performs pointing (i.e., manipulation of the crosshairs).

[0040] In still another embodiment of the invention, shown in FIG. 10, one or more linear input devices may comprise regions of a touch-sensitive planar input device.

Portable device 101 may comprise a display screen 103 (FIG. 1), over which is a transparent planar touch-sensitive input device 1001, often referred to in combination as a touchscreen. However, by enlarging planar input device 1001 to extend beyond the displayable area of display screen 103, regions 1005, 1007, 1009 of the planar touch-sensitive input device that extend beyond the display screen's displayable area may form the linear input devices. Portable device 101 may include control logic (e.g., in one or more of zoom circuit 609, crosshair circuit 611, and pan circuit 613) for sensing linear input in an elongated direction in each region 1005, 1007, and 1009 so that region 1005, 1007, and 1009 correspond to linear input device 105, 107, and 109 (not shown), respectively. Region 1003 may be used in combination with display screen 103 to perform as a touchscreen on portable device 101.

[0041] While the invention has been described with respect to specific examples including presently preferred modes of carrying out the invention, those skilled in the art will appreciate that there are numerous variations and permutations of the above-described systems and techniques that fall within the spirit and scope of the invention as set forth in the appended claims.

I/We claim:

1. A portable electronic device, comprising:

- a display screen on a front face of the portable device,
- a first linear input device affixed along a first side of the display screen;
- a second linear input device affixed along a second side of the display screen;
- a third linear input device affixed along a third side of the display screen;
- a planar input device on a back face of the portable device; and

control logic for manipulating content displayed on the display screen responsive to user input via the first, second, third, and planar input devices.

2. The portable device of claim 1, wherein the planar input device covers substantially the same amount of space on the back face as the display screen covers on the front face of the portable device.

3. The portable device of claim 1, wherein the display screen covers substantially all of the front face of the device.

4. The portable device of claim 1, wherein each of the linear input devices is located on the front face of the portable device.

5. The portable device of claim 1, wherein each of the linear input devices is affixed on a side face of the portable device.

6. The portable device of claim 5, wherein the first linear input device is affixed on a first side face of the portable device, the second linear input device is affixed on a second side face of the portable device, and the third linear input device is affixed on a third side face of the portable device.

7. The portable device of claim 1, wherein each input device comprises a touch-sensitive input device.

8. The portable device of claim 7, wherein one of the linear input devices senses pressure exerted by a user for detecting input.