US Patent & Trademark Office
Patent Public Search | Text View

ELECTRONIC DEVICE AND METHOD FOR EXTENDING EXPOSED AREA OF DISPLAY

Abstract

An example method for extending an exposed area of a display may include receiving a first touch input for touching a first object in a first software screen displayed in an exposed area of the display exposed to the outside of the electronic device; receiving a second touch input including movement in a specified direction on the first software screen, while maintaining the first touch input; extending, in response to the reception of the second touch input, the exposed area of the display exposed to the outside of the electronic device; dividing the extended exposed area of the display into a first area and a second area; and displaying content related to the first object and the first software screen in the first area and the second area, respectively.

Publication Classification

Int. Cl.: **G06F3/0484** (20220101); **G06F3/04817** (20220101); **G06F3/0482** (20130101); **G06F3/0483** (20130101); **G06F3/0488** (20220101)

U.S. Cl.:

CPC   **G06F3/0484** (20130101); **G06F3/04817** (20130101); **G06F3/0482** (20130101); **G06F3/0488** (20130101); G06F3/0483 (20130101); G06F2203/04803 (20130101); G06F2203/04808 (20130101)

Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS [0001] This application is a continuation of International Application No. PCT/KR2023/016649, designating the United States, filed on Oct. 25, 2023, in the Korean Intellectual Property Receiving Office, and claiming priority to Korean Patent Application No. 10-2022-0148820, filed on Nov. 9, 2022, in the Korean Intellectual Property Office, the disclosures of each of which are incorporated by reference herein in their entireties.

BACKGROUND
Field
[0002] The disclosure relates to an electronic device and method for extending an exposed area of a display, and more specifically, to an electronic device and method for extending and dividing an exposed area of a deformable display.
Description of Related Art
[0003] A display functions as an interface that provides input and output of information. Recent electronic devices have been providing more advanced displays, based on the development of hardware or software, for the sake of improved interaction with users. In an example, an electronic device may include a deformable display, and the display is deformed, whereby the size of an exposed area of the display exposed to the outside of the electronic device can be extended or reduced.
SUMMARY
[0004] In an example embodiment of the disclosure, a method for extending a display in an electronic device may include receiving a first touch input that touches a first object in a first software screen displayed in an exposed area of the display exposed to the outside of the electronic device; receiving, while maintaining the first touch input, a second touch input that moves in a specified direction on the first software screen; extending, in response to the receiving of the second touch input, the exposed area of the display exposed to the outside of the electronic device; dividing the extended exposed area of the display into a first area and a second area; and displaying content related to the first object and the first software screen in the first area and the second area, respectively.
[0005] In an example embodiment of the disclosure, an electronic device may include a flexible display, memory configured to store instructions, and at least one processor (including, e.g., processing circuitry) operatively connected to the flexible display and the memory and configured to execute the instructions. The at least one processor may execute the instructions and cause the electronic device to receive a first touch input that touches a first object in a first software screen displayed in an exposed area of the flexible display exposed to the outside of the electronic device; receive, while maintaining the first touch input, a second touch input that moves in a specified direction on the first software screen; extend, in response to the receiving of the second touch input,

the exposed area of the flexible display exposed to the outside of the electronic device; divide the extended exposed area of the flexible display into a first area and a second area; and display content related to the first object and the first software screen in the first area and the second area, respectively.

[0006] In an example embodiment of the disclosure, a non-transitory computer-readable recording medium may store instructions which, when executed by at least one processor of an electronic device including an extendable display, cause the electronic device to receive a first touch input that touches a first object in a first software screen displayed in an exposed area of the display exposed to the outside of the electronic device; receive, while maintaining the first touch input, a second touch input that moves in a specified direction on the first software screen; extend, in response to the receiving of the second touch input, the exposed area of the display exposed to the outside of the electronic device; divide the extended exposed area of the display into a first area and a second area; and display content related to the first object and the first software screen in the first area and the second area, respectively.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The above and other aspects, features and advantages of certain embodiments of the present disclosure will be more apparent from the following detailed description, taken in conjunction with the accompanying drawings, in which:

[0008] FIG. **1** is a diagram illustrating an overview in which an example electronic device extends an exposed area of a display according to a user input and divides and uses the extended exposed area according to various embodiments;

[0009] FIG. **2**A is a diagram illustrating a first state in which an exposed area of a display of an example electronic device is not extended according to various embodiments;

[0010] FIG. **2**B is a diagram illustrating a second state in which the exposed area of the display of an example electronic device is extended according to various embodiments;

[0011] FIG. **3**A is a diagram illustrating a first state in which an exposed area of a display of an example electronic device is not extended according to various embodiments;

[0012] FIG. **3**B is a diagram illustrating a second state in which the exposed area of the display of an example electronic device is extended according to various embodiments;

[0013] FIG. **4** is a diagram illustrating a guide unit of an example electronic device according to various embodiments;

[0014] FIG. **5** is a flowchart of an example method in which an example electronic device including an extendable display divides a software screen according to various embodiments;

[0015] FIG. **6** is a flowchart for an example operation of an example electronic device according to a time for which a first touch input is maintained before a second touch input is received according to various embodiments;

[0016] FIG. **7** is a flowchart for an example method for selectively presenting the extension of a display according to whether a first software screen is a screen of a preset type according to various embodiments;

[0017] FIG. **8** is a diagram illustrating an example electronic device extending a display according to a first touch input and a second touch input on a home screen and dividing a screen according to various embodiments;

[0018] FIG. **9** is a diagram illustrating an example electronic device extending a display according to a first touch input and a second touch input on a web page and dividing a screen according to various embodiments;

[0019] FIG. **10** is a diagram illustrating an example electronic device extending a display according

to a first touch input and a second touch input on an execution screen of a message application and dividing a screen according to various embodiments;

[0020] FIG. **11** is a flowchart of an example method in which an example device extends a display according to a first touch input and a second touch input on an execution screen of a camera application according to various embodiments;

[0021] FIG. **12** is a diagram illustrating an example electronic device extending a display according to a first touch input and a second touch input on an execution screen of a camera application according to various embodiments;

[0022] FIG. **13** is a flowchart of an example method in which an example electronic device reduces an extended exposed area of a display according to various embodiments;

[0023] FIG. **14** is a diagram illustrating an example of reducing an exposed area of a display when a fourth touch input is received in a first area according to various embodiments;

[0024] FIG. **15** is a diagram illustrating an example of reducing an exposed area of a display when a fourth touch input is received in a second area according to various embodiments;

[0025] FIG. **16** is a block diagram of an example electronic device in a network environment according to various embodiments.

DETAILED DESCRIPTION

[0026] Example embodiments of the disclosure will be described below in detail with reference to the accompanying drawings wherein the embodiments of the disclosure may be easily embodied by those skilled in the art to which the disclosure pertains. However, the disclosure may be implemented in various different forms and is not limited to the embodiments described herein. In addition, in order to clearly describe the disclosure in the drawings, portions not related to the description may be omitted, and similar portions are given similar reference numerals throughout the disclosure.

[0027] The terms used in the disclosure are general terms currently used in consideration of functions stated in the disclosure, but they may have various other meanings depending on the intention of engineers engaged in the relevant field, precedents, the emergence of new technologies, etc. Therefore, the terms used in the disclosure should not be interpreted based on only the names of the terms, but should be interpreted based on the meanings of the terms and the overall contents of the disclosure.

[0028] In addition, terms such as first, second, etc. may be used to describe various components, but the components should not be limited by these terms. These terms are used for the purpose of distinguishing one component from another component.

[0029] Throughout the specification, when a certain portion is said to be "connected" to another portion, this includes not only a case in which it is "directly connected" but also, for example, a case in which it is "electrically connected" with another element located therebetween. In addition, when a certain portion is said to "include" a certain component, this does not mean excluding another component unless specifically stated otherwise, but rather means that it may further include another component.

[0030] Phrases such as "in an embodiment" or "in an example embodiment" appearing in various places in the disclosure do not necessarily all refer to the same embodiment.

[0031] An embodiment of the disclosure may be represented by functional block constructions and various processing operations. Some or all of these functional blocks may be implemented by various numbers of hardware and/or software constructions performing specific functions. For example, the functional blocks of the disclosure may be implemented using one or more microprocessors (including, e.g., circuitry), or be implemented using circuit constructions for a predefined function. In addition, for example, the functional blocks of the disclosure may be implemented using various programming or scripting languages. The functional blocks may be implemented using algorithms that are executed by one or more processors. In addition, the disclosure may employ conventional art for the sake of electronic environment settings, signal

processing, and/or data processing, etc. Terms such as "mechanism," "element," "means," and "construction" may be used broadly, and are not limited to mechanical and physical constructions.

[0032] In addition, connection lines or connection members between components illustrated in the drawings merely represent functional connections and/or physical or circuit connections. In an actual device, connections between the components may be represented by replaceable or added various functional connections, physical connections, or circuit connections.

[0033] The disclosure will be described below in detail with reference to the accompanying drawings.

[0034] In an example embodiment of the disclosure, a method for extending a display in an electronic device may include receiving a first touch input that touches a first object in a first software screen displayed in an exposed area of the display exposed to the outside of the electronic device; receiving, while maintaining the first touch input, a second touch input that moves in a specified direction on the first software screen; extending, in response to the receiving of the second touch input, the exposed area of the display exposed to the outside of the electronic device; dividing the extended exposed area of the display into a first area and a second area; and displaying content related to the first object and the first software screen in the first area and the second area, respectively.

[0035] In an embodiment, the first touch input may be a touch and hold input, and the second touch input may be a swipe input that moves in the specified direction.

[0036] In an embodiment, the first software screen may be a home screen of the electronic device, and the first object may be an execution icon of an application displayed on the home screen.

[0037] In an embodiment, the displaying of the content related to the first object and the first software screen respectively may include displaying an execution screen of the application corresponding to the execution icon in the first area, and displaying the home screen in the second area.

[0038] In an embodiment, the method may further include receiving a user input that selects a second object in the home screen displayed in the second area, and, in response to the selecting of the second object, displaying content related to the second object in the second area.

[0039] In an embodiment, the extending of the exposed area of the display may include extending the exposed area in response to receiving the second touch input within a time less than a first threshold after the first touch input starts.

[0040] In an embodiment, the method may further include displaying a pop-up menu related to the first object, in response to maintaining the first touch input for a time greater than the first threshold after the first touch input starts.

[0041] In an embodiment, the method may further include identifying whether the first software screen may be a home screen, and the extending of the exposed area of the display may include extending the exposed area of the display in response to identifying that the first software screen may be the home screen and receiving the second touch input.

[0042] In an embodiment, the first software screen may be an execution screen of an Internet browser, and the first object may be an object constituting a page in the Internet browser, and displaying the content related to the first object and the first software screen respectively may include displaying another page linked to the first object in the first area, and displaying the execution screen of the Internet browser in the second area.

[0043] In an embodiment, the method may further include receiving a third touch input that touches the first area; receiving, while maintaining the third touch input, a fourth touch input that moves in a direction opposite to the specified direction; reducing, in response to the receiving of the fourth touch input, the exposed area of the display exposed to the outside of the electronic device; and displaying, in the reduced exposed area, content related to the first object displayed in the first area.

[0044] In an embodiment, an electronic device may include a flexible display, memory configured to store instructions, and at least one processor (including, e.g., processing circuitry) operatively

connected to the flexible display and the memory and configured to execute the instructions. The at least one processor may execute the instructions and cause the electronic device to receive a first touch input that touches a first object in a first software screen displayed in an exposed area of the flexible display exposed to the outside of the electronic device; receive, while maintaining the first touch input, a second touch input that moves in a specified direction on the first software screen; extend, in response to the receiving of the second touch input, the exposed area of the flexible display exposed to the outside of the electronic device; divide the extended exposed area of the flexible display into a first area and a second area; and display content related to the first object and the first software screen in the first area and the second area, respectively.

[0045] In an embodiment, the first touch input may be a touch and hold input, and the second touch input may be a swipe input that moves in the specified direction.

[0046] In an embodiment, the first software screen may be a home screen of the electronic device, and the first object may be an execution icon of an application displayed on the home screen.

[0047] In an embodiment, at least one processor may execute the instructions and cause the electronic device to display an execution screen of the application corresponding to the execution icon in the first area, and display the home screen in the second area.

[0048] In an embodiment, at least one processor may execute the instructions and cause the electronic device to receive a user input that selects a second object in the home screen displayed in the second area, and, in response to the selecting of the second object, display content related to the second object in the second area.

[0049] In an embodiment, at least one processor may execute the instructions and cause the electronic device to extend the exposed area, in response to receiving the second touch input within a time less than a first threshold after the first touch input starts.

[0050] In an embodiment, at least one processor may execute the instructions and cause the electronic device to display a pop-up menu related to the first object, in response to maintaining the first touch input for a time greater than the first threshold after the first touch input starts.

[0051] In an embodiment, at least one processor may execute the instructions and cause the electronic device to identify whether the first software screen is a home screen, and extend the exposed area of the display, in response to identifying that the first software screen is the home screen and receiving the second touch input.

[0052] In an embodiment, the first software screen may be an execution screen of an Internet browser, and the first object may be an object constituting a page in the Internet browser, and at least one processor may execute the instructions and cause the electronic device to display another page linked to the first object in the first area, and display the execution screen of the Internet browser in the second area.

[0053] In an embodiment, a non-transitory computer-readable recording medium may store instructions which, when executed by at least one processor of an electronic device including an extendable display, cause the electronic device to receive a first touch input that touches a first object in a first software screen displayed in an exposed area of the display exposed to the outside of the electronic device; receive, while maintaining the first touch input, a second touch input that moves in a specified direction on the first software screen; extend, in response to the receiving of the second touch input, the exposed area of the display exposed to the outside of the electronic device; divide the extended exposed area of the display into a first area and a second area; and display content related to the first object and the first software screen in the first area and the second area, respectively.

[0054] FIG. **1** is a diagram illustrating an overview in which an example electronic device extends an exposed area of a display according to a user input and divides and uses the extended exposed area according to various embodiments.

[0055] Referring to FIG. **1**, an electronic device **1001** may include an extendable display, and may extend an exposed area **100** of a display exposed to the outside of the electronic device **1001**

according to a preset user input. The electronic device **1001** may include a deformable display and, for example, a housing of the electronic device **1001** may be slid and the exposed area **100** of the display exposed to the outside of the electronic device **1001** may be extended.

[0056] The electronic device **1001** may divide the extended exposed area **100** of the display and display a predefined software screen in each divided area. A user input for extending the exposed area **100** of the display may be set as a combination of a first touch input and a second touch input in the exposed area **100** of the display. Depending on the first touch input and/or the second touch input, the software screen to be displayed in each divided area in the extended exposed area **100** of the display may be determined.

[0057] The electronic device **1001** is a device including a deformable display, and may be, for example, a smartphone, a tablet PC, a mobile phone, a personal digital assistant (PDA), a laptop, a media player, a global positioning system (GPS) device, an e-book reader, a digital broadcasting terminal, a navigation device, a digital camera, a wearable device, or other mobile computing device, but is not limited thereto.

[0058] The deformable display of the electronic device **1001** may include a flexible display, and may include, for example, a foldable display and/or a rollable display.

[0059] An example of extending an exposed area of a display of an example electronic device **1001** will be described below with reference to FIGS. **2**A, **2**B, **3**A, **3**B, and **4**.

[0060] FIG. **2**A is a diagram illustrating a first state in which an exposed area of a display of an example electronic device is not extended according to various embodiments. FIG. **2**B is a diagram illustrating a second state in which the exposed area of the display of an example electronic device is extended according to various embodiments.

[0061] Referring to FIGS. **2**A and **2**B, the size (or area) of an exposed area of a flexible display **230** of an electronic device **101***a* (e.g., electronic device **1001** of FIG. **1**) of an embodiment may be changed according to a state transition of the electronic device **101***a*. For example, the electronic device **101***a* may have a first state **10** in which, as a second housing **220** slides (e.g., slide-in) in a first direction (e.g., −y direction) with respect to a first housing **210**, a portion of the second housing **220** is introduced into the inside of the first housing **210**, and in the first state **10** of the electronic device **101***a*, a first screen area **231** of the flexible display **230** may be exposed to the outside. For another example, the electronic device **101***a* may have a second state **20** in which, as the second housing **220** slides (e.g., slide-out) in a second direction (e.g., +y direction) with respect to the first housing **210**, a portion of the second housing **220** is withdrawn to the outside of the first housing **210**, and in the second state **20** of the electronic device **101***a*, the exposed area of the flexible display **230** may be extended. Accordingly, the extended exposed area of the flexible display **230** may include the first screen area **231** and a second screen area **232**.

[0062] In an embodiment, the electronic device **101***a* may include a housing including the first housing **210** and the second housing **220**. In an embodiment, the second housing **220** may be arranged to be slidable with respect to the first housing **210**. For example, the second housing **220** may be coupled to the first housing **210** and be slidable a specified distance (d) between the first direction (e.g., −y direction) and the second direction (e.g., +y direction) with respect to the first housing **210**. In an embodiment, the first housing **210** may accommodate at least a portion of the second housing **220**. For example, the first housing **210** may include a trough that is open at its one side and accommodates at least a portion of the second housing **220**, and may be coupled to the second housing **220** and surround at least a portion of the second housing **220** through the trough portion of the first housing **210**.

[0063] In an embodiment, the electronic device **101***a* may include the flexible display **230** at least portion of which is exposed to the outside of the housing and which forms most of a front surface of the electronic device **101***a*. The flexible display **230** may include the first screen area **231** and the second screen area **232**, and the second screen area **232** may be selectively exposed to the outside according to the sliding of the second housing **220** with respect to the first housing **210**. For

example, in the first state **10** of the electronic device **101***a* in which the second housing **220** is slid in the first direction (e.g., −y direction) with respect to the first housing **210**, at least a portion of the second screen area **232** may be rolled in the inside of the first housing **210** and not be exposed to the outside. For another example, in the second state **20** of the electronic device **101***a* in which the second housing **220** is slid in the second direction (e.g., +y direction) with respect to the first housing **210**, at least a portion of the second screen area **232** may be rolled out of the inside of the first housing **210** and be exposed to the outside. Based on this, the size (or area) of the exposed area of the flexible display **230** may be changed (e.g., extended or reduced) in response to the sliding of the second housing **220** with respect to the first housing **210**.

[0064] FIG. **3**A is a diagram illustrating a first state in which an exposed area of a display of an example electronic device is not extended according to various embodiments, and FIG. **3**B is a diagram illustrating a second state in which the exposed area of the display of an example electronic device is extended according to various embodiments.

[0065] Referring to FIGS. **3**A and **3**B, the size (or area) of an exposed area of a flexible display **330** of an electronic device **101***b* (e.g., electronic device **1001** of FIG. **1**) of an embodiment may be changed according to a state transition of the electronic device **101***b*. For example, the electronic device **101***b* may have a first state **10** in which, as a second housing **320** slides (e.g., slide-in) in a third direction (e.g., −x direction) with respect to a first housing **310**, a portion of the second housing **320** is introduced into the inside of the first housing **310**, and, in the first state **10** of the electronic device **101***b*, a first screen area **331** of the flexible display **330** may be exposed to the outside. For another example, the electronic device **101***b* may have a second state **20** in which, as the second housing **320** slides (e.g., slide-out) in a fourth direction (e.g., +x direction) with respect to the first housing **310**, a portion of the second housing **320** is withdrawn to the outside of the first housing **310**, and, in the second state **20** of the electronic device **101***b*, the exposed area of the flexible display **330** may be extended. Accordingly, the extended exposed area of the flexible display **330** may include the first screen area **331** and a second screen area **332**.

[0066] In an embodiment, the electronic device **101***b* may include a housing including the first housing **310** and the second housing **320**. In an embodiment, the second housing **320** may be arranged to be slidable with respect to the first housing **310**. For example, the second housing **320** may be coupled to the first housing **310** and be slidable a specified distance (d) between the third direction (e.g., −x direction) and the fourth direction (e.g., +x direction) with respect to the first housing **310**. In an embodiment, the first housing **310** may accommodate at least a portion of the second housing **320**. For example, the first housing **310** may include a trough that is open at its one side and accommodates at least a portion of the second housing **320**, and may be coupled to the second housing **320** and surround at least a portion of the second housing **320** through the trough portion of the first housing **310**.

[0067] In an embodiment, the electronic device **101***b* may include the flexible display **330** at least portion of which is exposed to the outside of the housing and which forms most of a front surface of the electronic device **101***b*. The flexible display **330** may include the first screen area **331** and the second screen area **332**, and the second screen area **332** may be selectively exposed to the outside according to the sliding of the second housing **320** with respect to the first housing **310**. For example, in the first state **10** of the electronic device **101***b* in which the second housing **320** is slid in the third direction (e.g., −x direction) with respect to the first housing **310**, at least a portion of the second screen area **332** may be rolled in the inside of the first housing **310** and not be exposed to the outside. For another example, in the second state **20** of the electronic device **101***b* in which the second housing **320** is slid in the fourth direction (e.g., +x direction) with respect to the first housing **310**, at least a portion of the second screen area **332** may be rolled out of the inside of the first housing **310** and be exposed to the outside. Based on this, the size (or area) of the exposed area of the flexible display **330** may be changed (e.g., extended or reduced) in response to the sliding of the second housing **320** with respect to the first housing **310**.

[0068] FIG. **4** is a diagram illustrating a guide unit of an example electronic device according to various embodiments.

[0069] FIG. **4** may be understood as a diagram illustrating a cross-section of the electronic device **1001** taken in an A-B direction illustrated in FIG. **2**B or FIG. **3**B.

[0070] Referring to FIG. **4**, an electronic device (e.g., electronic device **1001** of FIG. **1**) of an embodiment may include a guide unit **420** that supports the sliding (e.g., sliding-in or sliding-out) of a second housing (e.g., second housing **220** of FIGS. **2**A and **2**B or second housing **320** of FIGS. **3**A and **3**B) with respect to a first housing **410**. According to various embodiments, the guide unit **420** may also function as a component that supports the change of the size of an exposed area of a flexible display **430**, in terms of the fact that the size (or area) of the exposed area of the flexible display **430** changes when the second housing **220** or **320** is slid by the guide unit **420**.

[0071] In an embodiment, the guide unit **420** may include a rolling member **421** and a rail member **423**. The rolling member **421** may be connected (or fixed) to one area of the first housing **410**, and may be implemented as a gear having a plurality of protrusions formed on an outer surface of the gear and rotate around a rotation axis (a). The rail member **423** may be connected (or fixed) to one area of the second housing **220** or **320**, and may be arranged wherein, while one surface of the rail member **423** supports at least a portion of the flexible display **430**, a plurality of protrusions formed on the other surface of the rail member **423** are engaged with the plurality of protrusions of the rolling member **421**.

[0072] According to an embodiment, when external force (e.g., external force by the user's body) is applied to the second housing **220** or **320**, the size of the exposed area of the flexible display **430** may be changed. For example, when the second housing **220** or **320** is slid in or slid out with respect to the first housing **410** by the external force on the second housing **220** or **320**, the rail member **423** connected to the second housing **220** or **320** may be pulled and rolled in or rolled out on the rolling member **421** and the size of the exposed area of the flexible display **430** guided by the rail member **423** may be changed.

[0073] According to an embodiment, the rolling member **421** may, for example, include a rolling actuator, and when the rolling actuator is driven according to a user input (e.g., input to a hardware or software button included in the electronic device **1001**), the size of the exposed area of the flexible display **430** may be changed. For example, when the rolling actuator is driven by the user input, the rail member **423** may be rolled in or rolled out with respect to the rolling member **421** according to the rotation of the rolling member **421**, and the second housing **220** or **320** connected to the rail member **423** may be slid in or slid out with respect to the first housing **410** and the size of the exposed area of the flexible display **430** guided by the rail member **423** may be changed.

[0074] FIG. **5** is a flowchart of an example method in which an example electronic device including an extendable display divides a software screen according to various embodiments.

[0075] In operation S**500**, an electronic device **1001** may receive a first touch input that touches a first object in a first software screen displayed in an exposed area of a display.

[0076] In a first state in which the exposed area of the display of the electronic device **1001** is not extended, the electronic device **1001** may display the first software screen on the display.

[0077] For example, the first software screen may include a lock screen of the electronic device **1001**, a home screen, a setting screen, and/or an execution screen of an application. In addition, for example, the first object may be a graphical user interface element (GUI element) for executing a specific operation of the electronic device **1001**. The first object may include an icon, a button, an image, and/or a text, but is not limited thereto.

[0078] For example, the first software screen may be a home screen, and the first object may be an execution icon of an application. For example, the first software screen may be an execution screen of an application, and the first object may be a GUI element in the execution screen of the application.

[0079] The first touch input may be an input that selects the first object for a specific time. For

example, the first touch input may be a touch and hold input or a long touch input, but is not limited thereto.

[0080] In operation S**510**, while maintaining the first touch input, the electronic device **1001** may receive a second touch input that moves in a specified direction on the first software screen. The second touch input may be a touch input that moves in a specific direction. For example, the second touch input may be a swipe input, a flick input, or a drag input having directionality.

[0081] While maintaining the first touch input, the electronic device **1001** may receive a second touch input that moves in a direction in which the exposed area of the display is extended. The direction in which the exposed area of the display is extended may be a direction in which a housing of the electronic device **1001** is slid to extend the exposed area of the display. For example, in order to extend the exposed area of the display, the electronic device **1001** may receive a second touch input that moves towards the top from the bottom of the display within a predefined angle range, and the housing of the electronic device **1001** may be slid in an upper direction of the electronic device **1001**.

[0082] According to an embodiment, the input timing of the first touch input and the input timing of the second touch input, for extending and utilizing the exposed area of the display, may be preset. For example, in order to extend and utilize the exposed area of the display, the second touch input may be set to be input substantially simultaneously with the first touch input. Alternatively, for example, in order to extend and utilize the exposed area of the display, the second touch input may be set to be input within a predefined time range after the first touch input starts.

[0083] In operation S**520**, the electronic device **1001** may extend the exposed area of the display. As the second touch input that moves in a predefined (specified) direction is received while the first touch input is maintained, the electronic device **1001** may extend the exposed area of the display. For example, as shown in FIGS. **2**A, **2**B, **3**A, **3**B, and **4**, the electronic device **1001** may control the guide unit **420** to slide the second housing **220** or **320** with respect to the first housing **210** or **310** of the electronic device **1001**, and extend the exposed area of the display **230**, **330**, or **430** of the electronic device **1001**.

[0084] In operation S**530**, the electronic device **1001** may divide the extended exposed area into a first area and a second area. For example, the electronic device **1001** may divide the extended exposed area into the first area and the second area and display two contents in the extended exposed area. For example, the first area may be an area of an upper portion of the exposed area of the display, and the second area may be an area of a lower portion of the exposed area of the display, but are not limited thereto.

[0085] In operation S**540**, the electronic device **1001** may display content related to the first object and the first software screen in the first area and the second area, respectively.

[0086] The electronic device **1001** may display the content related to the first object in the first area, and display the first software screen in the second area. Alternatively, the electronic device **1001** may display the content related to the first object in the second area, and display the first software screen in the first area.

[0087] The content related to the first object may, for example, be content displayed on the display of the electronic device **1001** as a result of executing a specific function of the electronic device **1001** corresponding to the first object. For example, when the first object is an execution icon of an application, the content related to the first object may be an execution screen of the application. For example, when the first object is a GUI element in an execution screen of an application, the content related to the first object may be content indicating a result of executing a function corresponding to the GUI element among functions of the application.

[0088] In the above, operations S**520**, S**530**, and S**540** are described as operations performed separately, but are not limited thereto. For example, while the exposed area of the display of the electronic device **1001** is extended, the exposed area may be divided into the first area and the second area, and the content related to the first object and the first software screen may be

displayed in the first area and the second area, respectively.

[0089] FIG. **6** is a flowchart for an example operation of an example electronic device according to a time for which a first touch input is maintained before a second touch input is received according to various embodiments.

[0090] The operations of FIG. **6** may be performed, for example, between operations S**500** and S**520** of FIG. **5**, but are not limited thereto.

[0091] In operation S**600**, an electronic device **1001** may identify a time for which a first touch input is maintained. The first touch input may be, for example, a touch and hold input or a long touch input. The electronic device **1001** may identify a time for which the first touch input is maintained or ended from the timing when the first touch input starts.

[0092] In operation S**605**, the electronic device **1001** may determine whether the time for which the first touch input is maintained exceeds a first threshold. The first threshold may be set, for example, wherein a menu regarding a function of the electronic device **1001** related to a first object is displayed when the first object is touched for the time exceeding the first threshold.

[0093] As it is determined that the time for which the first touch input is maintained has exceeded the first threshold as the determination result of operation S**605**, in operation S**610**, the electronic device **1001** may display the function menu related to the first object. For example, when the first object is an execution icon of an application and the first touch input exceeds the first threshold, a function menu related to a function for processing the displaying of the first object and a function menu related to a function of the application corresponding to the first object may be displayed on the display of the electronic device **1001**. For example, when the first object is the execution icon of the application and the first touch input exceeds the first threshold, a function menu including an item for selecting the first object, an item for deleting the first object, an item for uninstalling the application corresponding to the first object, and an item for setting a widget of the application corresponding to the first object may be displayed around the first object.

[0094] As it is determined that the time for which the first touch input is maintained is less than the first threshold as the determination result of operation S**605**, in operation S**615**, the electronic device **1001** may determine whether the first touch input has ended.

[0095] When it is determined that the first touch input has ended as the determination result of operation S**615**, in operation S**620**, the electronic device **1001** may execute the application corresponding to the first object. For example, when the first object is the execution icon of the application, and the first touch input for the time less than the first threshold is ended for the first object, the electronic device **1001** may execute the application corresponding to the first object.

[0096] When it is determined that the first touch input has not ended as the determination result of operation S**615**, in operation S**625**, the electronic device **1001** may receive a second touch input that moves in a specified direction. While maintaining the first touch input for the time less than the first threshold, the electronic device **1001** may receive the second touch input. The second touch input may be a touch input that moves in a specific direction. For example, the second touch input may be a swipe input, a flick input, or a drag input having directionality.

[0097] While maintaining the first touch input, the electronic device **1001** may receive a second touch input that moves in a direction in which the exposed area of the display is extended. The direction in which the exposed area of the display is extended may be a direction in which a housing of the electronic device **1001** is slid to extend the exposed area of the display. For example, in order to extend the exposed area of the display, the electronic device **1001** may receive a second touch input that moves towards the top from the bottom of the display within a predefined angle range, and the housing of the electronic device **1001** may be slid in an upper direction of the electronic device **1001**.

[0098] According to an embodiment, the input timing of the first touch input and the input timing of the second touch input, for extending and utilizing the exposed area of the display, may be preset. For example, in order to extend and utilize the exposed area of the display, the second touch

input may be set to be input substantially simultaneously with the first touch input. Alternatively, for example, in order to extend and utilize the exposed area of the display, the second touch input may be set to be input within a first threshold time after the first touch input starts.

[0099] FIG. **7** is a flowchart for an example method for selectively presenting the extension of a display depending on whether a first software screen is a screen of a preset type according to various embodiments.

[0100] The operations of FIG. **7** may be performed, for example, between operations S**500** and S**520** of FIG. **5**, but are not limited thereto. Since operations S**700** to S**725** of FIG. **7** correspond to operations S**600** to S**625** of FIG. **6**, their descriptions will be not be repeated for convenience.

[0101] In operation S**730**, the electronic device **1001** may determine whether a first software screen is a screen of a preset type. For example, the electronic device **1001** may determine whether the first software screen is a screen of a type including an application execution icon. For example, the electronic device **1001** may determine whether the first software screen is a home screen. For example, the electronic device **1001** may determine whether the first software screen is a screen that presents a list of application execution icons.

[0102] When it is determined that the first software screen is the screen of the preset type as the determination result of operation S**730**, the electronic device **1001** may perform operation S**520**.

[0103] When it is determined that the first software screen is not the screen of the preset type as the determination result of operation S**730**, in operation S**735**, the electronic device **1001** may enlarge the first software screen.

[0104] When the first software screen is not the screen of the preset type, the electronic device **1001** may present a function of enlarging the first software screen according to a first touch input and a second touch input, and may not present a function of extending a display. Accordingly, the function of extending the display according to the first touch input and the second touch input may be prevented from conflicting with the function of enlarging the software screen on the display.

[0105] FIG. **8** is a diagram illustrating an example electronic device extending a display according to a first touch input and a second touch input on a home screen and dividing a screen according to various embodiments.

[0106] Referring to FIG. **8**, a home screen may be displayed in an exposed area **100** of a display of an electronic device **1001** in a state in which the exposed area **100** of the display is not extended.

[0107] The electronic device **1001** may receive a first touch input **82** touching a first icon **80** in the home screen, and while maintaining the first touch input **82**, the electronic device **1001** may receive a second touch input **84** that moves towards the top of the electronic device **1001**.

[0108] As the first touch input **82** and the second touch input **84** are received, the electronic device **1001** may slide a housing and extend the exposed area **100** of the display, and divide the extended exposed area **100** into a first area **100-1** and a second area **100-2**.

[0109] The electronic device **1001** may execute a first application corresponding to the first icon **80**, display an execution screen of the first application in the first area **100-1**, and display the home screen in the second area **100-2**.

[0110] When a second icon **86** in the home screen displayed in the second area **100-2** is selected, the electronic device **1001** may execute a second application corresponding to the second icon **86**, and display an execution screen of the second application in the second area **100-2**.

[0111] FIG. **9** is a diagram illustrating an example electronic device extending a display according to a first touch input and a second touch input on a web page and dividing a screen according to various embodiments.

[0112] Referring to FIG. **9**, a web page presented by a web browser application may be displayed in an exposed area **100** of a display of an electronic device **1001** in a state in which the exposed area **100** of the display is not extended.

[0113] The electronic device **1001** may receive a first touch input **92** touching an image **90** that is a GUI element in the web page, and while maintaining the first touch input **92**, the electronic device

1001 may receive a second touch input **94** that moves towards the top of the electronic device **1001**.

[0114] When the first touch input **92** and the second touch input **94** are received, the electronic device **1001** may slide a housing and extend the exposed area **100** of the display, and divide the extended exposed area **100** into a first area **100-1** and a second area **100-2**.

[0115] The electronic device **1001** may display another web page linked to the image **90** in the first area **100-1**, and display the web page, which had been displayed in the exposed area **100** before extension, in the second area **100-2**.

[0116] FIG. **10** is a diagram illustrating an example electronic device extending a display according to a first touch input and a second touch input on an execution screen of a message application and dividing a screen according to various embodiments.

[0117] Referring to FIG. **10**, an execution screen of a message application may be displayed in an exposed area **100** of a display of an electronic device **1001** in a state where the exposed area **100** of the display is not extended. For example, the execution screen of the message application including a list of chat rooms may be displayed in the exposed area **100**.

[0118] The electronic device **1001** may receive a first touch input **106** touching a specific chat room **105** on the execution screen of the message application, and while maintaining the first touch input **106**, the electronic device **1001** may receive a second touch input **107** that moves towards the top of the electronic device **1001**.

[0119] As the first touch input **106** and the second touch input **107** are received, the electronic device **1001** may slide a housing and extend the exposed area **100** of the display, and may divide the extended exposed area **100** into a first area **100-1** and a second area **100-2**.

[0120] The electronic device **1001** may display chat content in the chat room **105** in the first area **100-1**, and display the list of chat rooms, which had been displayed in the exposed area **100** before extension, in the second area **100-2**.

[0121] FIG. **11** is a flowchart of an example method in which an example electronic device extends a display according to a first touch input and a second touch input on an execution screen of a camera application according to various embodiments.

[0122] In operation S**1100**, an electronic device **1001** may display a preview image and a control GUI for controlling a camera application, on an execution screen of the camera application displayed in an exposed area of a display. In a first state in which the exposed area of the display of the electronic device **1001** is not extended, the electronic device **1001** may display the execution screen of the camera application on the display. For example, when the camera application is executed and a shooting function is activated, the electronic device **1001** may display, on the display, the execution screen of the camera application including the preview image and the control GUI for controlling the camera application. For example, the control GUI may include buttons for changing a shooting mode, a button for starting shooting, and a button for switching between a front camera and a rear camera, but is not limited thereto.

[0123] In operation S**1110**, the electronic device **1001** may receive a first touch input that touches the preview image. The first touch input may be an input that selects a first object for a specific time. For example, the first touch input may be a touch and hold input or a long touch input, but is not limited thereto.

[0124] In operation S**1120**, while maintaining the first touch input, the electronic device **1001** may receive a second touch input that moves in a specified direction on the execution screen of the camera application. The second touch input may be a touch input that moves in a specific direction. For example, the second touch input may be a swipe input, a flick input, or a drag input having directionality.

[0125] While maintaining the first touch input, the electronic device **1001** may receive a second touch input that moves in a direction in which the exposed area of the display is extended. The direction in which the exposed area of the display is extended may be a direction in which a

housing of the electronic device **1001** is slid to extend the exposed area of the display. For example, in order to extend the exposed area of the display, the electronic device **1001** may receive a second touch input that moves towards the top from the bottom of the display within a predefined angle range, and the housing of the electronic device **1001** is slid in an upper direction of the electronic device **1001**.

[0126] According to an embodiment, in order to present a function of extending the exposed area of the display, a second touch input may be set to start in an area which is not the preview image in the exposed area of the display. For example, when the second touch input starts in an area where the control GUI rather than the preview image is displayed in the exposed area of the display, a function of extending the display and dividing may be presented based on the first touch input and the second touch input.

[0127] When an execution screen of an application is displayed, a location of a second touch input for extending the display may be set to be limited, whereby a function of extending the display according to a first touch input and the second touch input may be prevented from conflicting with a function of enlarging a software screen on the display.

[0128] In operation S**1130**, the electronic device **1001** may extend the exposed area of the display. As the second touch input that moves in a specified direction is received while the first touch input is maintained, the electronic device **1001** may extend the exposed area of the display. For example, as shown in FIGS. **2**A, **2**B, **3**A, **3**B, and **4**, the electronic device **1001** may control the guide unit **420** to slide the second housing **220** or **320** with respect to the first housing **210** or **310** of the electronic device **1001**, and extend the exposed area of the display **230**, **330**, or **430** of the electronic device **1001**.

[0129] In operation S**1140**, the electronic device **1001** may divide the extended exposed area into a first area and a second area. For example, the electronic device **1001** may divide the extended exposed area into the first area and the second area and display two contents in the extended exposed area. For example, the first area may be an area of an upper portion of the exposed area of the display, and the second area may be an area of a lower portion of the exposed area of the display, but are not limited thereto.

[0130] In operation S**1150**, the electronic device **1001** may display the preview image in the first area, and display the control GUI having an added control button(s) in the second area.

[0131] For example, the added button of the control GUI may include, but is not limited to, buttons for changing the settings of a camera for shooting and buttons for editing a captured image.

[0132] In the above, operations S**1130**, S**1140**, and S**1150** are described as operations performed separately, but are not limited thereto. For example, while the exposed area of the display of the electronic device **1001** is extended, the exposed area may be divided into the first area and the second area, and content related to a first object and a first software screen may be displayed in the first area and the second area, respectively.

[0133] FIG. **12** is a diagram illustrating an example electronic device extending a display according to a first touch input and a second touch input on an execution screen of a camera application according to various embodiments.

[0134] Referring to FIG. **12**, an execution screen of a camera application may be displayed in an exposed area of a display of an electronic device **1001** in a state in which the exposed area of the display is not extended. The electronic device **1001** may display, for example, an execution screen of a camera application including a preview image **120** and a control GUI **121**.

[0135] The electronic device **1001** may receive a first touch input **123** for the preview image **120**, and while maintaining the first touch input **123**, the electronic device **1001** may receive a second touch input **124** that moves towards the top of the electronic device **1001**. In order to present a function of extending the display, the second touch input **124** may, for example, need to start on the control GUI **121** rather than the preview image **120**.

[0136] As the first touch input **123** and the second touch input **124** are received, the electronic

device **1001** may slide a housing and extend the exposed area of the display. In addition, the electronic device **1001** may display the preview image **120** and the control GUI **121** including added control buttons **125**, in the extended exposed area.

[0137] FIG. **13** is a flowchart of an example method in which an example electronic device reduces an extended exposed area of a display according to various embodiments.

[0138] Referring to FIG. **13**, an electronic device **1001** may restore an extended exposed area of a display to a state before extension.

[0139] In operation S**1300**, the electronic device **1001** may receive a third touch input for the extended exposed area. In a state in which the exposed area of the display of the electronic device **1001** is extended, the electronic device **1001** may display software screens in a first area and a second area of the extended exposed area, respectively. The third touch input may be an input that touches the extended exposed area of the display for a specific time. For example, the third touch input may be a touch and hold input or a long touch input, but is not limited thereto.

[0140] In operation S**1310**, while maintaining the third touch input, the electronic device **1001** may receive a fourth touch input that moves, for example, in a direction opposite to a specified direction. The fourth touch input may be a touch input that moves in a specific direction. For example, the fourth touch input may be a swipe input, a flick input, or a drag input having directionality.

[0141] While maintaining the third touch input, the electronic device **1001** may receive a fourth touch input that moves in a direction opposite to a direction in which the exposed area of the display is extended. The direction opposite to the direction in which the exposed area of the display is extended may be a direction in which a housing of the electronic device **1001** is slid to reduce the extended exposed area of the display. For example, in order to reduce the extended exposed area of the display, the electronic device **1001** may receive a fourth touch input that moves in a direction of going from the top to the bottom of the display within a predefined angle range, and the housing of the electronic device **1001** may be slid in a lower direction of the electronic device **1001**.

[0142] According to an embodiment, the input timing of the third touch input and the input timing of the fourth touch input, for reducing the exposed area of the display, may be preset. For example, in order to reduce the exposed area of the display, the fourth touch input may be set to be input substantially simultaneously with the third touch input. Alternatively, for example, in order to reduce the exposed area of the display, the fourth touch input may be set to be input within a predefined time range after the third touch input starts.

[0143] In operation S**1320**, the electronic device **1001** may reduce the exposed area of the display. As the fourth touch input that moves in the direction opposite to the specified direction is received while the third touch input is maintained, the electronic device **1001** may reduce the extended exposed area of the display. For example, as shown in FIGS. **2**A, **2**B, **3**A, **3**B, and **4**, the electronic device **1001** may control the guide unit **420** to slide the second housing **220** or **320** with respect to the first housing **210** or **310** of the electronic device **1001**, and reduce the extended exposed area of the display **230**, **330**, or **430** of the electronic device **1001**.

[0144] In operation S**1330**, the electronic device **1001** may determine whether the third touch input had been input in a first area. The electronic device **1001** may determine whether the third touch input had been input through the first area or whether the third touch input had been input through a second area, among the first area and the second area that are divided areas of the extended exposed area.

[0145] As it is determined that the third touch input had been input in the first area as the determination result of operation S**1330**, in operation S**1340**, the electronic device **1001** may display, in the reduced exposed area, a software screen that is being displayed in the first area. For example, when an execution screen of an application of a first object had been displayed in the first area of the extended exposed area, the electronic device **1001** may display the execution screen of the application of the first object in the reduced exposed area.

[0146] As it is determined that the third touch input had not been input in the first area as the determination result of operation S**1330**, in operation S**1350**, the electronic device **1001** may display, in the reduced exposed area, a software screen that is being displayed in the second area. For example, as it is determined that the third touch input had been input in the second area, the electronic device **1001** may display, in the reduced exposed area, a software screen that is being displayed in the second area. For example, when a home screen had been displayed in the second area of the extended exposed area, the electronic device **1001** may display the home screen in the reduced exposed area.

[0147] FIG. **14** is a diagram illustrating an example of reducing an exposed area of a display when a third touch input is received in a first area according to various embodiments.

[0148] Referring to FIG. **14**, an application presenting video content may be displayed in a first area **100-1** of an extended exposed area **100** of an electronic device **1001**, and a home screen may be displayed in a second area **100-2**.

[0149] The electronic device **1001** may receive a third touch input **140** that is input through the first area **100-1** and a fourth touch input **142** that moves towards the bottom of the electronic device **1001**. For example, while maintaining the third touch input **140** for a time within a first threshold, the electronic device **1001** may receive the fourth touch input **142**.

[0150] Thereafter, the electronic device **1001** may reduce the extended exposed area **100** of the display, and restore the extended exposed area **100** to a state before extension. The electronic device **1001** may display, in the reduced exposed area **100**, the application presenting the video content that had been displayed in the first area **100-1**.

[0151] FIG. **15** is a diagram illustrating an example of reducing an exposed area of a display when a fourth touch input is received in a second area according to various embodiments.

[0152] Referring to FIG. **15**, an application presenting video content may be displayed in a first area **100-1** of an extended exposed area **100** of an electronic device **1001**, and a home screen may be displayed in a second area **100-2**.

[0153] The electronic device **1001** may receive a third touch input **150** that is input through the second area **100-2** and a fourth touch input **152** that moves towards the bottom of the electronic device **1001**. For example, while maintaining the third touch input **150** for a time within a first threshold, the electronic device **1001** may receive the fourth touch input **152**.

[0154] Thereafter, the electronic device **1001** may reduce the extended exposed area **100** of the display, and restore the extended exposed area **100** to a state before extension. The electronic device **1001** may display, in the reduced exposed area **100**, the home screen that had been displayed in the second area **100-2**.

[0155] FIG. **16** is a block diagram illustrating an example electronic device **1001** in a network environment **1000** according to various embodiments. Referring to FIG. **16**, the electronic device **1001** in the network environment **1000** may communicate with an electronic device **1002** via a first network **1098** (e.g., a short-range wireless communication network), or at least one of an electronic device **1004** or a server **1008** via a second network **1099** (e.g., a long-range wireless communication network). According to an embodiment, the electronic device **1001** may communicate with the electronic device **1004** via the server **1008**. According to an embodiment, the electronic device **1001** may include a processor **1020**, memory **1030**, an input module **1050**, a sound output module **1055**, a display module **1060**, an audio module **1070**, a sensor module **1076**, an interface **1077**, a connecting terminal **1078**, a haptic module **1079**, a camera module **1080**, a power management module **1088**, a battery **1089**, a communication module **1090**, a subscriber identification module (SIM) **1096**, or an antenna module **1097**. In various embodiments, at least one of the components (e.g., the connecting terminal **1078**) may be omitted from the electronic device **1001**, or one or more other components may be added in the electronic device **1001**. In various embodiments, some of the components (e.g., the sensor module **1076**, the camera module **1080**, or the antenna module **1097**) may be implemented as a single component (e.g., the display

module **1060**).

[0156] The processor **1020** may execute, for example, software (e.g., a program **1040**) to control at least one other component (e.g., a hardware or software component) of the electronic device **1001** coupled with the processor **1020**, and may perform various data processing or computation. According to an embodiment, as at least part of the data processing or computation, the processor **1020** may store a command or data received from another component (e.g., the sensor module **1076** or the communication module **1090**) in volatile memory **1032**, process the command or the data stored in the volatile memory **1032**, and store resulting data in non-volatile memory **1034**. According to an embodiment, the processor **1020** may include a main processor **1021** (e.g., a central processing unit (CPU) or an application processor (AP)), or an auxiliary processor **1023** (e.g., a graphics processing unit (GPU), a neural processing unit (NPU), an image signal processor (ISP), a sensor hub processor, or a communication processor (CP)) that is operable independently from, or in conjunction with, the main processor **1021**. For example, the various processors may operate individually or collectively to perform operations or functions. For example, when the electronic device **1001** includes the main processor **1021** and the auxiliary processor **1023**, the auxiliary processor **1023** may be adapted to consume less power than the main processor **1021**, or to be specific to a specified function. The auxiliary processor **1023** may be implemented as separate from, or as part of, the main processor **1021**.

[0157] The auxiliary processor **1023** may control at least some of functions or states related to at least one component (e.g., the display module **1060**, the sensor module **1076**, or the communication module **1090**) among the components of the electronic device **1001**, instead of the main processor **1021** while the main processor **1021** is in an inactive (e.g., sleep) state, or together with the main processor **1021** while the main processor **1021** is in an active state (e.g., executing an application). According to an embodiment, the auxiliary processor **1023** (e.g., an image signal processor or a communication processor) may be implemented as part of another component (e.g., the camera module **1080** or the communication module **1090**) functionally related to the auxiliary processor **1023**. According to an embodiment, the auxiliary processor **1023** (e.g., the neural processing unit) may include a hardware structure specified for artificial intelligence model processing. An artificial intelligence model may be generated by machine learning. Such learning may be performed, e.g., by the electronic device **1001** where the artificial intelligence is performed or via a separate server (e.g., the server **1008**). Learning algorithms may include, but are not limited to, e.g., supervised learning, unsupervised learning, semi-supervised learning, or reinforcement learning. The artificial intelligence model may include a plurality of artificial neural network layers. The artificial neural network may be a deep neural network (DNN), a convolutional neural network (CNN), a recurrent neural network (RNN), a restricted Boltzmann machine (RBM), a deep belief network (DBN), a bidirectional recurrent deep neural network (BRDNN), deep Q-network or a combination of two or more thereof but is not limited thereto. The artificial intelligence model may, additionally or alternatively, include a software structure other than the hardware structure.

[0158] The memory **1030** may store various data used by at least one component (e.g., the processor **1020** or the sensor module **1076**) of the electronic device **1001**. The various data may include, for example, software (e.g., the program **1040**) and input data or output data for a command related thereto. The memory **1030** may include the volatile memory **1032** or the non-volatile memory **1034**.

[0159] The program **1040** may be stored in the memory **1030** as software, and may include, for example, an operating system (OS) **1042**, middleware **1044**, or an application **1046**.

[0160] The input module **1050** (including, e.g., input circuitry) may receive a command or data to be used by another component (e.g., the processor **1020**) of the electronic device **1001**, from the outside (e.g., a user) of the electronic device **1001**. The input module **1050** may include, for example, a microphone, a mouse, a keyboard, a key (e.g., a button), or a digital pen (e.g., a stylus pen).

[0161] The sound output module **1055** (including, e.g., sound output circuitry) may output sound signals to the outside of the electronic device **1001**. The sound output module **1055** may include, for example, a speaker or a receiver. The speaker may be used for general purposes, such as playing multimedia or playing record. The receiver may be used for receiving incoming calls. According to an embodiment, the receiver may be implemented as separate from, or as part of, the speaker.

[0162] The display module **1060** may visually provide information to the outside (e.g., a user) of the electronic device **1001**. The display module **1060** may include, for example, a display, a hologram device, or a projector and control circuitry to control a corresponding one of the display, hologram device, and projector. According to an embodiment, the display module **1060** may include a touch sensor adapted to detect a touch, or a pressure sensor adapted to measure the intensity of force incurred by the touch.

[0163] The audio module **1070** (including, e.g., audio circuitry) may convert a sound into an electrical signal and vice versa. According to an embodiment, the audio module **1070** may obtain the sound via the input module **1050**, or output the sound via the sound output module **1055** or a headphone of an external electronic device (e.g., an electronic device **1002**) directly (e.g., wiredly) or wirelessly coupled with the electronic device **1001**.

[0164] The sensor module **1076** may detect an operational state (e.g., power or temperature) of the electronic device **1001** or an environmental state (e.g., a state of a user) external to the electronic device **1001**, and then generate an electrical signal or data value corresponding to the detected state. According to an embodiment, the sensor module **1076** may include, for example, a gesture sensor, a gyro sensor, an atmospheric pressure sensor, a magnetic sensor, an acceleration sensor, a grip sensor, a proximity sensor, a color sensor, an infrared (IR) sensor, a biometric sensor, a temperature sensor, a humidity sensor, or an illuminance sensor.

[0165] The interface **1077** (including, e.g., interface circuitry) may support one or more specified protocols to be used for the electronic device **1001** to be coupled with the external electronic device (e.g., the electronic device **1002**) directly (e.g., wiredly) or wirelessly. According to an embodiment, the interface **1077** may include, for example, a high definition multimedia interface (HDMI), a universal serial bus (USB) interface, a secure digital (SD) card interface, or an audio interface.

[0166] A connecting terminal **1078** may include a connector via which the electronic device **1001** may be physically connected with the external electronic device (e.g., the electronic device **1002**). According to an embodiment, the connecting terminal **1078** may include, for example, a HDMI connector, a USB connector, a SD card connector, or an audio connector (e.g., a headphone connector).

[0167] The haptic module **1079** may convert an electrical signal into a mechanical stimulus (e.g., a vibration or a movement) or electrical stimulus which may be recognized by a user via tactile sensation or kinesthetic sensation. According to an embodiment, the haptic module **1079** may include, for example, a motor, a piezoelectric element, or an electric stimulator.

[0168] The camera module **1080** (including, e.g., a camera) may capture a still image or moving images. According to an embodiment, the camera module **1080** may include one or more lenses, image sensors, image signal processors, or flashes.

[0169] The power management module **1088** may manage power supplied to the electronic device **1001**. According to an embodiment, the power management module **1088** may be implemented as at least part of, for example, a power management integrated circuit (PMIC).

[0170] The battery **1089** may supply power to at least one component of the electronic device **1001**. According to an embodiment, the battery **1089** may include, for example, a primary cell which is not rechargeable, a secondary cell which is rechargeable, or a fuel cell.

[0171] The communication module **1090** (including, e.g., communication circuitry) may support establishing a direct (e.g., wired) communication channel or a wireless communication channel between the electronic device **1001** and the external electronic device (e.g., the electronic device

1002, the electronic device **1004**, or the server **1008**) and performing communication via the established communication channel. The communication module **1090** may include one or more communication processors that are operable independently from the processor **1020** (e.g., the application processor (AP)) and supports a direct (e.g., wired) communication or a wireless communication. According to an embodiment, the communication module **1090** may include a wireless communication module **1092** (including, e.g., wireless communication circuitry) (e.g., a cellular communication module, a short-range wireless communication module, or a global navigation satellite system (GNSS) communication module) or a wired communication module **1094** (including, e.g., wired communication circuitry) (e.g., a local area network (LAN) communication module or a power line communication (PLC) module). A corresponding one of these communication modules may communicate with the external electronic device via the first network **1098** (e.g., a short-range communication network, such as Bluetooth™, wireless-fidelity (Wi-Fi) direct, or infrared data association (IrDA)) or the second network **1099** (e.g., a long-range communication network, such as a legacy cellular network, a 5G network, a next-generation communication network, the Internet, or a computer network (e.g., LAN or wide area network (WAN)). These various types of communication modules may be implemented as a single component (e.g., a single chip), or may be implemented as multi components (e.g., multi chips) separate from each other. The wireless communication module **1092** may identify and authenticate the electronic device **1001** in a communication network, such as the first network **1098** or the second network **1099**, using subscriber information (e.g., international mobile subscriber identity (IMSI)) stored in the subscriber identification module **1096**.

[0172] The wireless communication module **1092** may support a 5G network, after a 4G network, and next-generation communication technology, e.g., new radio (NR) access technology. The NR access technology may support enhanced mobile broadband (eMBB), massive machine type communications (mMTC), or ultra-reliable and low-latency communications (URLLC). The wireless communication module **1092** may support a high-frequency band (e.g., the mmWave band) to achieve, e.g., a high data transmission rate. The wireless communication module **1092** may support various technologies for securing performance on a high-frequency band, such as, e.g., beamforming, massive multiple-input and multiple-output (massive MIMO), full dimensional MIMO (FD-MIMO), array antenna, analog beam-forming, or large scale antenna. The wireless communication module **1092** may support various requirements specified in the electronic device **1001**, an external electronic device (e.g., the electronic device **1004**), or a network system (e.g., the second network **1099**). According to an embodiment, the wireless communication module **1092** may support a peak data rate (e.g., 20 Gbps or more) for implementing eMBB, loss coverage (e.g., 164 dB or less) for implementing mMTC, or U-plane latency (e.g., 0.5 ms or less for each of downlink (DL) and uplink (UL), or a round trip of Ims or less) for implementing URLLC.

[0173] The antenna module **1097** may transmit or receive a signal or power to or from the outside (e.g., the external electronic device) of the electronic device **1001**. According to an embodiment, the antenna module **1097** may include an antenna including a radiating element including a conductive material or a conductive pattern formed in or on a substrate (e.g., a printed circuit board (PCB)). According to an embodiment, the antenna module **1097** may include a plurality of antennas (e.g., array antennas). In such a case, at least one antenna appropriate for a communication scheme used in the communication network, such as the first network **1098** or the second network **1099**, may be selected, for example, by the communication module **1090** (e.g., the wireless communication module **1092**) from the plurality of antennas. The signal or the power may then be transmitted or received between the communication module **1090** and the external electronic device via the selected at least one antenna. According to an embodiment, another component (e.g., a radio frequency integrated circuit (RFIC)) other than the radiating element may be additionally formed as part of the antenna module **1097**.

[0174] According to various embodiments, the antenna module **1097** may form a mm Wave

antenna module. According to an embodiment, the mmWave antenna module may include a printed circuit board, a RFIC disposed on a first surface (e.g., the bottom surface) of the printed circuit board, or adjacent to the first surface and capable of supporting a designated high-frequency band (e.g., the mm Wave band), and a plurality of antennas (e.g., array antennas) disposed on a second surface (e.g., the top or a side surface) of the printed circuit board, or adjacent to the second surface and capable of transmitting or receiving signals of the designated high-frequency band.

[0175] At least some of the above-described components may be coupled mutually and communicate signals (e.g., commands or data) therebetween via an inter-peripheral communication scheme (e.g., a bus, general purpose input and output (GPIO), serial peripheral interface (SPI), or mobile industry processor interface (MIPI)).

[0176] According to an embodiment, commands or data may be transmitted or received between the electronic device **1001** and the external electronic device **1004** via the server **1008** coupled with the second network **1099**. Each of the electronic devices **1002** or **1004** may be a device of a same type as, or a different type, from the electronic device **1001**. According to an embodiment, all or some of operations to be executed at the electronic device **1001** may be executed at one or more of the external electronic devices **1002**, **1004**, or **1008**. For example, if the electronic device **1001** should perform a function or a service automatically, or in response to a request from a user or another device, the electronic device **1001**, instead of, or in addition to, executing the function or the service, may request the one or more external electronic devices to perform at least part of the function or the service. The one or more external electronic devices receiving the request may perform the at least part of the function or the service requested, or an additional function or an additional service related to the request, and transfer an outcome of the performing to the electronic device **1001**. The electronic device **1001** may provide the outcome, with or without further processing of the outcome, as at least part of a reply to the request. To that end, a cloud computing, distributed computing, mobile edge computing (MEC), or client-server computing technology may be used, for example. The electronic device **1001** may provide ultra low-latency services using, e.g., distributed computing or mobile edge computing. In an embodiment, the external electronic device **1004** may include an internet-of-things (IoT) device. The server **1008** may be an intelligent server using machine learning and/or a neural network. According to an embodiment, the external electronic device **1004** or the server **1008** may be included in the second network **1099**. The electronic device **1001** may be applied to intelligent services (e.g., smart home, smart city, smart car, or healthcare) based on 5G communication technology or IoT-related technology.

[0177] The (at least one) processor **1020** may execute the program **1040** stored in the memory **1030** and control the operations of the electronic device **1001** of FIGS. **1** to **15**.

[0178] The processor **1020** may control the display module **1060** and receive a first touch input that touches a first object in a first software screen displayed in an exposed area of a display included in the display module **1060**. In a first state in which the exposed area of the display is not extended, the processor **1020** may display the first software screen on the display. For example, the first software screen may include a lock screen of the electronic device **1001**, a home screen, a setting screen, and an execution screen of an application. For example, the first object may be a graphical user interface element (GUI element) for executing a specific operation of the electronic device **1001**. The first object may include, for example, an icon, a button, an image, and/or a text, but is not limited thereto.

[0179] For example, the first software screen may be a home screen, and the first object may be an execution icon of an application. For example, the first software screen may be an execution screen of an application, and the first object may be a GUI element in the execution screen of the application. The first touch input may be an input that selects the first object for a specific time. For example, the first touch input may be a touch and hold input or a long touch input, but is not limited thereto.

[0180] While maintaining the first touch input, the processor **1020** may receive a second touch

input that moves in a specified direction on the first software screen. The second touch input may be a touch input that moves in a specific direction. For example, the second touch input may be a swipe input, a flick input, or a drag input having directionality.

[0181] While maintaining the first touch input, the processor **1020** may receive a second touch input that moves in a direction in which an exposed area of a display is extended. The direction in which the exposed area of the display is extended may be a direction in which a housing of the electronic device **1001** is slid to extend the exposed area of the display. For example, in order to extend the extended exposed area of the display, the processor **1020** may receive a second touch input that moves towards the top from the bottom of the display within a predefined angle range, and the housing of the electronic device **1001** may be slid in an upper direction of the electronic device **1001**.

[0182] According to an embodiment, the input timing of the first touch input and the input timing of the second touch input, for extending and utilizing the exposed area of the display, may be preset. For example, in order to extend and utilize the exposed area of the display, the second touch input may be set to be input substantially simultaneously with the first touch input. Alternatively, for example, in order to extend and utilize the exposed area of the display, the second touch input may be set to be input within a predefined time range after the first touch input starts.

[0183] The processor **1020** may extend the exposed area of the display. When the second touch input that moves in a specified direction is received while the first touch input is maintained, the processor **1020** may extend the exposed area of the display. For example, as shown in FIGS. **2**A, **2**B, **3**A, **3**B, and **4**, the processor **1020** may control the guide unit **420** to slide the second housing **220** or **320** with respect to the first housing **210** or **310** of the electronic device **1001**, and extend the exposed area of the display **230**, **330**, or **430** of the electronic device **1001**.

[0184] The processor **1020** may divide the extended exposed area into a first area and a second area. For example, the processor **1020** may divide the extended exposed area into the first area and the second area in order to display two contents in the extended exposed area. For example, the first area may be an area of an upper portion of the exposed area of the display, and the second area may be an area of a lower portion of the exposed area of the display, but are not limited thereto.

[0185] The processor **1020** may display content related to the first object and the first software screen in the first area and the second area, respectively. The processor **1020** may display the content related to the first object in the first area, and display the first software screen in the second area. Alternatively, the processor **1020** may display the content related to the first object in the second area, and display the first software screen in the first area.

[0186] The content related to the first object may be content displayed on the display of the electronic device **1001** as a result of executing a specific function of the electronic device **1001** corresponding to the first object. For example, when the first object is an execution icon of an application, the content related to the first object may be an execution screen of the application. For example, when the first object is a GUI element in an execution screen of an application, the content related to the first object may be content indicating a result of executing a function corresponding to the GUI element among functions of the application.

[0187] According to an embodiment, the processor **1020** may identify a time for which the first touch input is maintained. The processor **1020** may identify a time for which the first touch input is maintained or ended from the timing when the first touch input starts.

[0188] The processor **1020** may determine whether the time for which the first touch input is maintained exceeds a first threshold. The first threshold may be set, for example, wherein a menu regarding a function of the electronic device **1001** related to a first object is displayed when the first object is touched for the time exceeding the first threshold.

[0189] As it is determined that the time for which the first touch input is maintained has exceeded the first threshold, the processor **1020** may display a function menu related to the first object. For example, when the first object is an execution icon of an application and the first touch input

exceeds the first threshold, a function menu related to a function for processing the displaying of the first object and a function of the application corresponding to the first object may be displayed on the display of the electronic device **1001**. For example, when the first object is the execution icon of the application and the first touch input exceeds the first threshold, a function menu including an item for selecting the first object, an item for deleting the first object, an item for uninstalling the application corresponding to the first object, and an item for setting a widget of the application corresponding to the first object may be displayed around the first object.

[0190] As it is determined that the time for which the first touch input is maintained is less than the first threshold, the processor **1020** may determine whether the first touch input has ended.

[0191] When it is determined that the first touch input has ended, the processor **1020** may execute the application corresponding to the first object. For example, when the first object is an application execution icon, and the first touch input for the time less than the first threshold is ended for the first object, the processor **1020** may execute the application corresponding to the first object.

[0192] When it is determined that the first touch input has not ended, the processor **1020** may receive a second touch input that moves in a specified direction. While maintaining the first touch input for the time less than the first threshold, the processor **1020** may receive the second touch input. The second touch input may be a touch input that moves in a specific direction.

[0193] While maintaining the first touch input, the processor **1020** may receive a second touch input that moves in a direction in which the exposed area of the display is extended.

[0194] According to an embodiment, the processor **1020** may determine whether the first software screen is a screen of a preset type. For example, the processor **1020** may determine whether the first software screen is a screen of a type including an application execution icon. For example, the processor **1020** may determine whether the first software screen is a home screen. For example, the processor **1020** may determine whether the first software screen is a screen that presents a list of application execution icons.

[0195] When it is determined that the first software screen is the screen of the preset type, the processor **1020** may extend the exposed area of the display. When it is determined that the first software screen is not the screen of the preset type, the processor **1020** may enlarge the first software screen.

[0196] When the first software screen is not the screen of the preset type, the processor **1020** may present a function of enlarging the first software screen according to a first touch input and a second touch input, and may not present a function of extending the display. Accordingly, the function of extending the display according to the first touch input and the second touch input may be prevented from conflicting with a function of enlarging the first software screen on the display.

[0197] According to an embodiment, the processor **1020** may display a preview image and a control GUI for controlling a camera application, on an execution screen of a camera application displayed in an exposed area of a display. In a first state in which the exposed area of the display of the electronic device **1001** is not extended, the processor **1020** may display the execution screen of the camera application on the display. For example, when the camera application is executed and a shooting function is activated, the processor **1020** may display, on the display, the execution screen of the camera application that includes the preview image and the control GUI for controlling the camera application. For example, the control GUI may include, but is not limited to, buttons for changing a shooting mode, a button for starting shooting, and a button for switching between a front camera and a rear camera.

[0198] The processor **1020** may receive a first touch input that touches a preview image. The first touch input may be an input that selects a first object for a specific time. For example, the first touch input may be a touch and hold input or a long touch input, but is not limited thereto.

[0199] While maintaining the first touch input, the processor **1020** may receive a second touch input that moves in a specified direction on an execution screen of a camera application. The

second touch input may be a touch input that moves in a specific direction. For example, the second touch input may be a swipe input, a flick input, or a drag input having directionality.

[0200] While maintaining the first touch input, the processor **1020** may receive a second touch input that moves in a direction in which an exposed area of a display is extended. The direction in which the exposed area of the display is extended may be a direction in which a housing of the electronic device **1001** is slid to extend the exposed area of the display.

[0201] Thereafter, the processor **1020** may extend the exposed area of the display. As the second touch input that moves in a specific direction is received while the first touch input is maintained, the processor **1020** may extend the exposed area of the display.

[0202] The processor **1020** may divide the extended exposed area into a first area and a second area. For example, the processor **1020** may divide the extended exposed area into the first area and the second area, in order to display two contents in the extended exposed area. For example, the first area may be an area of an upper portion of the exposed area of the display, and the second area may be an area of a lower portion of the exposed area of the display, but are not limited thereto.

[0203] The processor **1020** may display the preview image in the first area, and display the control GUI having an added control button(s) in the second area. For example, the added button(s) of the control GUI may include, but is not limited to, buttons for changing the settings of a camera for shooting and buttons for editing a captured image.

[0204] According to an embodiment, the processor **1020** may receive a third touch input for the extended exposed area. In a state in which the exposed area of the display of the electronic device **1001** is extended, the processor **1020** may display software screens in the first area and second area of the extended exposed area, respectively. The third touch input may be an input that touches the extended exposed area of the display for a specific time. For example, the third touch input may be a touch and hold input or a long touch input, but is not limited thereto.

[0205] While maintaining the third touch input, the processor **1020** may receive a fourth touch input that moves in a direction opposite to a specified direction. The fourth touch input may be a touch input that moves in a specific direction. For example, the fourth touch input may be a swipe input, a flick input, or a drag input having directionality.

[0206] While maintaining the third touch input, the processor **1020** may receive a fourth touch input that moves in a direction opposite to a direction in which the exposed area of the display is extended. The direction opposite to the direction in which the exposed area of the display is extended may be a direction in which a housing of the electronic device **1001** is slid to reduce the extended exposed area of the display. For example, in order to reduce the exposed area of the display, the processor **1020** may receive a fourth touch input that moves in a direction of going from the top to the bottom of the display within a predefined angle range, and the housing of the electronic device **1001** may be slid in a lower direction of the electronic device **1001**.

[0207] According to an embodiment, the input timing of the third touch input and the input timing of the fourth touch input, for reducing the exposed area of the display, may be preset. For example, in order to reduce the exposed area of the display, the fourth touch input may be set to be input substantially simultaneously with the third touch input. Alternatively, for example, in order to reduce the exposed area of the display, the fourth touch input may be set to be input within a predefined time range after the third touch input starts.

[0208] The processor **1020** may reduce the exposed area. As the fourth touch input that moves in the direction opposite to the specified direction is received while the third touch input is maintained, the processor **1020** may reduce the extended exposed area of the display.

[0209] The processor **1020** may determine whether the third touch input had been input in the first area. The processor **1020** may determine whether the third touch input had been input through the first area or whether the third touch input had been input through the second area, among the first area and the second area that are divided areas of the extended exposed area.

[0210] As it is determined that the third touch input had been input in the first area, the processor

1020 may display, in the reduced exposed area, a software screen that is being displayed in the first area. For example, when an execution screen of an application of a first object had been displayed in the first area of the extended exposed area, the processor **1020** may display the execution screen of the application of the first object in the reduced exposed area.

[0211] As it is determined that the third touch input had not been input in the first area, the processor **1020** may display, in the reduced exposed area, a software screen that is being displayed in the second area. For example, as it is determined that the third touch input had been input in the second area, the processor **1020** may display, in the reduced exposed area, a software screen that is being displayed in the second area. For example, when a home screen had been displayed in the second area of the extended exposed area, the processor **1020** may display the home screen in the reduced exposed area.

[0212] The electronic device according to various embodiments may be one of various types of electronic devices. The electronic devices may include, for example, a portable communication device (e.g., a smartphone), a computer device, a portable multimedia device, a portable medical device, a camera, a wearable device, a home appliance, or the like. According to an embodiment of the disclosure, the electronic devices are not limited to those described above.

[0213] It should be appreciated that various embodiments of the present disclosure and the terms used therein are not intended to limit the technological features set forth herein to particular embodiments and include various changes, equivalents, or replacements for a corresponding embodiment. With regard to the description of the drawings, similar reference numerals may be used to refer to similar or related elements. It is to be understood that a singular form of a noun corresponding to an item may include one or more of the things, unless the relevant context clearly indicates otherwise. As used herein, each of such phrases as "A or B," "at least one of A and B," "at least one of A or B," "A, B, or C," "at least one of A, B, and C," "at least one of A, B, or C,", and "at least one of A, B, and/or C" may include any one of, or all possible combinations of the items enumerated together in a corresponding one of the phrases. As used herein, such terms as "1st" and "2nd," or "first" and "second" may be used to simply distinguish a corresponding component from another, and do not limit the components in other aspect (e.g., importance or order). It is to be understood that if an element (e.g., a first element) is referred to, with or without the term "operatively" or "communicatively", as "coupled with," "coupled to," "connected with," or "connected to" another element (e.g., a second element), the element may be coupled with the other element directly (e.g., wiredly), wirelessly, or via a third element.

[0214] As used in connection with various embodiments of the disclosure, the term "module" may include a unit implemented in hardware, software, or firmware, and may interchangeably be used with other terms, for example, "logic," "logic block," "part," or "circuitry". A module may be a single integral component, or a minimum unit or part thereof, adapted to perform one or more functions. For example, according to an embodiment, the module may be implemented in a form of an application-specific integrated circuit (ASIC).

[0215] Various embodiments as set forth herein may be implemented as software (e.g., the program **1040**) including one or more instructions that are stored in a storage medium (e.g., internal memory **1036** or external memory **1038**) that is readable by a machine (e.g., the electronic device **1001**). For example, a processor (e.g., the processor **1020**) of the machine (e.g., the electronic device **1001**) may invoke at least one of the one or more instructions stored in the storage medium, and execute it, with or without using one or more other components under the control of the processor. This allows the machine to be operated to perform at least one function according to the at least one instruction invoked. The one or more instructions may include a code generated by a compiler or a code executable by an interpreter. The machine-readable storage medium may be provided in the form of a non-transitory storage medium, where the term "non-transitory" simply refers to the storage medium being a tangible device, and does not include a signal (e.g., an electromagnetic wave), but this term does not differentiate between where data is semi-permanently stored in the

storage medium and where the data is temporarily stored in the storage medium.

[0216] According to an embodiment, a method according to various embodiments of the disclosure may be included and provided in a computer program product. The computer program product may be traded as a product between a seller and a buyer. The computer program product may be distributed in the form of a machine-readable storage medium (e.g., compact disc read only memory (CD-ROM)), or be distributed (e.g., downloaded or uploaded) online via an application store (e.g., PlayStore™), or between two user devices (e.g., smart phones) directly. If distributed online, at least part of the computer program product may be temporarily generated or at least temporarily stored in the machine-readable storage medium, such as memory of the manufacturer's server, a server of the application store, or a relay server.

[0217] According to various embodiments, each component (e.g., a module or a program) of the above-described components may include a single entity or multiple entities, and some of the multiple entities may be separately disposed in different components. According to various embodiments, one or more of the above-described components may be omitted, or one or more other components may be added. Alternatively or additionally, a plurality of components (e.g., modules or programs) may be integrated into a single component. In such a case, according to various embodiments, the integrated component may still perform one or more functions of each of the plurality of components in the same or similar manner as they are performed by a corresponding one of the plurality of components before the integration. According to various embodiments, operations performed by the module, the program, or another component may be carried out sequentially, in parallel, repeatedly, or heuristically, or one or more of the operations may be executed in a different order or omitted, or one or more other operations may be added.

[0218] The disclosure has been described with reference to the embodiments. It would be appreciated by those skilled in the art that changes may be made to these embodiments without departing from the principles and spirit of the disclosure. Therefore, the disclosed embodiments are provided for the purpose of describing the disclosure and the disclosure should not be construed as being limited to only the embodiments set forth herein. The scope of the disclosure is defined by the claims as opposed to by the above-mentioned descriptions, and it should be understood that disclosure includes all differences made within the equivalent scope. It will also be understood that any of the embodiment(s) described herein may be used in conjunction with any other embodiment(s) described herein.

Claims

1. A method for extending a display in an electronic device, the method comprising: receiving a first touch input for a first object in a first software screen displayed in an exposed area of the display exposed to the outside of the electronic device; while the first touch input is maintained, receiving a second touch input comprising movement in a specified direction on the first software screen; in response to the receiving of the second touch input, extending the exposed area of the display exposed to the outside of the electronic device; dividing the extended exposed area of the display into a first area and a second area; and displaying content related to the first object and the first software screen in the first area and the second area, respectively.

2. The method of claim 1, wherein the first touch input is a touch and hold input, and the second touch input is a swipe input in the specified direction.

3. The method of claim 1, wherein the first software screen is a home screen of the electronic device, and the first object is an execution icon of an application displayed on the home screen.

4. The method of claim 3, wherein the displaying of the content related to the first object and the first software screen respectively comprises: displaying an execution screen of the application corresponding to the execution icon in the first area, and displaying the home screen in the second area.

5. The method of claim 4, further comprising: receiving a user input for selecting a second object in the home screen displayed in the second area; and in response to the selecting of the second object, displaying content related to the second object in the second area.

6. The method of claim 3, wherein the extending of the exposed area of the display comprises extending the exposed area, in response to receiving the second touch input within a time less than a first threshold after the first touch input starts.

7. The method of claim 6, further comprising displaying a pop-up menu related to the first object, in response to maintaining the first touch input for a time greater than the first threshold after the first touch input starts.

8. The method of claim 1, further comprising identifying whether the first software screen is a home screen, wherein the extending of the exposed area of the display comprises extending the exposed area of the display, in response to identifying that the first software screen is the home screen and receiving the second touch input.

9. The method of claim 1, wherein the first software screen is an execution screen of an Internet browser, and the first object is an object constituting a page in the Internet browser, and displaying the content related to the first object and the first software screen respectively comprises: displaying another page linked to the first object in the first area; and displaying the execution screen of the Internet browser in the second area.

10. The method of claim 1, further comprising: receiving a third touch input for the first area; while the third touch input is maintained, receiving a fourth touch input comprising movement in a direction opposite to the specified direction; in response to the receiving of the fourth touch input, reducing the exposed area of the display exposed to the outside of the electronic device; and displaying, in the reduced exposed area, content related to the first object displayed in the first area.

11. An electronic device comprising: a flexible display; memory configured to store instructions; and at least one processor operatively connected to the flexible display and the memory, wherein the at least one processor is configured, individually or collectively, to execute the instructions and cause the electronic device to: receive a first touch input for a first object in a first software screen displayed in an exposed area of the flexible display exposed to the outside of the electronic device; while the first touch input is maintained, receive a second touch input comprising movement in a specified direction on the first software screen; in response to the receiving of the second touch input, extend the exposed area of the flexible display exposed to the outside of the electronic device; divide the extended exposed area of the flexible display into a first area and a second area; and display content related to the first object and the first software screen in the first area and the second area, respectively.

12. The electronic device of claim 11, wherein the first touch input is a touch and hold input, and the second touch input is a swipe input in the specified direction.

13. The electronic device of claim 11, wherein the first software screen is a home screen of the electronic device, and the first object is an execution icon of an application displayed on the home screen.

14. The electronic device of claim 13, wherein at least one processor is configured, individually or collectively, to execute instructions and cause the electronic device to: display an execution screen of the application corresponding to the execution icon in the first area, and display the home screen in the second area.

15. The electronic device of claim 14, wherein at least one processor is configured, individually or collectively, to execute instructions and cause the electronic device to: receive a user input for selecting a second object in the home screen displayed in the second area; and in response to the selecting of the second object, display content related to the second object in the second area.

16. A non-transitory computer-readable storage medium storing instructions which, when executed by at least one processor of an electronic device including an extendable display, cause the electronic device to perform operations comprising: receiving a first touch input for a first object in

a first software screen displayed in an exposed area of the display exposed to the outside of the electronic device; while the first touch input is maintained, receiving a second touch input comprising movement in a specified direction on the first software screen; in response to the receiving of the second touch input, extending the exposed area of the display exposed to the outside of the electronic device; dividing the extended exposed area of the display into a first area and a second area; and displaying content related to the first object and the first software screen in the first area and the second area, respectively.