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Electronic devices with touch sensitive surfaces and user input devices

Abstract

Example electronic devices are disclosed herein. In an example, the electronic device includes a housing including a plurality of portions that are pivotably coupled together. The plurality of portions including a first portion including a display panel, a second portion including a user input device, and a third portion including a touch sensitive surface. The second portion is pivotably coupled between the first portion and the third portion. The third portion is pivotable relative to the second portion to cover the user input device with the touch sensitive surface.

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Background/Summary

BACKGROUND

(1) Electronic devices are utilized for a host of different functions and tasks, and may be able to receive multiple types of user inputs. For instance, an electronic device may receive user inputs in the form of typed text and/or free-hand markings (e.g., drawings, graphics, free-hand text, etc.) via suitable devices that are coupled to the electronic device.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

(1) Various examples will be described below referring to the following figures:

(2) FIG. **1** is a side view of an electronic device including a user input device and a touch sensitive surface, with a portion of the housing of the electronic device in a first position according to some examples;

(3) FIG. **2** is a side view of the electronic device of FIG. **1**, showing the portion of the housing in a second position according to some examples;

(4) FIG. **3** is a side view of the electronic device of FIG. **1** showing the housing in a closed position according to some examples;

(5) FIG. **4** is a front perspective view of an electronic device including a user input device and a touch sensitive surface, with a portion of the housing of the electronic device in the first position according to some examples;

(6) FIG. **5** is a front perspective view of the electronic device of FIG. **4** showing the portion of the housing in transition between the first position and a second position according to some examples;

(7) FIG. **6** is a front perspective view of the electronic device of FIG. **4** showing the portion of the housing in the second position according to some examples;

(8) FIG. **7** is a side view of an electronic device including a user input device and a touch sensitive surface, with a portion of the housing of the electronic device in a first position according to some examples;

(9) FIG. **8** is a rear perspective view of an electronic device including a user input device and a touch sensitive surface according to some examples;

(10) FIG. **9** is a side view of an electronic device including a user input device and a touch sensitive surface, with a portion of the housing of the electronic device in a first position according to some examples;

(11) FIG. **10** is a side view of the electronic device of FIG. **10**, showing the portion of the housing in a second position according to some examples;

(12) FIG. **11** is a block diagram of an electronic device including a user input device and a touch sensitive surface according to some examples;

(13) FIG. **12** is a block diagram of an electronic device including a user input device and a touch sensitive surface according to some examples; and

(14) FIGS. **13** and **14** are enlarged side views of electronic devices including a user input device and a touch sensitive surface according to some examples.

DETAILED DESCRIPTION

(15) An electronic device may receive user inputs in the form of typed text and/or free-hand markings via suitable devices during operations. Typed text in the form of alphanumeric characters may be input to an electronic device (e.g., for purposes of drafting a written message, code, etc.) via a keyboard (e.g., physical keyboard, digital keyboard, etc.). In addition, free-hand markings may be input to the electronic device via a touch sensitive surface (e.g., a graphics pad, touch-sensitive display, etc.).

(16) In some instances, an electronic device may be mobile so that a user may transport the electronic device from place to place. Many electronic devices (e.g., such as laptop-style computers) include a coupled or even integrated keyboard. In addition, while a trackpad or touchpad may be included on an electronic device, adjacent a keyboard, these relatively small touch-sensitive surfaces are often insufficient for more extensive free-hand input by a user (e.g., drawings, hand-written text, etc.). Moreover, while a larger touch sensitive surface or panel may be communicatively coupled to the electronic device to provide enhanced free-hand input functionality, a user may not wish to transport multiple separate devices simultaneously.

(17) Accordingly, examples disclosed herein include electronic devices comprising a user input device (e.g., such as a keyboard) and a touch sensitive surface pivotably coupled to the user input device. During operations, both the user input device and the touch sensitive surface may be selectively used to provide user inputs to the electronic device. In addition, because the touch sensitive surface and user input device are both pivotably coupled within the electronic device, the electronic device may be generally mobile so that a user may transport the electronic device (e.g., including the user input device and touch sensitive surface) from place to place.

(18) Referring now to FIG. **1**, an electronic device **10** according to some examples disclosed herein is shown. As used herein, the term “electronic device” refers to a device or assembly that includes components such as processors (e.g., to execute machine-readable instructions), power supplies, memory, etc. For example, an electronic device may include a desktop computer, a smart phone, a tablet computer, a laptop computer, etc. In this example, electronic device **10** generally comprises a laptop-style computer that includes a housing **11** comprising a plurality of portions pivotably coupled together. Specifically, the housing **11** includes a first portion **12**, a second portion **20**, and a third portion **40**. The second portion **20** is pivotably coupled to the first portion **12** via a first hinge **16**, and the third portion **40** is pivotably coupled to the second portion **20** via a second hinge **24**.

(19) The first portion **12** includes a display panel **14**. The display panel **14** may comprise any suitable type of electronic display (e.g., a liquid crystal display (LCD), organic light emitting diode (OLED) display, a plasma display, electrophoretic display, etc.). The first portion **12** also includes a first edge **12***a* and a second edge **12***b* opposite the first edge **12***a*.

(20) The second portion **20** includes a first edge **20***a* and a second edge **20***b* opposite the first edge **20***a*. In addition, second portion **20** includes a first or upper side **21** and a second or lower side **23** opposite the upper side **21**. Both the upper side **21** and the lower side **23** extend between the first edge **20***a* and the second edge **20***b*.

(21) A user input device **22** is generally positioned on the upper side **21**. The user input device **22** may comprise any suitable device or assembly that may be utilized by a user to provide text inputs to the electronic device **10** during operations. For instance, in some examples, the user input device **22** may comprise a keyboard, such as, for instance a physical keyboard with physically depressible keys or buttons that correspond with various commands, functions, alphanumeric characters, etc. In some instances, the keyboard of the user input device **22** may comprise a so-called “digital keyboard,” which comprises an electronic display (e.g., such as any of the example electronic displays noted above for the display panel **14**) that may display a number of keys or buttons thereon corresponding with various commands, functions, and/or alphanumeric characters as previously described. In some examples employing a digital keyboard as the user input device **22**, the electronic display presenting the digital keys or buttons may comprise a touch sensitive surface

(which is generally defined below) so as to allow the user engagement of the keys or buttons to be detected. Thus, as used herein, the term “keyboard,” is intended to include both physical keyboards and digital keyboards.

(22) During operations, a user may engage with or otherwise interact with the keys or buttons (e.g., physical buttons, digital buttons, etc.) of the user input device **22** so as to provide user inputs to the electronic device **10**. In some instances, the user inputs received via the user input device **22** may comprise typed text, commands, etc. In some examples, the user inputs (or some of the user inputs) received via the user input device **22** may be displayed (e.g., directly, indirectly, etc.) via display panel **14**.

(23) Third portion **40** includes a first edge **40***a* and a second edge **40***b* opposite the first edge **40***a*. In addition, third portion **40** includes a first side **41** and a second side **43** that is opposite the first side **41**. Both the first side **41** and the second side **43** extend between the first edge **40***a* and the second edge **40***b*. In some examples (e.g., such as in the example of FIG. **1**), the third portion **40** may be generally larger than the second portion **20**. For instance, the distance along (or parallel with) the sides **41**, **43** between the edges **40***a*, **40***b* of third portion **40** is larger than the distance along (or parallel with) the sides **21**, **23** between the edges **20***a*, **20***b* of second portion **20**.

(24) A first touch sensitive surface **42** is positioned on the first side **41** and a second touch sensitive surface **44** is positioned on the second side **43**. As used herein, the phrase “touch sensitive surface” refers to a surface that may register or detect a touch event thereon. A touch event comprises the engagement of a finger, stylus, or other object with the touch sensitive surface. A touch sensitive surface may utilize a number of technologies or systems for sensing or detecting (including locating) a touch event thereon. For instance, according to various examples, a touch sensitive surface (e.g., such as the touch sensitive surfaces **42**, **44**) may comprise a resistive touch sensitive surface, a capacitive touch sensitive surface, surface acoustic wave touch sensitive surface, infrared touch sensitive surface, acoustic pulse touch sensitive surface, etc. Regardless of the touch sensing techniques utilized, during operations the electronic device **10** may receive touch inputs (e.g., touch events) via the first touch sensitive surface **42** and the second touch sensitive surface **44** (e.g., via a user's finger, a stylus, etc.). As with the user input device **22**, user inputs received on the first touch sensitive surface **42** and the second touch sensitive surface **44** may be displayed (e.g., directly, indirectly, etc.) on the display panel **14**.

(25) In some examples, the first touch sensitive surface **42** may be larger than the second touch sensitive surface **44**. For instance, in some examples the first touch sensitive surface **42** may comprise a graphics pad that a user may utilize to provide free-hand markings (e.g., drawings, free-hand text, graphics, etc.) as inputs to the electronic device **10**. In some examples, the second touch sensitive surface **44** comprises a trackpad that may be used in conjunction with the user input device **22** (which may comprise a keyboard as previously described above). For instance, the second touch sensitive surface **44** may be engaged with a finger, stylus or other object so as to maneuver a cursor (e.g., arrow, finger, pointer, etc.) about a presented image provided on the display panel **14**. However, in some examples, touch inputs on the first touch sensitive surface **42** may also be utilized to move a cursor about the presented image on the display panel **14**, and/or the second touch sensitive surface **44** may be utilized to provide free-hand markings as inputs to the electronic device **10**.

(26) As previously described, the first portion **12** of housing **11** is pivotably coupled to second portion **20** via a first hinge **16**, and the second portion **20** is pivotably coupled to third portion **40** via a second hinge **24**. More particularly, in some examples the first hinge **16** is pivotably coupled to the second edge **12***b* of the first portion **12** and the first edge **20***a* of the second portion **20**. In addition, in some examples the second hinge **24** is pivotably coupled to the second edge **20***b* of the second portion **20** and the second side **43** of the third portion **40** such that the second hinge **24** is spaced between the first edge **40***a* and the second edge **40***b*. The second hinge **24** may be coupled to the second side **43** such that the second hinge **24** is positioned between the first edge **40***a* and the

second touch sensitive surface **44**. As a result, the second touch sensitive surface **44** may be positioned between the second hinge **24** and the second edge **40***b*.

(27) The first hinge **16** includes a first axis of rotation **15**, and the second hinge **24** includes a second axis of rotation **25**. As a result, the first portion **12** and the second portion **20** may pivot relative to one another about the first axis of rotation **15** via the first hinge **16**, and the second portion **20** and the third portion **40** may pivot relative to one another about the second axis of rotation **25** via the second hinge **24**. In some examples, the first axis of rotation **15** is parallel to the second axis of rotation **25**. In addition, the first axis of rotation **15** and the second axis of rotation **25** may also be parallel to (and in some cases aligned with) the edges **20***a*, **20***b*, **40***a*, **40***b*.

(28) The first hinge **16** and the second hinge **24** may comprise any suitable pivotable coupling mechanism. For instance, in some examples, the first hinge **16** and/or the second hinge **24** comprise pinned couplings. In some examples, the first hinge **16** and/or the second hinge **24** may comprise a so-called "living hinge," that includes a flexible or compliant material (e.g., an elastomer, a fabric, etc.) that may elastically deform so as to allow pivotable motion thereabout (e.g., such as pivotable motion between the first portion **12** and second portion **20** and/or pivotable motion between the second portion **20** and third portion **40**).

(29) Referring now to FIGS. **1** and **2**, the third portion **40** may be pivoted about the second hinge **24** (and thus about the second axis of rotation **25**) relative to the second portion **20** between a plurality of positions. For instance, the third portion **40** may be pivoted about the second hinge **24** relative to the second portion **20** to a first position shown in FIG. **1** and a second position shown in FIG. **2**. In the first position (FIG. **1**) the third portion **40** is pivoted about the second hinge **24** so that the second touch sensitive surface **44** is adjacent the user input device **22**, and the user input device **22** is positioned over the first touch sensitive surface **42**. In the second position (FIG. **2**), the third portion **40** is pivoted about the second hinge **24** so that the first touch sensitive surface **42** covers (or extends over) the user input device **22**.

(30) More specifically, referring specifically to FIG. **1**, when the third portion **40** is in the first position, a portion of the second side **43** (e.g., the portion extending from the second hinge **24** to the second edge **40***b* that includes the second touch sensitive surface **44**) may be adjacent to the second edge **20***b* of second portion **20** and user input device **22**. Accordingly, when the third portion **40** is in the first position, the second touch sensitive surface **44** is adjacent the user input device **22** on second portion **20**, such that when the electronic device **10** is in the first position of FIG. **1**, a user may provide inputs to the electronic device **10** via the user input device **22** and the second touch sensitive surface **44**. In addition, when in the first position, the first touch sensitive surface **42** may be deactivated (e.g., via a processor **82** as described in more detail below). Further, when in the first position, the first side **41** of third portion **40** (which includes the first touch sensitive surface **42** as previously described) may comprise a lower-most surface of the electronic device **10**. Thus, in the first position, the first side **41** may engage with a support surface (e.g., a desk, table, countertop, user's lap, floor, etc.). In some examples, the first side **41** may comprise feet or other projections for engaging with the support surface (not shown) when in the first position of FIG. **1**.

(31) Referring specifically now to FIG. **2**, when the third portion **40** of the electronic device **10** is in the second position, the third portion **40** may be pivoted about the second hinge **24** so that the first side **41** of the third portion **40** generally covers the second portion **20**. Specifically, when in the second position, the first touch sensitive surface **42** may cover the user input device **22** so that the user input device **22** is occluded from the user's view point. In addition, when the third portion **40** is in the second position, the second side **43** of third portion **40** may generally abut or engage with (or may simply oppose without actual engagement) the upper side **21** of second portion **20**. Further, when the third portion **40** is in the second position, the lower side **23** of the second portion **20** and the second side **43** of the third portion **40** (e.g., the portion of the second side **43** that extends between the second hinge **24** and the first side **41**) may engage with a support surface. When the

third portion **40** is in the second position, a user may provide inputs to the electronic device **10** via the first touch sensitive surface **42**, and the second touch sensitive surface **44** and user input device **22** may be deactivated (e.g., via a processor **82** as described in more detail below).

(32) Referring now to FIG. **3**, when the third portion **40** of the housing **11** is in the second position (FIG. **2**), the first portion **12** may be pivoted relative to the second portion **20** about the first hinge **16** (and thus also about the first axis of rotation **15**) so as to engage the first portion **12** with the first side **41** of the third portion **40**. In some examples, when the first portion **12** is pivoted about the first hinge **16**, the first portion **12** may oppose the first side **41** of the third portion **40** without actually engaging therewith. In this position, the electronic device **10** may be more easily transported from one place to another. As a result, the position of the housing **11** in FIG. **3** may be referred to as a closed or folded position.

(33) Referring now to FIGS. **4**-**6**, perspective views of an example implementation of electronic device **10** are shown. In particular, FIG. **4** shows the electronic device **10** with the third portion **40** in the first position (see e.g., FIG. **1**), FIG. **6** shows the electronic device **10** with the third portion **40** in the second position (see e.g., FIG. **2**), and FIG. **5** shows third portion **40** in transition between the first position (see e.g., FIG. **1**) and the second position (see e.g., FIG. **2**). In the views of FIGS. **4**-**6**, the components and features of the electronic device **10** that were previously described above and shown in FIGS. **1**-**3** are labeled with the same reference numerals.

(34) From the views in FIGS. **4**-**6**, one can appreciate that when the third portion **40** is in the first position of FIGS. **1** and **4**, the second touch sensitive surface **44** is adjacent to the user input device **22** (which in the example of FIG. **4** is a physical keyboard as previously described), so that a user may provide inputs to the electronic device **10** via both the user input device **22** (e.g., via typing), and the second touch sensitive surface **44** (e.g., via engagement of the second touch sensitive surface **44** with a finger, stylus, etc.). In addition, from the views of FIGS. **4**-**6**, one can also appreciate that when the third portion **40** is in the second position of FIGS. **2** and **6**, the first touch sensitive surface **42** on first side **41** of third portion **40** covers or occludes the user input device **22**.

(35) In addition, referring specifically to FIGS. **5** and **6**, in some examples, a stylus **50** may be coupled to the housing **11** of electronic device **10**. For instance, in the example of FIGS. **5** and **6**, the stylus **50** is coupled to a side or other surface of the third portion **40**, so that a user may retrieve the stylus **50** to provide inputs therewith on the first touch sensitive surface **42** when the third portion **40** is in the second position of FIGS. **2** and **6**. Any suitable mechanism may be utilized to secure the stylus **50** to the housing **11** (e.g., such as a side or surface of the third portion **40** as previously described), such as, for instance, magnets, hook and loop connectors, a recess extending within housing **11** (or along a surface thereof) that may receive some or all of the stylus **50** therein, etc.

(36) Referring now to FIG. **7**, in some examples, the second touch sensitive surface **44** (see e.g., FIG. **1**) may be omitted from the second side **43** of third portion **40**. Specifically, in some examples, the second touch sensitive surface **44** may be omitted entirely from electronic device **10** or may be included in another location within housing **11** (e.g., such as on the upper side **21** of second portion **20** alongside or integral within the user input device **22**).

(37) Referring again to FIG. **1**, when the third portion **40** is in the first position, the second portion **20** may extend at a non-zero angle θ to the third portion **40**. In some examples, the angle θ may range from about 1° to about 10°; however, other non-zero values of the angle θ are contemplated for other examples. When placed in this position, the user input device **22** may be angled so as to promote an ergonomic interaction with the user's hands when the user is typing or otherwise providing inputs on the user input device **22** (which may comprise a keyboard as previously described). In addition, when the third portion **40** is placed in the first position of FIG. **1** and a user is typing or engaging with the user input device **22**, the user's palms may rest on the second side **43** of the third portion **40** (e.g., on the portion of the second side **43** extending from the second hinge **24** to the second edge **40***b*, and on either side of the second touch sensitive surface **44**—see e.g.,

FIG. **4**).
(38) The angle θ may be achieved between the second portion **20** and the third portion **40** by any suitable mechanism. For instance, in some examples, the second hinge **24** may include a stopper (or stoppers) that limit rotation of the third portion **40** about the second hinge **24**. In some examples, the lower side **23** of second portion **20** and/or the second edge **12***b* of first portion **12** may include feet, offsets, and/or other structures that engage with the second side **43** of third portion **40** (e.g., in the region between the second hinge **24** and the first edge **40***a*) and thereby place the second portion **20** at the angle θ relative to third portion **40**.
(39) Referring now to FIG. **8**, in some examples, the second hinge **24** may comprise a living hinge as previously described that may limit rotation of the third portion **40** thereabout so as to achieve the angle θ for the second portion **20**. For instance, in the example of FIG. **8**, a compliant material **60** is engaged along the lower side **23** of second portion **20** and along a portion of the second side **43** of third portion **40** extending from first edge **40***a*. The portion of the compliant material **60** that extends between the second edge **20***b* of second portion **20** to the second side **43** of third portion **40** may form (e.g., partially or wholly) the second hinge **24**. As a result, rotation of the third portion **40** about the second hinge **24** may comprise bending the compliant material **60** along the portion that extends from second edge **20***b* of second portion **20** to second side **43** of third portion **40**. The compliant material **60** may have a minimum radius of curvature that may be achieved via the above-described bending, and this minimum radius of curvature may result in the angle θ for the second portion **20** relative to the third portion **40** as previously described. In some examples, the compliant material **60** may also extend over a portion of the first portion **12** (e.g., such as on the side opposite the display panel **14**—see e.g., FIG. **1**). In some examples, the compliant material **60** may comprise a fabric (e.g., such as leather).
(40) In some examples, the lower side **23** of the second portion **20** may include a vent **26** that may allow for airflow into and/or out of the second portion **20** during operations. Without being limited to this or any other theory, the airflow into and/or out of the vent **26** may transfer heat away from electronic components positioned within the second portion **20** (e.g., processors, memories, etc.). Thus, when the third portion **40** is placed in the first position (see e.g., FIG. **1**), the angle θ between the second portion **20** and the third portion **40** may lift the vent **26** away from the third portion **40** (specifically the second side **43**) so as to promote airflow into and/or out of the vent **26** during operations.
(41) Referring now to FIGS. **9** and **10**, in some examples, the second side **43** of the third portion **40** may include a recess **46** extending from the second edge **40***b* to the second hinge **24**. As a result, when the third portion **40** is pivoted from the first position of FIG. **9** (see also FIG. **1**) to the second position of FIG. **10** (see also, FIG. **2**), the second portion **20** may be received within the recess **46**. In some examples (e.g., such as in the example of FIGS. **9** and **10**), when the third portion **40** is in the second position of (FIG. **10**), the lower side **23** of the second portion **20** and the portion of the second side **43** of third portion **40** extending from the hinge **24** to the first edge **40***a* may be co-planar with one another.
(42) Referring now to FIG. **11**, in some examples a processor **82** may be positioned within housing **11** and communicatively coupled to the user input device **22** and the first touch sensitive surface **42** of the third portion **40**. In FIG. **11**, processor **82** is depicted as being positioned within the second portion **20** of housing **11**. However, processor **82** may be positioned within first portion **12**, second portion **20**, or third portion **40** in various examples.
(43) In some examples, processor **82** may comprise a microprocessor, a central processing unit (CPU), a processor within a microcontroller, etc. Processor **82** may execute machine-readable instructions **85** that are stored on a memory **84** (e.g., a non-transitory machine-readable medium), thereby causing the processor **82** to perform some or all of the actions attributed herein to the processor **82** (and, more generally, to the electronic device **10**).
(44) In some examples, the memory **84** may be positioned within the second portion **20** (e.g., such

as is shown in FIG. **11**). However, in some examples, the memory **84** may be positioned within the first portion **20** or the third portion **40**, or may be distributed among the first portion **12**, second portion **20**, and the third portion **40** (or a subset of the first portion **12**, second portion **20**, and the third portion **40**). The memory **84** may comprise volatile storage (e.g., random access memory (RAM)), non-volatile storage (e.g., flash storage, etc.), or combinations of both volatile and non-volatile storage. Data read or written by the processor **82** when executing the machine-readable instructions **85** can also be stored on memory **84**.

(45) As previously described, during operations the processor **82** is to activate one of the user input device **22** or the first touch sensitive surface **42** and deactivate the other of the user input device **22** or the first touch sensitive surface **42** based on a rotational position of the first touch sensitive surface **42** relative to the user input device **22**. In particular, when the third portion **40** is rotated relative to second portion **20** about the second hinge **24** to the first position shown in FIG. **1**, the first touch sensitive surface **42** may be the lower-most surface of the electronic device **10** that may engage (or oppose) a support surface. As a result, in some examples, when the third portion **40** is in the first position of FIG. **1**, the processor **82** may deactivate the first touch sensitive surface **42** so that touch events on the first touch sensitive surface **42** are prevented from being received as inputs on the electronic device **10**. In addition, as is also previously described, when the third portion **40** is placed in the first position of FIG. **1**, the user input device **22** may be available for use by the user on the second portion **20**. As a result, in some examples, when the third portion **40** is in the first position of FIG. **1**, the processor **82** may additionally activate the user input device **22** so that the user may provide inputs to the electronic device **10** with the user input device **22**.

(46) Referring now to FIG. **12**, in some examples, the processor **82** may also be coupled to the second touch sensitive surface **44**. Thus, when the third portion **40** is placed in the first position of FIG. **1**, the processor **82** may also activate the second touch sensitive surface **44** so that a user may provide inputs to the electronic device **10** using the second touch sensitive surface **44** and the user input device **22**.

(47) Referring again to FIG. **11**, when the third portion **40** is rotated relative to the second portion **20** about the second hinge **24** to the second position shown in FIG. **2**, the first touch sensitive surface **42** may cover the user input device **22** as previously described. As a result, in some examples, when the third portion **40** is in the second position of FIG. **2**, the processor **82** may activate the first touch sensitive surface **42** to receive user inputs for the electronic device **10**. In addition, when the third portion **40** is in the second position of FIG. **2**, the processor **82** may deactivate the user input device **22** on the second portion **20**. Moreover, in some examples (e.g., such as in the example of FIG. **12**), the processor **82** may also deactivate the second touch sensitive surface **44** when the third portion **40** is in the second position of FIG. **2**.

(48) The processor **82** may determine when the third portion **40** is in the first position of FIG. **1** or the second position of FIG. **2** in a variety of methods or manners. In some examples, the second hinge **24** may include a bend sensor or other suitable device or assembly for detecting a relative positions of the third portion **40** and second portion **20** about the second hinge **24** during operations.

(49) In some examples, the second portion **20** and/or the third portion **40** may include magnets that may be utilized for determining a relative, rotative position of the third portion **40** about the second hinge **24**. For instance, referring now to FIG. **13**, in some examples the second portion **20** and third portion **40** may include magnets **90** and **91**, respectively, that may come within sufficient proximity to one another when the third portion **40** is in the first position (see e.g., FIG. **1**) so as to attract one another and therefore maintain the third portion **40** in the first position. In some examples, the magnet **90** in second portion **20** and/or the magnet **91** in the third portion **40** may be disposed within or on a projection or other suitably shaped surface so that when the third portion **40** is in the first position, the magnets **90**, **91** (or surfaces of the portions **20**, **40** immediately adjacent the magnets **90**, **91**) are brought into contact with one another. In some examples, the magnet **90** in the

second portion **20** may be included within the first portion **12** (e.g., such as at or near the second edge **12***b* of first portion **12**), or within the first hinge **16**.

(50) Referring now to FIG. **14**, in some examples, the second portion **20** and the third portion **40** may include magnets **93** and **92**, respectively, that may come within sufficient proximity to one another when the third portion **40** is in the second position (see e.g., FIG. **2**) so as to attract one another and therefore maintain the third portion **40** in the second position. The magnets **90**, **91**, **92**, **93** may comprise permanent magnets or electromagnets.

(51) Referring now to FIGS. **12-14**, in some examples the second portion **20**, and/or the third portion **40** may include a suitable sensor (or sensors) (e.g., hall effect sensor) that is (or are) to sense or detect a magnetic field (e.g., such as would be associated with the magnets **90**, **91**, **92**, **93**). For instance, in some examples, the second portion **20** may include a sensor **94** that is to detect a magnetic field associated with the magnet **91** coupled to the third portion **40**. Thus, during operations, when the third portion **40** is placed in the first position of FIGS. **1** and **12**, the sensor **94** may detect the magnetic field associated with magnet **91** and based on the output from the sensor **94** the processor **82** (see e.g., FIG. **12**) may determine that the third portion **40** is in the first position and therefore activate the user input device **22** and/or second touch sensitive surface **44** and deactivate the first touch sensitive surface **42** as previously described. In some examples, the second portion **20** may include a sensor **95** in addition to or in lieu of the sensor **94** that is to detect a magnetic field associated with the magnet **92** coupled to the third portion **40**. Thus, during operations, when the third portion **40** is placed in the second position of FIGS. **2** and **13**, the sensor **95** may detect the magnetic field associated with magnet **92** and based on that output from the sensor **95**, the processor **82** (see e.g., FIG. **12**) may determine that the third portion **40** is in the second position and therefore activate the first touch sensitive surface **42** and deactivate the user input device **22** and/or the second touch sensitive surface **44** as previously described.

(52) Referring again to FIG. **12**, in some examples, a power source **86** may be positioned within the third portion **40**. The power source **86** may provide electrical power to some or all of the other components within the housing **11** of electronic device **10**. For instance, the power source **86** may provide electrical power to the processor **82**, display panel **14**, etc. Power source **86** may comprise any suitable device or assembly for storing and/or delivering electric current, such as, for instance, a capacitor, battery (e.g., rechargeable battery), etc. In some examples, the power source **86** may be positioned within the second portion **20** and/or the first portion **12** of housing **11**.

(53) The examples disclosed herein include electronic devices (e.g., electronic device **10**) comprising a user input device (e.g., user input device **22**) and a touch sensitive surface (e.g., touch sensitive surfaces, **42**, **44**, etc.) pivotably coupled to the user input device. During operations, both the user input device and the touch sensitive surface may be selectively used to provide inputs to the electronic device. Thus, through use of the example electronic devices disclosed herein, a user may selectively provide inputs on a user inputs device and/or a touch sensitive surface that are supported within a mobile and compact housing (e.g., housing **11**).

(54) In the figures, certain features and components disclosed herein may be shown exaggerated in scale or in somewhat schematic form, and some details of certain elements may not be shown in the interest of clarity and conciseness. In some of the figures, in order to improve clarity and conciseness, a component or an aspect of a component may be omitted.

(55) In the preceding discussion and in the claims, the terms “including” and “comprising” are used in an open-ended fashion, and thus should be interpreted to mean “including, but not limited to . . . .” Also, the term “couple” or “couples” is intended to be broad enough to encompass both indirect and direct connections. Thus, if a first device couples to a second device, that connection may be through a direct connection or through an indirect connection via other devices, components, and connections. In addition, as used herein, including in the claims, the word “or” is used in an inclusive manner. For example, “A or B” means any of the following: “A” alone, “B” alone, or both “A” and “B.”

Claims

1. An electronic device, comprising: a first portion including a display panel; a second portion pivotably coupled to the first portion at a first hinge, wherein the second portion includes a user input device; and a third portion pivotably coupled to the second portion at a second hinge that is substantially parallel with the first hinge, the second hinge comprising an axis of rotation, wherein the third portion has a first side and a second side opposite the first side, wherein the first side comprises a first touch sensitive surface, and wherein the second side comprises a second touch sensitive surface; wherein: the third portion includes a rear edge and a front edge opposite the rear edge; the second hinge is coupled to the second side and is spaced between the rear edge and the front edge; and the axis of rotation of the second hinge is above the entire second side of the third portion.
2. The electronic device of claim 1, wherein the third portion is larger than the second portion.
3. The electronic device of claim 2, wherein the third portion is to pivot relative the second hinge to cover the user input device with the first touch sensitive surface.
4. The electronic device of claim 3, wherein the first touch sensitive surface is larger than the second touch sensitive surface.
5. The electronic device of claim 1, wherein the first hinge has a first axis of rotation and the second hinge has a second axis of rotation, wherein the first axis of rotation is parallel to the second axis of rotation.
6. The electronic device of claim 1, wherein the second hinge comprises a single axis of rotation.
7. An electronic device, comprising: a housing comprising a plurality of portions that are pivotably coupled together, wherein the plurality of portions including a first portion including a display panel, a second portion including a user input device, and a third portion including a touch sensitive surface; wherein the second portion is pivotably coupled between the first portion and the third portion; wherein the second portion is pivotable relative to the first portion about a first axis of rotation; wherein the third portion includes a rear edge and a front edge opposite the rear edge; wherein the third portion is pivotable relative to the second portion about a second axis of rotation between the rear edge and the front edge to cover the user input device with the touch sensitive surface; and wherein the second axis of rotation is substantially parallel with the first axis of rotation and positioned above the entire third portion.
8. The electronic device of claim 7, wherein the third portion is to pivot relative to the second portion to position the input device over the touch sensitive surface.
9. The electronic device of claim 8, wherein the third portion is larger than the second portion.
10. The electronic device of claim 8, wherein the touch sensitive surface is to face away from the input device both when the touch sensitive surface covers the input device and when the input device is positioned over the touch sensitive surface.
11. The electronic device of claim 8, wherein the third portion includes a second touch sensitive surface on a side that is opposite the touch sensitive surface.
12. The electronic device of claim 11, wherein the touch sensitive surface is larger than the second touch sensitive surface.
13. An electronic device, comprising: a user input device; a display panel pivotably coupled to the user input device about a first hinge; a touch sensitive surface pivotably coupled to the user input device about a second hinge substantially parallel with the first hinge; and a processor communicatively coupled to the user input device and the touch sensitive surface, wherein the processor is to activate one of the user input device or the touch sensitive surface and deactivate the other of the user input device or the touch sensitive surface based on a rotational position of the touch sensitive surface relative to the user input device such that only one of the user input device or the touch sensitive surface are activated at a time; wherein: the second hinge is positioned

between a rear edge and a front edge of the touch sensitive surface and above the entire touch sensitive surface; and the rear edge and the front edge are substantially parallel with the second hinge.

14. The electronic device of claim 13, wherein the touch sensitive surface is to rotate about the user input device to a first position wherein the touch sensitive surface covers the user input device, and wherein the processor is to activate the touch sensitive surface and deactivate the user input device when the touch sensitive surface is in the first position.

15. The electronic device of claim 13, wherein the touch sensitive surface is to rotate about the user input device to a second position wherein the user input device is positioned over the touch sensitive surface, and wherein the processor is to activate the user input device and deactivate the touch sensitive surface when the touch sensitive surface is in the second position.