

viewed by the user is only about 80% of the available light. In a reflective display, that amount is further reduced to about 64%. This reduces the overall contrast, clarity, and quality of the display as seen by the user.

SUMMARY OF THE INVENTION

[0016] Thus, a need exists for a user interface which overcomes the disadvantages of an LCD (liquid crystal display) in a portable electronic device and which provides touch screen functionality such that the visual quality of the display device is not diminished. An additional need exists for a user interface that fills the above need and which substantially reduces the parallax effect, such that the intended target within the display device is the actual point of contact. An additional need exist for a user interface that fills the above needs while reducing overall height requirements of the portable computer system.

[0017] Accordingly, the present invention provides a user interface which overcomes the disadvantages of an LCD (liquid crystal display) for a portable electronic device. The present invention further provides, in one embodiment, a user interface that achieves the above listed accomplishment and which provides a flexible display panel. Furthermore, the present invention also provides a user interface that provides the above listed features and which further provides a flexible touch sensor. Additionally, the present invention provides a user interface that provides the above listed features while reducing the overall height requirement of the electronic device. The present invention further provides a user interface that provides the above listed features while preventing the quality of the display from being diminished. The present invention additionally provides a user interface that provides the above listed features and which eliminates the parallax effect.

[0018] The present invention provides a user interface which overcomes the disadvantages of an LCD (liquid crystal display) for a portable electronic device. In one embodiment, the present invention is comprised of a flexible display panel. The flexible display panel is coupled with the portable electronic device. In the present embodiment, the present invention is further comprised of a flexible touch sensor. The flexible touch sensor is coupled to the flexible display panel. In the present embodiment, the flexible touch sensor is operable to register a position where contact is made with a surface of the user interface, wherein a particular position on the user interface is translated into a particular command for controlling the portable electronic device. In the present embodiment, the flexible touch sensor is disposed beneath the flexible display panel.

[0019] These and other objects and advantages of the present invention will no doubt become obvious to those of ordinary skill in the art after having read the following detailed description of the preferred embodiments which are illustrated in the various drawing figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] The accompanying drawings, which are incorporated in and form a part of this specification, illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention:

[0021] FIG. 1 (Prior Art) illustrates a cross-section of an exemplary touch screen incorporated with an LCD, in accordance with one embodiment of the present invention.

[0022] FIG. 2A is a block diagram of an exemplary network environment including a portable computer system, in accordance with one embodiment of the present invention.

[0023] FIG. 2B is a block diagram of a portable computer system connected to other computer systems and the Internet via a cradle device, in accordance with one embodiment of the present invention.

[0024] FIG. 3A is a top side perspective view of a portable computer system configured with a front cover, in accordance with one embodiment of the present invention.

[0025] FIG. 3B is a bottom side perspective view of the palmtop computer system of FIG. 3A.

[0026] FIG. 3C is an exploded view of the components of the portable computer system of FIG. 3A.

[0027] FIG. 3D is a block diagram of the components and circuitry of the portable computer system in FIG. 3A, in accordance with one embodiment of the present invention.

[0028] FIG. 4 illustrates a cross-section of the display panel, including the flexible touch sensor, of the portable computer system of FIG. 6 and the display panel mounted to the portable computer system of FIG. 8, in accordance with one embodiment of the present invention.

[0029] FIG. 5A illustrates a cross-section of a two-sided flexible display panel, including the flexible touch sensor, of the portable computer system of FIGS. 7 and 8, in accordance with one embodiment of the present invention.

[0030] FIG. 5B illustrates a cross-section of a flexible display panel shown as having a flexible touch sensor interwoven within the flexible display panel, in one embodiment of the present invention.

[0031] FIG. 6A illustrates a front perspective view of a portable computer system configured with a display component mounted to the portable computer system, in accordance with one embodiment of the present invention.

[0032] FIG. 6B illustrates a front perspective view of the portable computer system of FIG. 6A in a continuation of the example described in the process initiated in FIG. 6A, in accordance with one embodiment of the present invention.

[0033] FIG. 7 illustrates a front perspective view of a portable computer system configured with a two-sided flexible display panel disposed integral with the front cover such that the front flexible display panel of the front cover is visible, in accordance with one embodiment of the present invention.

[0034] FIG. 8A is a front facing illustrated perspective view of the portable computer system of FIG. 7 with the front cover opened, exposing the second display panel of the front cover and another display panel mounted to the portable computer system, in accordance with one embodiment of the present invention.

[0035] FIG. 8B is a front facing illustrated perspective view of a portable computer system 100 configured with a flexible display panel disposed upon the inside surface of the front cover, and is shown as having the front cover in the closed position, in accordance with one embodiment of the present invention.

[0036] FIG. 8C is a front facing illustrated perspective view of the portable computer system of FIG. 8B with the front cover in the open position.