PORTABLE ELECTRONIC DEVICE HAVING A PLIABLE OR FLEXIBLE PORTION

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a continuation of U.S. application Ser. No. 10/241,157 filed Sep. 11, 2002, which is incorporated herein by reference in its entirety.

BACKGROUND

[0002] The invention relates generally to the field of portable electronic devices and handheld computers. More particularly, the invention relates to portable electronic devices and handheld computers including flexible and/or pliable sensors. Further, the invention relates to portable electronic devices and handheld computers including flexible input sensors used to provide navigation on a display of the portable electronic device or handheld computer.

[0003] Conventionally, portable electronic devices include visible displays, such as liquid crystal displays (LCDs) and other similar displays. Such displays may be incorporated into any of a variety of portable electronic devices, such as mobile telephones, handheld computers, personal digital assistance (PDAs), laptop computers, and the like. Because of the small form factor required for such portable electronic devices, many conventional portable electronic devices also include some integrated types of input devices, for example, touch screens, buttons, thumb wheels (oy dials), integrated keyboards, and the like. Such input devices are provided to enable users to provide input to the portable electronic device and further to navigate a cursor or like device on the display.

[0004] Because there is a desire for very thin, lightweight, and power conserving displays and/or displays that are flexible and/or expandable, and further because there is a desire to have input devices on the portable electronic device that are simple to use and ergonomic, conventional input devices may not be satisfactory.

[0005] Accordingly, there is a need for an input device that is flexible and/or pliable and may be integrated into the housing and/or the display of a portable electronic device. Further, there is a need for a flexible and pliable input device that may be used to navigate on a display by providing at least one of pressure, bending, twisting, folding, and/or pulling motions to the flexible and/or input device sensor. Further still, there is a need for a method of providing navigation on a display screen by using a flexible and/or pliable input device sensor. Yet further still, there is a need for a flexible and/or pliable input sensor that is integrated into a flexible and/or pliable electronic device for providing input and navigation capabilities thereto.

[0006] It would be desirable to provide a system and/or method that provides one or more of these or other advantageous features. Other features and advantages will be made apparent from the present specification. The teachings disclosed extend to those embodiments which fall within the scope of the appendent claims, regardless of whether they accomplish one or more of the aforementioned needs.

SUMMARY

[0007] An example of the invention relates to a portable electronic device. The portable electronic device includes a housing. The portable electronic device also includes computing electronics supported by the housing. Further, the portable electronic device includes a pliable sensor supported on the housing. The pliable sensor provides input from a hand of a user by applying pressure to the pliable sensor.

[0008] Another example of the invention relates to a handheld computer. The handheld computer includes a housing. The handheld computer also includes computing electronics supported by the housing. Further, the handheld computer includes a display supported by the housing. Further still, the handheld computer includes a deformable sensor supported on the housing. The deformable sensor provides input from a hand of a user by deformation of the deformable sensor.

[0009] Yet another example of the invention relates to a method of providing input to a portable electronic device. The method includes grasping with a hand, the housing of the portable electronic device. The housing supports a pliable sensor. At least a portion of the hand covers at least a portion of the pliable sensor. The method also includes providing pressure with a portion of the hand to the pliable sensor.

[0010] Yet still another example of the invention relates to a portable electronic device. The portable electronic device includes a means for grasping with the hand, the housing of the portable electronic device. The housing supports a pliable sensor. At least a portion of the hand covers at least a portion of the pliable sensor. The portable electronic device also includes a means for providing pressure, with a portion of the hand, to the pliable sensor.

[0011] Alternative examples of the invention relate to other features and combination of features as may be generally recited in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The invention will become more fully understood from the following detailed description taken in conjunction with the accompanying drawings, wherein like reference numerals refer to like elements in which:

[0013] FIG. **1** is an exemplary block diagram of a handheld computer;

[0014] FIG. **2** is an exemplary depiction of a handheld computer including a flexible or pliable sensor;

[0015] FIG. **3** is an alternative exemplary depiction of a handheld computer including a flexible or pliable sensor and depicting exemplary directions and/or motions in which the handheld computer may be deformed; and

[0016] FIG. **4** is an exemplary depiction of a handheld computer including a flexible or pliable sensor and being held by the hand of a user.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0017] Referring to FIG. **1**, a handheld or portable computer system **100** is depicted according to an exemplary embodiment. Handheld computer system **100** is representative of many of the portable electronic devices on which embodiments of the invention may be implemented, including, but not limited to PDAs, personal information managers (PIMs), palm tops, handheld computers, cellular telephones, wireless communicators, and other information and data processing devices.

[0018] Handheld computer **100** includes a communications bus **110** used to communicate information between devices coupled to communications bus **110**. Handheld computer **100** also includes a processor **115** that is used to process information and instructions. Processor **115** is coupled to communi-