A protective case for holding interconnected electronic devices is disclosed. The case may comprise a top holding portion configured to hold a top part of a first electronic device, a rear holding portion configured to hold a middle part of the first electronic device, and a bottom holding portion configured to hold a bottom part of the first electronic device. The top or bottom holding portion may comprise an extension holding portion to hold a second electronic device operatively connected to the first electronic device. The extension holding portion may comprise one or more apertures for external access of at least part of input and output devices of the second electronic device. The first electronic device can be selected from a cellular phone, a tablet computer or the like, while the second electronic device can include a memory card reader or a credit card reader. The disclosed case minimizes damages that the electronic devices may suffer within its daily use by adsorbing shocks when the devices are hit or dropped. In addition, the protective case protects the electronic devices from swiveling against each other, thereby greatly improving usability.
FIG. 3
PROTECTIVE CASE FOR INTERCONNECTED ELECTRONIC DEVICES

TECHNICAL FIELD

[0001] This disclosure relates generally to an electronic device accessory, and more specifically to a protective case for storing multiple interconnected electronic devices.

BACKGROUND

[0002] The approaches described in this section could be pursued but are not necessarily approaches that have been previously conceived or pursued. Therefore, unless otherwise indicated, it should not be assumed that any of the approaches described in this section qualify as prior art merely by virtue of their inclusion in this section.

[0003] Portable electronic devices, such as cellular phones, palmtops, tablet computers, and the like, are in wide use. In many instances, such electronic devices can be provided with peripheral devices and corresponding software to implement certain functionalities extrinsic to the main device. For example, portable electronic devices may lack the ability to read various memory drives or credit cards. Generally, users who need these functionalities need to utilize an appropriate peripheral device, e.g. a memory card reader, credit card reader or the like.

[0004] One issue encountered by the most portable electronic devices is that they are easily susceptible to damage when hit or dropped. Accordingly, there are many different cases or sleeves for encasing and protecting portable electronic devices. Such cases may include apertures to allow connecting of peripheral devices to the main device. However, none of these cases can provide protection to the connected peripheral devices. As a result, even if the main device is protected, any peripheral device connected thereto can be easily subjected to damage.

SUMMARY

[0005] This summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter.

[0006] In accordance with various embodiments and the corresponding disclosure thereof, a protective case for holding interconnected electronic devices is provided. The disclosed case may minimize damages suffered by the electronic devices as a result of daily use when these devices are hit or dropped. In addition, the protective case may secure the electronic devices from swiveling against each other, thereby greatly improving usability.

[0007] In one embodiment, a protective case for interconnected electronic devices is provided. The case may comprise a top holding portion configured to hold a top part of a first electronic device, a rear holding portion configured to hold a middle part of the first electronic device, and a bottom holding portion configured to hold a bottom part of the first electronic device. The bottom holding portion may comprise an extension holding portion to hold a second electronic device operatively connected to the first electronic device. The extension holding portion may comprise one or more apertures for external access of at least part of input and output devices of the second electronic device.

[0008] The one or more holes may be arranged in the form of a recess. One or more of the following portions may further comprise apertures to provide access to at least part of input and output devices of the first electronic device: the bottom holding portion, the rear holding portion, and the top holding portion. The first electronic device may include one or more of the following: a cellular phone, a smart phone, a tablet computer, a palmtop, a personal digital assistant, and a laptop. The second electronic device may include a memory card reader and a credit card reader. The material of the protective case may include rubber, resins, plastic resins, silicone rubber, elastomers, polymers, synthetic rubber, synthetic resins, synthetic materials, or any combination thereof. The material of the protective case may include elastic, resilient, and/or flexible properties. The extension holding and the bottom holding portions may be configured to be interconnected or separated from each other. The case may be sized to receive and encase the operatively connected first and second electronic devices as a single whole.

[0009] According to another embodiment, a protective case for interconnected electronic devices is provided. The case may comprise a top holding portion configured to hold a top part of a first electronic device, a rear holding portion configured to hold a middle part of the first electronic device, and a bottom holding portion configured to hold a bottom part of the first electronic device. The top holding portion may comprise an extension holding portion to hold a second electronic device operatively connected to the first electronic device. The extension holding portion may comprise one or more apertures for external access of at least part of input and output devices of the second electronic device.

[0010] The one or more apertures may be arranged in the form of a recess. One or more of the following portions may further comprise holes for access of at least part of input and output devices of the first electronic device: the bottom holding portion, the rear holding portion, and the top holding portion. The first electronic device may include one or more of the following: a cellular phone, a smart phone, a tablet computer, a palmtop, a personal digital assistant, and a laptop. The second electronic device may include a memory card reader or a credit card reader. The material of the protective case may include rubber, resins, plastic resins, silicone rubber, elastomers, polymers, synthetic rubber, synthetic resins, synthetic materials, or the combination thereof. The material of the protective case may include elastic, resilient, and/or flexible properties. The extension holding portion and the top holding portion may be configured to be interconnected or separated from each other. The protective case may be sized to receive and encase the operatively connected first and second electronic devices as a single whole.

[0011] The accomplishment of the foregoing and related ends, the one or more aspects comprise the features hereinafter fully described and particularly pointed out in the claims. The following description and the drawings set forth in detail certain illustrative features of the one or more aspects. These features are indicative, however, of but a few of the various ways in which the principles of various aspects may be employed, and this description is intended to include all such aspects and their equivalents.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Embodiments are illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like references indicate similar elements and in which:
FIG. 1 is a perspective view of an arrangement of a portable electronic device and a peripheral electronic device according to an example embodiment.

FIG. 2 is a perspective view of a protective case according to an example embodiment.

FIG. 3 is a perspective view of the protective case shown in FIG. 2, which holds the arrangement shown in FIG. 1 according to an example embodiment.

FIG. 4 illustrates a perspective view of an arrangement of a portable electronic device and a peripheral electronic device according to yet another example embodiment.

FIG. 5 is a perspective view of a protective case designed to hold the arrangement shown in FIG. 4 according to an example embodiment.

FIG. 6 is a perspective view of the protective case shown in FIG. 5, which holds the arrangement shown in FIG. 4 according to an example embodiment.

DETAILED DESCRIPTION

The following detailed description includes references to the accompanying drawings, which form a part of the detailed description. The drawings show illustrations in accordance with example embodiments. These example embodiments, which are also referred to herein as “examples,” are described in enough detail to enable those skilled in the art to practice the present subject matter. The embodiments can be combined, other embodiments can be utilized, or structural, logical and electrical changes can be made without departing from the scope of what is claimed. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope is defined by the appended claims and their equivalents.

In this document, the terms “a” or “an” are used, as is common in patent documents, to include one or more than one. In this document, the term “or” is used to refer to a nonexclusive “or,” such that “A or B” includes “A but not B,” “B but not A,” and “A and B,” unless otherwise indicated. Furthermore, all publications, patents, and patent documents referred to in this document are incorporated by reference herein in their entirety, as though individually incorporated by reference. In the event of inconsistent usages between this document and those documents so incorporated by reference, the usage in the incorporated reference(s) should be considered supplemental to that of this document; for irreconcilable inconsistencies, the usage in this document controls.

The embodiments disclosed herein relate to a protective case for interconnected electronic devices. FIG. 1 shows a perspective view of an arrangement 100 of a typical portable electronic device 110 and a peripheral electronic device 120. As used herein, the term “portable electronic device” may refer to a cellular phone, a smart phone, a computer, a laptop, a tablet computer, a palmtop, a personal digital assistant, and so forth. The portable electronic devices may be equipped with touch screens or touch pads.

FIG. 2 which forms a perspective view of the protective case 200 according to an example embodiment. The case 200 may comprise a top holding portion 210 configured to hold a top part of the portable electronic device 110, and a bottom holding portion 230 configured to hold a middle part of the first electronic device 110, and a bottom holding portion 230 configured to hold a bottom part of the first electronic device 110. The foregoing three portions may provide the case, which can be sized to receive and encase the corresponding portable electronic device 110. Specifically, the size of the case 200 may vary for different portable electronic devices 110.

The case 200 may also comprise an extension holding portion 240, which may be attached to the bottom holding portion 230. In the shown example, the extension holding portion 240 is an extension or part of the bottom holding portion 230. In other embodiments, the extension holding portion 240 may be attached to other portions of the case, as described below. The size of the extension holding portion 240 can be selected to hold the specific peripheral electronic device 120.

The extension holding portion 240 is configured to hold the peripheral electronic device 120 when it is operatively connected to the portable electronic device 110. Accordingly, the case may be designed to encase both the portable electronic device 110 and the portable electronic device 110 connected thereto.

The case 200 can be made of materials, which may include rubber, resins, plastic resins, silicone rubber, elastomers, polymers, plastic, synthetic rubber, synthetic resins, synthetic materials, or the combination thereof. Furthermore, the material of the case 200 may include elastic properties, be resilient and/or be flexible to enable perfect contact with the portable and peripheral devices.

The case 200 may be provided with one or more access apertures 250. The apertures 250 may be used to enable a user to access at least part of input and output devices of the portable or peripheral devices, such as buttons, plugs, jacks, speakers, microphones, communication ports, photo/video cameras, and so forth. The apertures 250 may be designed in the form of input or output devices (e.g., buttons), or may include different designs. In the example shown in FIG. 2, the aperture 250 of the extension holding portion 240 is made in the form of a recess. When the peripheral electronic device 120 is selected from a memory card reader or a credit card reader, the recess 240 may enable easy insertion of memory card or facilitate reading of a credit card.

In one example embodiment, the case 200 may be made as a single whole. Alternatively, one or more parts of the case 200 can be detachable. For example, the extension holding portion 240 can be detachably connected to the bottom holding portion 230. Moreover, the extension holding portion 240 may hold the electronic device 120 separately from the remainder of the case 200, which in turn may hold the portable electronic device 120. The portable electronic device 120 encased in the extension holding portion 240 can be operatively or electrically connected to the peripheral electronic device 120 encased in the bottom, rear and top portions of the case 200. If this is the case, the electronic devices may be connected to each other, with the extension holding portion 240 also connected to the bottom holding portion 230.

According to other example embodiments, other portions of the case 200 can be detachable. For instance, the bottom holding portion 230 and the extension holding portion 240 can be made as a single whole (e.g. molded or extruded as one piece), while the rear holding portion 220 and the top holding portion 210 may also be made as a single whole. These two conjoint elements can be detachably connected to each other. Alternatively, the rear holding portion 220 may be
made out of two detachable parts, while the other portions are fixedly connected to these parts. Those skilled in the art would readily understand that any portions of the case can be designed as a single whole or as a detachable element.

[0030] FIG. 3 is a perspective view of the protective case 200 holding the arrangement 100 of the portable electronic device 110 and the peripheral electronic device 120 according to an example embodiment.

[0031] In one example, when the case 200 is made as a single whole, to encase the arrangement of the portable and peripheral electronic devices, one can first connect the electronic devices together, and then insert this arrangement into the case 200.

[0032] If the case 200 is made as two detachable parts, where a first part is the extension holding portion 240 and a second part is the integrated top, rear and bottom holding portions 210, 220, 230, the peripheral electronic device 120 can be first encased within the first part, and then the portable electronic device 110 can be encased within the second part. One may then connect these two parts together, thereby providing interconnection of both electronic devices 110 and 120.

[0033] The case 200 may therefore provide protection for the interconnected portable and peripheral electronic devices 110 and 120 against mechanical damage caused by hits, falls and so forth. Accordingly, the lifetime of the protected electronic devices can be significantly increased.

[0034] FIG. 4 illustrates a perspective view of an arrangement 400 of the portable electronic device 110 and the peripheral electronic device 120 according to yet another example embodiment. In the shown example, the portable electronic device 110 is a tablet computer, and the peripheral electronic device 120 is a memory card reader or a credit card reader. The peripheral electronic device 120 can be operatively connected to the portable electronic device 110 via a headphone jack.

[0035] FIG. 5 is a perspective view of a case 500 designed to hold and protect the arrangement 400 according to an example embodiment. The case 500 may comprise a top holding portion 510 configured to hold a top part of the portable electronic device 110, a rear holding portion 520 configured to hold a middle part of the first electronic device 110, and a bottom holding portion 530 configured to hold a bottom part of the first electronic device 110. These three portions provide the case, which can be used to hold and protect the portable electronic device 110.

[0036] The case 500 may also comprise an extension holding portion 540 for encasing the peripheral electronic device 120. Similar to the previously disclosed examples, the extension holding portion 540 can be detachably attached to the top holding portion 510, or all holding portions of the case 500 can be made as a single one.

[0037] The case 500 may therefore be designed to encase the portable electronic device 110 and the peripheral electronic device 120 separately or interconnected. The size of the case 500, and namely sizes of its portions, can be selected to hold specific electronic devices, or could be all-purpose.

[0038] In shown example, the case 500 may comprise two detachable parts. A first part is the bottom holding portion 530, while a second part is made of the rear holding portion 520, the top holding portion 510, and the extension holding portion 540. The first part of the case 500 can be detached or safely connected with the second part.

[0039] The material of the case 500 may include rubber, resins, plastic resins, silicone rubber, elastomers, polymers, plastic, synthetic rubber, synthetic resins, synthetic materials, or the combination thereof. If any portions of the case 500 are detachable, they can be optionally provided with locking elements, such as clips, clicks, latches, and so forth (not shown in the Figures). In addition, the case 500 may be provided with additional protective elements, such as a transparent film (not shown in the Figures).

[0040] The case 500 may include one or more apertures 250. The apertures 250 may be used to access at least part of input or output devices of the portable or peripheral devices 110 and 120 when they are held by the case 500. The input and output devices may include buttons, plugs, jacks, speakers, microphones, communication ports, photo/video cameras, and so forth. The apertures 250 may be designed in the form of input or output devices, as discussed above. In the shown example, the aperture 250 of the extension holding portion 540 is made in the form of a recess to enable a user to easily utilize the peripheral electronic device 120. When the peripheral electronic device 120 is selected from a memory card reader or a credit card reader, the recess 250 enables insertion of a memory card or to read a credit card through this recess.

[0041] FIG. 6 is a perspective view of the protective case 500 holding the arrangement 400 of the portable electronic device 110 and the peripheral electronic device 120 according to an example embodiment. The portable electronic device 110 and the peripheral electronic device 120 can both be used for their direct purpose. In other words, in one example, a memory card can be inserted into the memory card reader 120 through the recess 250. The tablet computer 110 can then read the memory card.

[0042] The case 500, therefore, may provide protection for the interconnected portable and peripheral electronic devices 110 and 120 against mechanical damage to increase the lifetime of protected electronic devices.

[0043] In the shown example, when the peripheral electronic device 120 is connected to the portable electronic device 110 via a headphone jack, it can be easily rotated. Regular users may experience inconvenience when using such arrangement of electronic devices, as the users have to hold the devices 110 and 120 in a specific way to ensure proper functionality and connectivity. The case 500 may hold the peripheral device 120 in place in order to ensure proper functionality and easier user experience.

[0044] According to another embodiment, the protective case may comprise more than one extension holding portion. Instead, the case may be provided with a plurality of the extension holding portions to encase more than one peripheral electronic device. For example, one extension holding portion can be attached to the bottom holding portion, and a second extension holding portion can be attached to the top holding portion.

[0045] Thus, the protective case for storing interconnected electronic devices has been described. The case provides protection against mechanical damage caused by daily use. In addition, the protective case secures the electronic devices from swiveling against each other such that functionality and usability are greatly improved.

[0046] Although embodiments have been described with reference to specific example embodiments, it will be evident that various modifications and changes can be made to these example embodiments without departing from the broader
spirit and scope of the present application. Accordingly, the specification and drawings are to be regarded in an illustrative rather than a restrictive sense.

What I claim is:

1. A protective case for interconnected electronic devices, comprising:
a top holding portion configured to hold a top part of a first electronic device;
a rear holding portion configured to hold a middle part of the first electronic device; and
a bottom holding portion configured to hold a bottom part of the first electronic device, wherein the bottom holding portion comprises an extension holding portion to hold a second electronic device operatively connected to the first electronic device and wherein the extension holding portion comprises one or more apertures for external access of at least part of input and output devices of the second electronic device.

2. The protective case of claim 1, wherein the one or more of apertures are arranged in the form of a recess.

3. The protective case of claim 1, wherein one or more of the following portions further comprise apertures for access to at least part of input and output devices of the first electronic device: the bottom holding portion, the rear holding portion, and the top holding portion.

4. The protective case of claim 1, wherein the first electronic device includes one or more of the following: a cellular phone, a smartphone, a tablet computer, a palmtop, a personal digital assistant, and a laptop.

5. The protective case of claim 1, wherein the second electronic device is a memory card reader or a credit card reader.

6. The protective case of claim 1, wherein the material of the protective case includes rubber, resins, plastic resins, silicone rubber, elastomers, polymers, synthetic rubber, synthetic resins, and synthetic materials.

7. The protective case of claim 1, wherein the material of the protective case includes one or more of the following properties: elastic, resilient, and flexible.

8. The protective case of claim 1, wherein the extension holding portion and the bottom holding portion are configured to be interconnected or separated from each other.

9. The protective case of claim 1, wherein the case is sized to receive and encase the operatively connected first and second electronic devices as a single whole.

10. A protective case for interconnected electronic devices, comprising:
a top holding portion configured to hold a top part of a first electronic device;
a rear holding portion configured to hold a middle part of the first electronic device; and
a bottom holding portion configured to hold a bottom part of the first electronic device, wherein the top holding portion comprises an extension holding portion to hold a second electronic device operatively connected to the first electronic device and wherein the extension holding portion comprises one or more apertures for external access of at least part of input and output devices of the second electronic device.

11. The protective case of claim 10, wherein the one or more of apertures are arranged in the form of a recess.

12. The protective case of claim 10, wherein one or more of the following portions further comprise apertures for access to at least part of input and output devices of the first electronic device: the bottom holding portion, the rear holding portion, and the top holding portion.

13. The protective case of claim 10, wherein the first electronic device is one or more of the following: a cellular phone, a smartphone, a tablet computer, a palmtop, a personal digital assistant, and a laptop.

14. The protective case of claim 10, wherein the second electronic device is a memory card reader or a credit card reader.

15. The protective case of claim 10, wherein the material of the protective case includes one or more of the following: rubber, resins, plastic resins, silicone rubber, elastomers, polymers, synthetic rubber, synthetic resins, and synthetic materials.

16. The protective case of claim 10, wherein the material of the protective case includes one or more of the following properties: elastic, resilient, and flexible.

17. The protective case of claim 10, wherein the extension holding portion and the top holding portion are configured to be interconnected or separated from each other.

18. The protective case of claim 10, wherein the case is sized to receive and encase the operatively connected first and second electronic devices as a single whole.

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