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(54) **ADAPTIVE DETERMINATION OF INFORMATION DISPLAY**

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G06F 3/0485 (2013.01)
G06F 3/0488 (2013.01)

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CPC ***G06F 3/0483*** (2013.01); ***G06F 3/0485*** (2013.01); ***G06F 3/0488*** (2013.01)

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See application file for complete search history.

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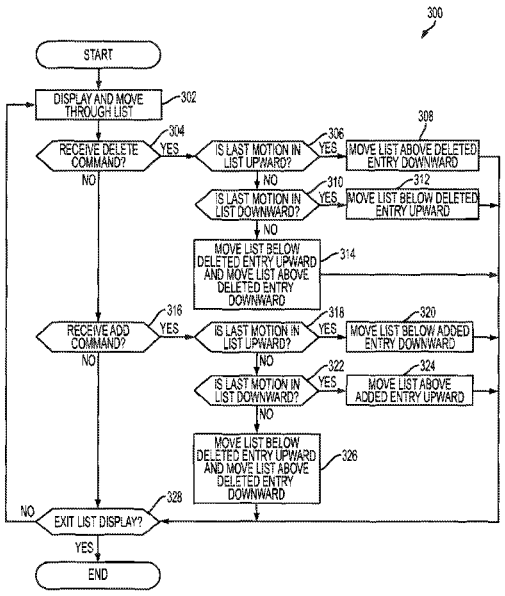
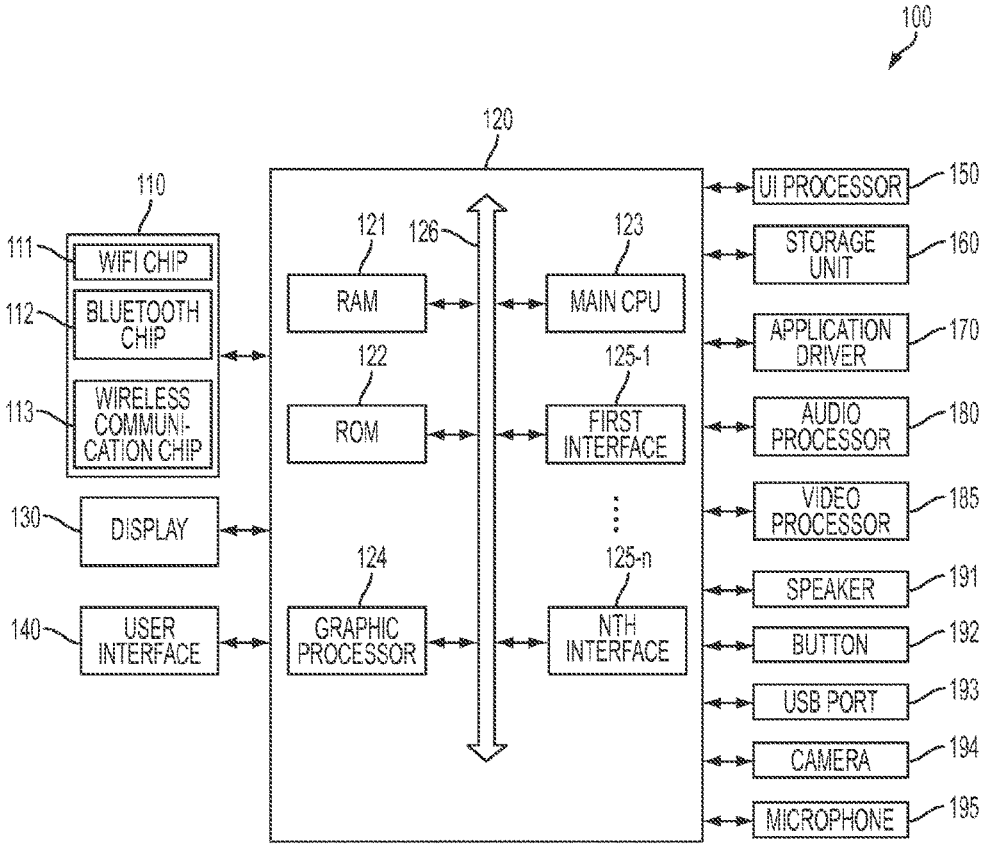
Primary Examiner — Woo H. Choi

(57) **ABSTRACT**

A method for operating a list in a mobile terminal is disclosed. An example method includes displaying a first set of items from an item list in the mobile terminal, changing the item list based on a received command, determining a direction of most recent movement in the item list before the receiving of the command, determining items from the item list to display according to the determined direction and the change of the item list, and displaying the determined items from the item list.

42 Claims, 6 Drawing Sheets




100
120
110
111
WIFI CHIP
112
BLUETOOTH CHIP
113
WIRELESS COMMUNI-CATION CHIP
130
DISPLAY
140
USER INTERFACE
121
RAM
122
ROM
124
GRAPHIC PROCESSOR
126
123
MAIN CPU
125-1
FIRST INTERFACE
125-n
NTH INTERFACE
UI PROCESSOR
150
STORAGE UNIT
160
APPLICATION DRIVER
170
AUDIO PROCESSOR
180
VIDEO PROCESSOR
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SPEAKER
191
BUTTON
192
USB PORT
193
CAMERA
194
MICROPHONE
195

FIG. 1

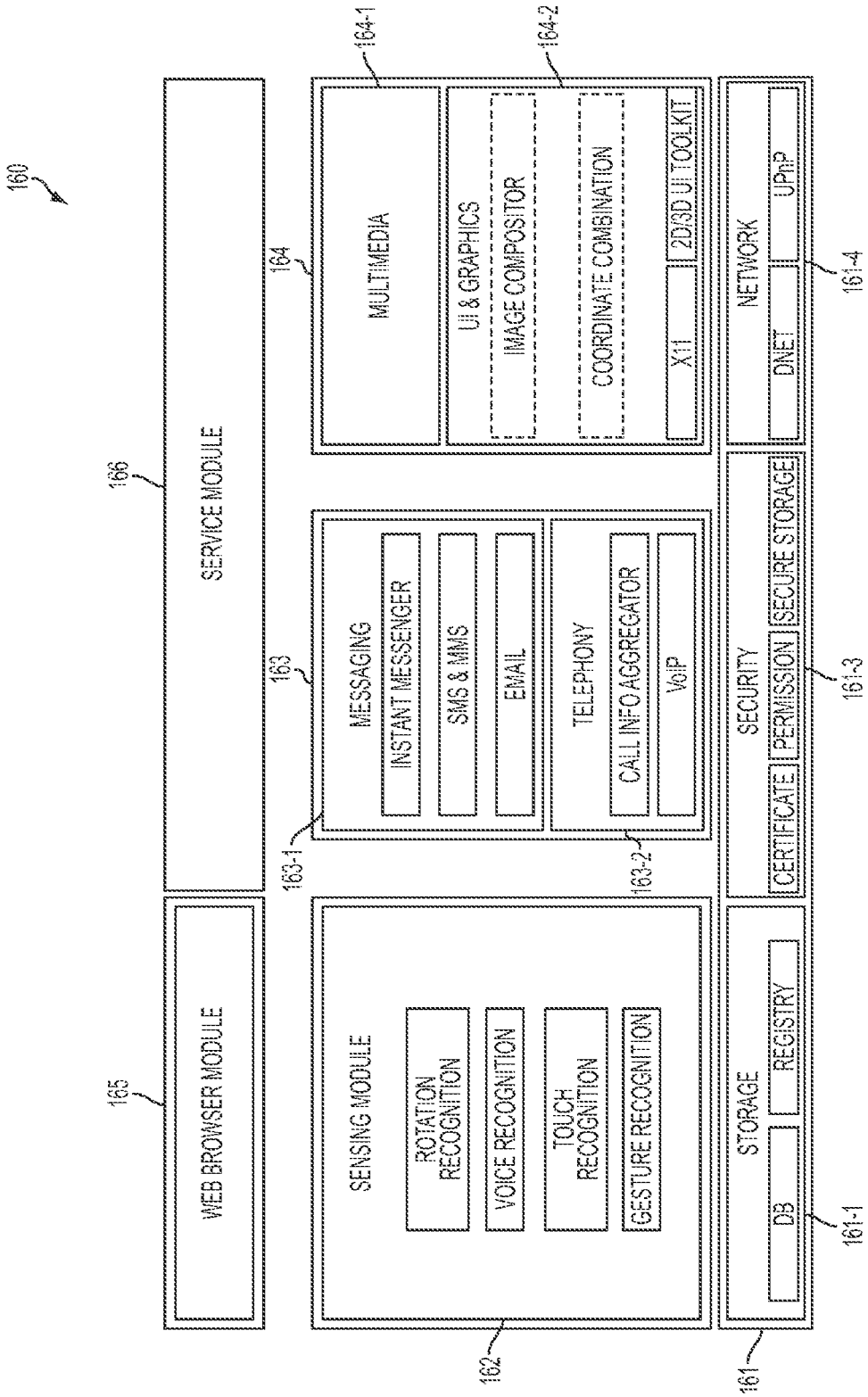

160
SERVICE MODULE
166
WEB BROWSER MODULE
165
164
MULTIMEDIA
164-1
UI & GRAPHICS
IMAGE COMPOSITOR
164-2
COORDINATE COMBINATION
X11
2D/3D UI TOOLKIT
163
MESSAGING
INSTANT MESSENGER
SMS & MMS
EMAIL
163-1
TELEPHONY
CALL INFO AGGREGATOR
VoIP
163-2
SENSING MODULE
ROTATION RECOGNITION
VOICE RECOGNITION
TOUCH RECOGNITION
GESTURE RECOGNITION
162
SECURITY
CERTIFICATE
PERMISSION
SECURE STORAGE
161-3
NETWORK
DNET
UPnP
161-4
STORAGE
DB
REGISTRY
161-1
161

FIG. 2

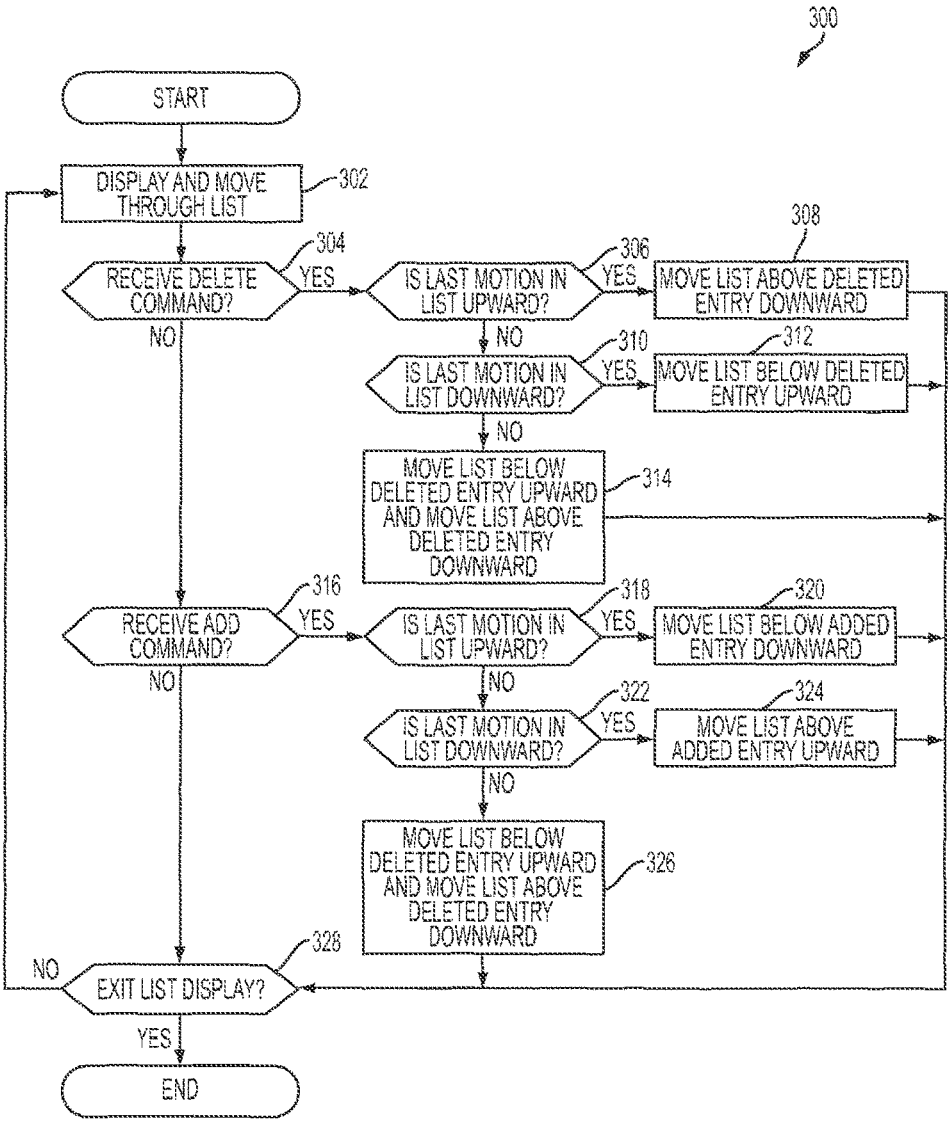

300
START
DISPLAY AND MOVE THROUGH LIST
302
RECEIVE DELETE COMMAND?
304
YES
NO
IS LAST MOTION IN LIST UPWARD?
306
YES
NO
MOVE LIST ABOVE DELETED ENTRY DOWNWARD
308
IS LAST MOTION IN LIST DOWNWARD?
310
YES
NO
MOVE LIST BELOW DELETED ENTRY UPWARD
312
MOVE LIST BELOW DELETED ENTRY UPWARD AND MOVE LIST ABOVE DELETED ENTRY DOWNWARD
314
RECEIVE ADD COMMAND?
316
YES
NO
IS LAST MOTION IN LIST UPWARD?
318
YES
NO
MOVE LIST BELOW ADDED ENTRY DOWNWARD
320
IS LAST MOTION IN LIST DOWNWARD?
322
YES
NO
MOVE LIST ABOVE ADDED ENTRY UPWARD
324
MOVE LIST BELOW DELETED ENTRY UPWARD AND MOVE LIST ABOVE DELETED ENTRY DOWNWARD
326
EXIT LIST DISPLAY?
328
NO
YES
END

FIG. 3

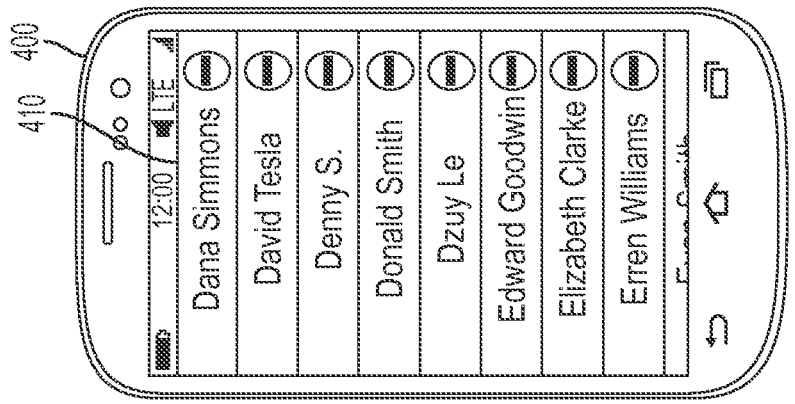
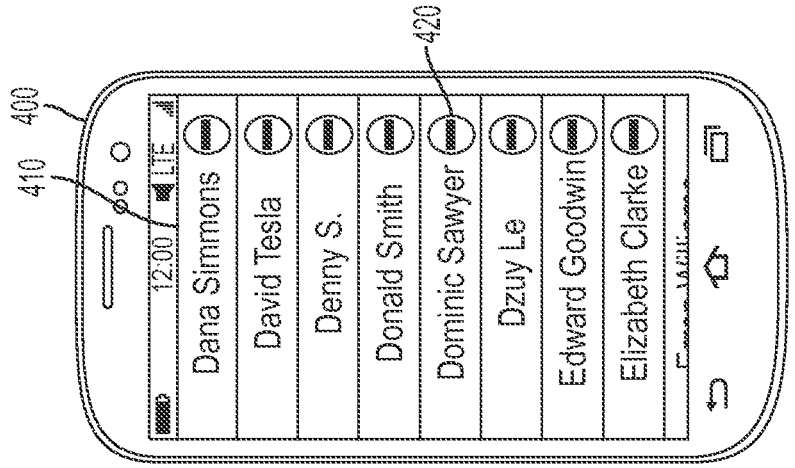

400
410
12:00
LTE
Dana Simmons
David Tesla
Denny S.
Donald Smith
Dzuy Le
Edward Goodwin
Elizabeth Clarke
Erren Williams

FIG. 4B


400
410
420
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Elizabeth Clarke

FIG. 4A

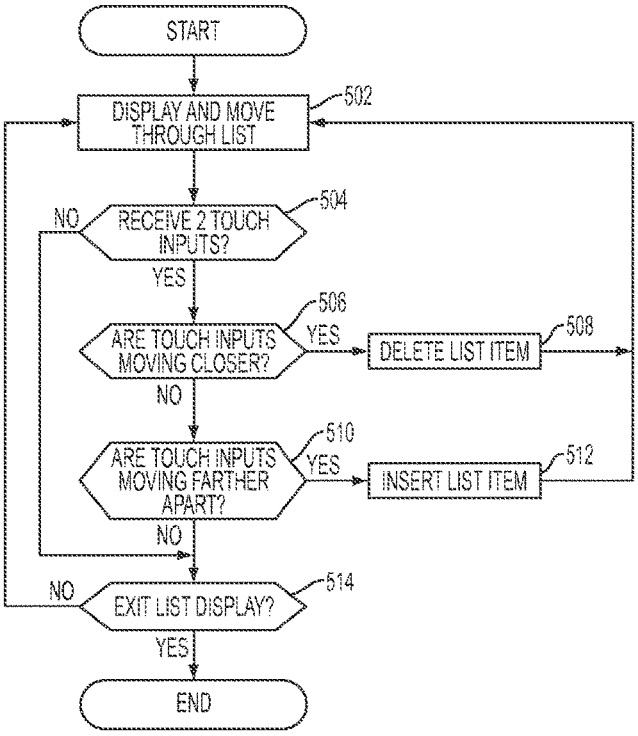

FIG. 5

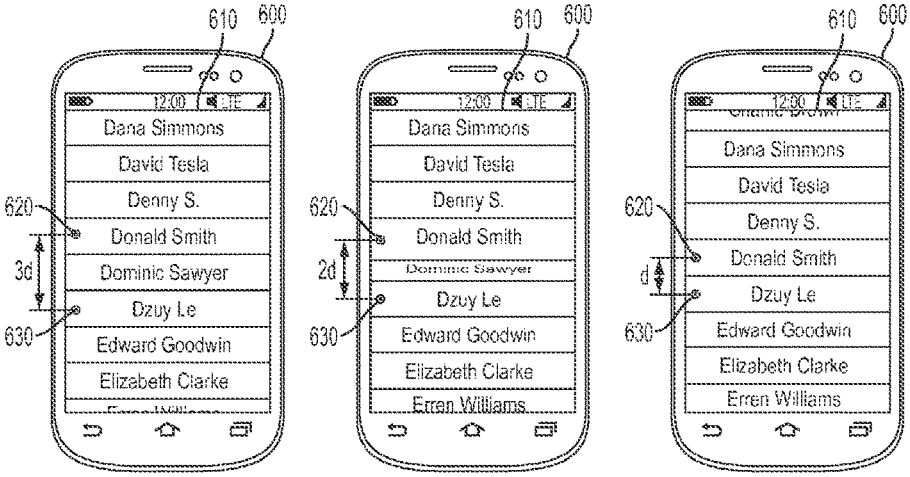

FIG. 6A FIG. 6B FIG. 6C

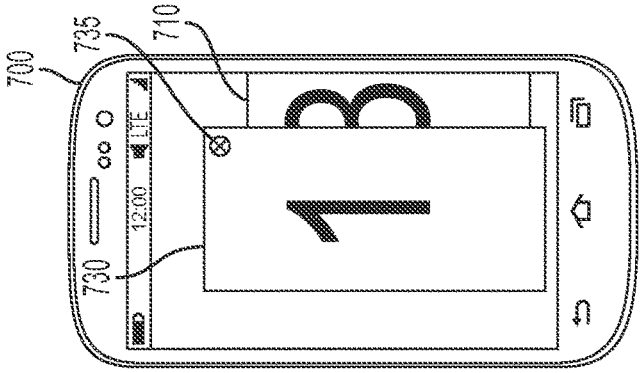

FIG. 7C

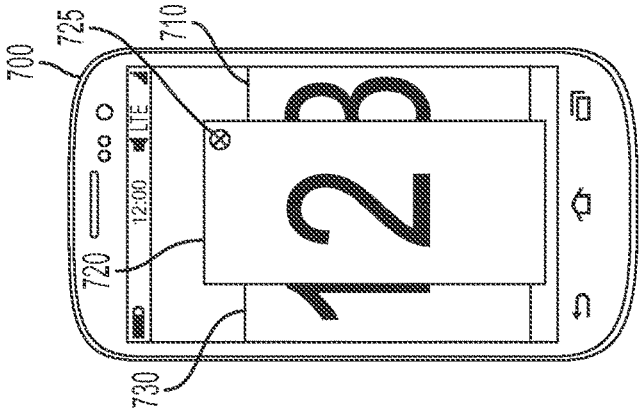

FIG. 7B

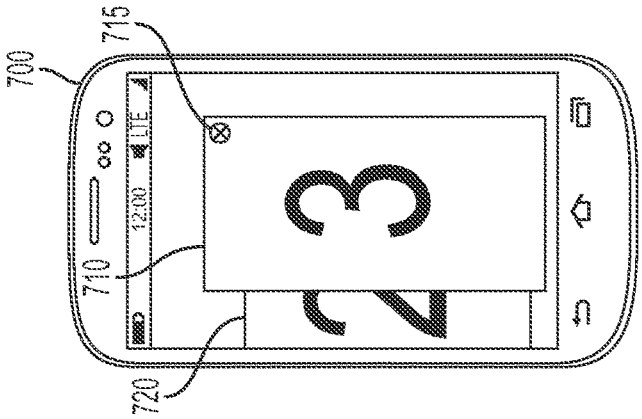

FIG. 7A

ADAPTIVE DETERMINATION OF INFORMATION DISPLAY

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue; a claim printed with strikethrough indicates that the claim was canceled, disclaimed, or held invalid by a prior post-patent action or proceeding.

CROSS-REFERENCE TO RELATED APPLICATION AND PRIORITY CLAIM

This application is an application for reissue of U.S. Pat. No. 9,836,184 issued on Dec. 5, 2017 from U.S. patent application Ser. No. 14/044,219 filed on Oct. 2, 2013. The contents of the above-identified patent documents are hereby incorporated by reference in its entirety.

BACKGROUND

Mobile terminals such as portable media players, smartphones, tablet Personal Computers (PCs), and similar devices have increased in use due to enhanced wireless network connectivity and low power functionality. Accordingly, it is common to use such mobile terminals to view content on the Internet such as news media in the form of static and dynamic webpages, streaming video and audio content, and so forth. In addition, mobile terminals also provide various methods of performing communication such as messaging, voice calls, video calls, voice mail, and so forth.

However, mobile terminals are generally configured to be as small as possible to enhance portability of the devices. As such, the screens on such mobile terminals are limited in physical size and therefore provide a specific user interface to maximize the display of the content without burdening the user with various options to control the user interface.

When manipulating a list or tab of windows in a mobile terminal, the mobile terminal always moves the list in a fixed direction when an item in the list is added or deleted. That is, when deleting an item in a list, the list below the deleted item is moved upward to replace the deleted list item. The list may also be horizontal such as a tab of web browsers. When deleting a tab of a web browser from a group, the browsers are reduced in size such that a user can swipe and change the focus to select, delete, or add a new tab. However, after deletion of a tab, the focus always returns to the adjacent tab to the right. That is, if a user is viewing a third tab, the user inputs a command to view the tabs, inputs a gesture to move left to the second tab, and then deletes the second tab, the focus always returns to the third tab.

The above information is presented as background information only to assist with an understanding of the present disclosure. No determination has been made, and no assertion is made, as to whether any of the above might be applicable as prior art with regard to the present invention.

SUMMARY

Aspects of the present invention are to address at least the above-mentioned problems and/or disadvantages and to provide at least the advantages described below. Accordingly, an aspect of the present invention is to provide a method which automatically expands and contracts panes displayed on a screen of a mobile device according to a user's interaction with the displayed panes.

In accordance with an aspect of the present invention, a method for manipulating a list in a mobile terminal is provided. The method displaying a first set of items from an item list in the mobile terminal, changing the item list based on a received command, determining a direction of most recent movement in the item list before the receiving of the command, determining items from the item list to display according to the determined direction and the change of the item list, and displaying the determined items from the item list.

In accordance with another aspect of the present invention, there is a method for operating multiple instances of an application mobile terminal is provided. The method displaying a first set of application tabs that are arranged in a horizontal manner, the first set of application tabs including a source application tab that is selected to receive input to perform a corresponding command, receiving a first instruction to select a target application tab according to a directional input, receiving a second instruction to change the first set of application tabs according to the selected target application tab, determining a next application tab of the first set of application tabs to select based on the directional input and the second instruction, and displaying the next selected application tab.

In accordance with an aspect of the present invention, a method for manipulating a list in a mobile terminal is provided. The method includes displaying a first set of items from an item list in the mobile terminal, determining whether a first touch input and a second touch input are simultaneously providing during the display of the first set of items, determining whether the first touch input and the second touch input move relative to an item displayed in the item list, rescaling at least one item in the first set of items based on the first touch and the second touch according to the distance the first touch and the second touch move, if the distance that the first touch input and the second touch input move exceeds a threshold, determining a command to change the item list is being input, changing the item list based on the determined command, and displaying the item list according to the changed item list.

Other aspects, advantages, and salient features of the invention will become apparent to those skilled in the art from the following detailed description, which, taken in conjunction with the annexed drawings, discloses embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

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

FIG. **1** is a block diagram of a mobile terminal according to an embodiment of the present disclosure;

FIG. **2** is a block diagram of software modules in a storage unit **160** according to an embodiment of the present disclosure;

FIG. **3** is a flowchart illustrating a method of manipulating a list according to an embodiment of the present disclosure;

FIGS. **4**A and **4**B are diagrams illustrating a method of manipulating a list according to an embodiment of the present disclosure;

FIG. **5** is a flowchart illustrating a method of manipulating a list according to an embodiment of the present disclosure;

FIGS. **6**A, **6**B, and **6**C are diagrams illustrating a method of manipulating a list according to an embodiment of the present disclosure; and

FIGS. **7**A, **7**B, and **7**C are diagrams illustrating a method of manipulating a list according to an embodiment of the present disclosure.

Throughout the drawings, it should be noted that like reference numbers are used to depict the same or similar elements, features, and structures.

DETAILED DESCRIPTION

The following description with reference to the accompanying drawings is provided to assist in a comprehensive understanding of exemplary embodiments of the invention as defined by the claims and their equivalents. It includes various specific details to assist in that understanding but these are to be regarded as merely exemplary. Accordingly, those of ordinary skill in the art will recognize that various changes and modifications of the embodiments described herein can be made without departing from the scope and spirit of the invention. In addition, descriptions of well-known functions and constructions may be omitted for clarity and conciseness.

The terms and words used in the following description and claims are not limited to the bibliographical meanings, but, are merely used by the inventor to enable a clear and consistent understanding of the invention. Accordingly, it should be apparent to those skilled in the art that the following description of exemplary embodiments of the present invention is provided for illustration purpose only and not for the purpose of limiting the invention as defined by the appended claims and their equivalents.

It is to be understood that the singular forms "a," "an," and "the" include plural referents unless the context clearly dictates otherwise. Thus, for example, reference to "a component surface" includes reference to one or more of such surfaces.

By the term "substantially" it is meant that the recited characteristic, parameter, or value need not be achieved exactly, but that deviations or variations, including for example, tolerances, measurement error, measurement accuracy limitations and other factors known to those of skill in the art, may occur in amounts that do not preclude the effect the characteristic was intended to provide.

Furthermore, FIGS. **1** though **7**C, discussed below, and the various exemplary embodiments used to describe the principles of the present disclosure in this patent document are by way of illustration only and should not be construed in any way that would limit the scope of the disclosure. Those skilled in the art will understand that the principles of the present disclosure may be implemented in any suitably arranged portable electronic device. The terms used to describe various embodiments are exemplary. It should be understood that these are provided to merely aid the understanding of the description, and that their use and definitions in no way limit the scope of the invention. Terms first, second, and the like are used to differentiate between objects having the same terminology and are in no way intended to represent a chronological order, unless where explicitly stated otherwise. A set is defined as a non-empty set including at least one element.

FIG. **1** is a block diagram of the terminal device according to an embodiment of the present disclosure.

Referring to FIG. **1**, the terminal device **100** includes a communication device **110**, the controller **120**, the display **130**, a user interface **140**, a storage unit **160**, an application driver **170**, an audio processor **180**, a video processor **185**, a speaker **191**, an interface unit **192**, a USB port **193**, a camera **194**, and a microphone **195**.

The communication device **110** performs communication functions with various types of external apparatuses. The communicator device **120** may include various communication devices such as a Wireless Fidelity (WiFi) device **111**, a Bluetooth® device **112**, a wireless communication device **113**, and so forth. The WiFi device **111** and the Bluetooth device **112** perform communication according to a WiFi standard and a Bluetooth® standard, respectively. The wireless communication **113** device performs communication according to various communication standards such as Zigbee®, 3rd Generation (3G), 3rd Generation Partnership Project (3GPP), Long Term Evolution (LTE), and so forth. In addition, the communication device **110** may further include an Near Field Communication (NFC) device that operates according to a NFC method by using bandwidth from various Radio Frequency-IDentification (RF-ID) frequency bands such as 135 kHz, 13.56 MHz, 433 MHz, 860-960 MHz, 2.45 GHz, and so on.

The operation of the controller **120** reads a computer readable medium and performs instructions according to the computer readable medium, which is stored in the storage unit **160**. The storage unit **160** may also store various data such as Operating System (O/S) software, applications, multimedia content (e.g., video files, music files, etc.), user data (documents, settings, etc.), and so forth.

Other software modules which are stored in the storage unit **160** will be described later with reference to FIG. **2**.

The user interface **140** is an input device configured to receive user input and transmit a user command corresponding to the user input to the controller **120**. For example, the user interface **140** may be implemented by any suitable input such as touch pad, a key pad including various function keys, number keys, special keys, text keys, or a touch screen, for example. Accordingly, the user interface **140** receives various user commands to manipulate a displayed list (e.g., a list of contacts).

The UI processor **150** may generate various types of Graphical UIs (GUIs). Specifically, the UI processor **150** may process and generate various UI screens in 2D or 3D form. Generally, the UI screen may be a screen which is associated with the execution an application that displays a list. In addition, the UI screen may be a screen which displays text or diagrams such as a menu screen, a warning sentence, a time, a channel number, etc.

Further, the UI processor **150** may perform operations such as 2D/3D conversion of UI elements, adjustment of transparency, color, size, shape, and location, highlights, animation effects, and so forth.

The storage unit **160** is a storage medium that stores various computer readable mediums that are configured to operate the terminal device **100**, and may be realized by any suitable storage device such as a Hard Disk Drive (HDD), a flash memory module, and so forth. For example, the storage unit **160** may comprise a Read Only Memory (ROM) for storing programs to perform operations of the controller **120**, a Random Access Memory (RAM) **121** for temporarily storing data of the controller **120**, and so forth. In addition, the storage unit **160** may further comprise Electrically Erasable and Programmable ROM (EEPROM) for storing various reference data.

The application driver **170** executes applications that may be provided by the terminal device **100**. Such applications are executable and perform user desired functions such as

playback of multimedia content, messaging functions, communication functions, display of data retrieved from a network, and so forth.

The audio processor **180** is configured to process audio data for input and output of the terminal device **100**. For example, the audio processor **180** may decode data for playback, filter audio data for playback, encode data for transmission, and so forth.

The video processor **185** is configured to process video data for input and output of the terminal device **100**. For example, the video pre-processor **185** may decode video data for playback, scale video data for presentation, filter noise, convert frame rates and/or resolution, encode video data input, and so forth.

The speaker **191** is provided to output audio data processed by the audio processor **180** such as alarm sounds, voice messages, audio content from multimedia, audio content from digital files, and audio provided from applications, and so forth.

The interface unit **192** may be configured based on the terminal device **100** and include any suitable input mechanism such a as mechanical button, a touch pad, a wheel, and so forth. The interface unit **192** is generally on a particular position of the terminal device **100**, such as on the front, side, or rear of the external surface of the main body. For example, a button to turn the terminal device **100** on and off may be provided on a side.

The USB port **193** may perform communication with various external apparatuses through a USB cable or perform recharging. In other examples, suitable ports may be included to connect to external devices such as a 802.11 Ethernet port, a proprietary connector, or any suitable connector associated with a standard to exchange information.

The camera **194** may be configured to capture (i.e., photograph) an image as a photograph or as a video file (i.e., movie). The camera **194** may include any suitable number of cameras in any suitable location. For example, the terminal device **100** may include a front camera and rear camera.

The microphone **195** receives a user voice or other sounds and converts the same to audio data. The controller **120** may use a user voice input through the microphone **195** during an audio or a video call, or may convert the user voice into audio data and store the same in the storage unit **160**.

When the camera **194** and the microphone **195** are provided, the controller **120** may receive based on a speech input into the microphone **195** or a user motion recognized by the camera **194**. Accordingly, the terminal device **100** may operate in a motion control mode or a voice control mode. When the terminal device **100** operates in the motion control mode, the controller **120** captures images of a user by activating the camera **194**, determines if a particular user motion is input, and performs an operation according to the input user motion. When the terminal device **100** operates in the voice control mode, the controller **120** analyzes the audio input through the microphone and performs a control operation according to the analyzed audio.

In addition, various external input ports are provided to connect to various external terminals such as a headset, a mouse, a Local Area Network (LAN), etc., may be further included.

Generally, the controller **120** controls overall operations of the terminal device **100** using various computer readable mediums that are stored in the storage unit **160**. The controller **120** may also control the terminal device **100** via computer readable mediums that are received through the communication device **110** and not stored in the storage unit **160** for, for example, security reasons.

For example, the controller **120** may initiate an application stored in the storage unit **160**, and execute the application by displaying a user interface to interact with the application. In other examples, the controller **120** may playback media content stored in the storage unit **160** and may communicate with external apparatuses via the communication device **110**.

Specifically, the controller **120** comprises a RAM **121**, a ROM **122**, a main CPU **123**, a graphic processor **124**, a first to nth interfaces **125-1~125-n**, and a bus **126**. In some examples, the components of the controller **120** may be integral in a single packaged integrated circuit. In other examples, the components may be implemented in discrete devices (e.g., the graphic processor **124** may be a separate device).

The RAM **121**, the ROM **122**, the main CPU **123**, the graphic processor **124**, and the first to nth interfaces **125-1-125-n** may be connected to each other through a bus **126**.

The first to nth interfaces **125-1-125-n** are connected to the above-described various components. One of the interfaces may be a network interface which is connected to an external apparatus via the network.

The main CPU **123** accesses the storage unit **160** and to initiate a booting process to execute the O/S stored in the storage unit **160**. After booting the O/S, the main CPU **123** is configured to perform operations according to software modules, contents, and data stored in the storage unit **160**.

The ROM **122** stores a set of commands for system booting. If a turn-on command is input and power is supplied, the main CPU **123** copies an O/S stored in the storage unit **160** onto the RAM **121** and boots a system to execute the O/S. Once the booting is completed, the main CPU **123** may copy application programs in the storage unit **260** onto the RAM **221** and execute the application programs.

The graphic processor **124** is configured to generate a screen including objects such as, for example an icon, an image, and text using a computing unit (not shown) and a rendering unit (not shown). The computing unit computes property values such as coordinates, shape, size, and color of each object to be displayed according to the layout of the screen using input from the user. The rendering unit generates a screen with various layouts including objects based on the property values computed by the computing unit. The screen generated by the rendering unit is displayed by the display **130**.

Albeit not illustrated in the drawing, the terminal device **100** may further comprise a sensor (not shown) configured to sense various manipulations such as touch, rotation, tilt, pressure, approach, etc. with respect to the terminal device **100**. In particular, the sensor (not shown) may include a touch sensor that senses a touch that may be realized as a capacitive or resistive sensor. The capacitive sensor calculates a touch coordinates by sensing micro-electricity provided when the user touches the surface of the display **130**, which includes a dielectric coated on the surface of the display **130**. The resistive sensor comprises two electrode plates that contact each other when a user touches the screen, thereby allowing electric current to flow to calculate the touch coordinates. As such, a touch sensor may be realized in various forms. In addition, the sensor may further include additional sensors such as a orientation sensor to sense a rotation of the terminal device **100** and an acceleration sensor to sense displacement of the terminal device **100**.

FIG. **1** illustrates an example of specific elements included in the terminal device **100**. However, components the terminal device **100** may be added, omitted, or changed

according to the configuration of terminal device. For example, a Global Positioning System (GPS) receiver (not shown) to receive a GPS signal from GPS satellite and calculate the current location of the terminal device **100**, and a Digital Multimedia Broadcasting (DMB) receiver (not shown) to receive and process a DMB signal may be further included.

FIG. **2** is a block diagram of software modules in a storage unit **160** according to an embodiment of the present disclosure.

Referring to FIG. **2**, the storage unit **160** may store software including a base module **161**, a sensing module **162**, a communication module **163**, a presentation module **164**, a web browser module **165**, and a service module **166**.

The base module **161** refers to a basic module which processes a signal transmitted from hardware included in the terminal device **100** and transmits the processed signal to an upper layer module. The base module **161** includes a storage module **161-1**, a security module **161-2**, and a network module **161-3**. The storage module **161-1** is a program module including database or registry. The main CPU **123** may access a database in the storage unit **160** using the storage module **161-1** to read out various data. The security module **161-2** is a program module which supports certification, permission, secure storage, etc. with respect to hardware, and the network module **161-3** is a module which supports network connections, and includes a DNET module, a Universal Plug and Play (UPnP) module, and so forth.

The sensing module **162** collects information from various sensors, analyzes the collected information, and manages the collected information. The sensing module **162** may include suitable modules such as a face recognition module, a voice recognition module, a touch recognition module, a motion recognition (i.e., gesture recognition) module, a rotation recognition module, and an NFC recognition module, and so forth.

The communication module **163** performs communication with other devices. The communication module **163** may include any suitable module according to the configuration of the terminal device **100** such as a messaging module **163-1** (e.g., a messaging application), a Short Message Service (SMS) & a Multimedia Message Service (MMS) module, an e-mail module, etc., and a call module **163-2** that includes a call information aggregator program module (e.g., a VoIP module), and so forth.

The presentation module **164** composes an image to display on the display **130**. The presentation module **164** includes suitable modules such as a multimedia module **164-1** and a UI rendering module **164-2**. The multimedia module **164-1** may include suitable modules for generating and reproducing various multimedia contents, screens, and sounds. For example, the multimedia module **164-1** includes a player module, a camcorder module, a sound processing module, and so forth. The UI rendering module **164-2** may include an image compositor module for combining images, a coordinates combination module for combining and generating coordinates on the screen where an image is to be displayed, an X11 module for receiving various events from hardware, a 2D/3D UI toolkit for providing a tool for composing a UI in 2D or 3D form, and so forth.

The web browser module **165** accesses a web server to retrieve data and displays the retrieved data in response to a user input. The web browser module **165** may also be configured to transmit user input to the web server. The web browser module **165** may include suitable modules such as a web view module for composing a web page according to the markup language, a download agent module for downloading data, a bookmark module, a web-kit module, and so forth.

The service module **166** is a module including applications for providing various services. Specifically, the service module **166** may include program modules such as a navigation program, a content reproduction program, a game program, an electronic book program, a calendar program, an alarm management program, other widgets, and so forth.

FIG. **2** illustrates various program modules, but some of the various program modules may be omitted, changed, or added according to the configuration of the terminal device **100**. For example, a location-based module which supports a location-based service in association with hardware such as a GPS receiver may be further included. In another example, the camera **194** or the USB port **193** may not be included because the terminal device **100** is configured for a high-security location.

FIG. **3** is a flowchart illustrating a method of manipulating a list according to an embodiment of the present disclosure.

Referring to FIG. **3**, an example method **300** is provided for displaying and manipulating a list. Although FIG. **3** is discussed within the context of a vertically displayed list, the example method **300** may also be implemented in a horizontally based list (e.g., a list of tabs, etc.). For purposes of clarity, it is presumed that FIG. **3** provides a list that displays names alphabetically in descending order (i.e., from A to Z), however the example of FIG. **3** can apply to any list that do not have any particular order (e.g., a list of notes, a grocery list, and so forth).

The method **300** is initiated at operation **302** when a user of the terminal device initiates a list by any suitable operation (e.g., viewing a list of contacts, creating multiple tabs in a web browser application, and so forth). In some examples, the list may be a vertically based list such as a list of contacts, for example. However, the list can be provided in any suitable form such as a list horizontally displayed (e.g. a group of tabs), arranged in a two dimension manner such as a diagonally based list or a list including having multiple columns, or arranged in three dimensions. The user at operation **302** moves through the list via any suitable input (e.g., scrolling through the list with a touch input, a stylus input at a fixed location to move the display down, etc.).

At operation **304**, the method **300** determines if a delete key was input by the user. If the delete key was input, the method **300** deletes the list item at operation **304**, which removes the list item from the display. Accordingly, the method **300** then determines if the last motion in the list was in the upward direction at operation **306**. For example, presuming a list that displays names alphabetically in descending order, the user would be scrolling from the bottom of the list to the top of the list. As an example, if the device is capable of receiving touch input, a user inputs a vertical swipe from the top of the screen toward the bottom of the screen to cause upward movement in the list. If the last motion was upward, the method **300** moves the content of the list above the deleted entry downward to replace the deleted entry at operation **308**. That is, the example method **300** continues the user's previous movement direction to display items in the list above the deleted entry.

Referring back to operation **306**, if the last motion was not in the upward direction, it is determined if the last motion in the list was in the downward direction at operation **310**. For example, if the device is capable of receiving touch input, a user inputs a vertical swipe from the bottom of the screen toward the top of the screen to cause upward movement in the list. If the last motion in the list was in the downward

direction (e.g., a user is scrolling from the top of the list to the bottom of the list), the method **300** moves the content of the list that is below the deleted entry upward to replace the deleted entry at operation **312**. That is, the example method **300** continues the user's previous movement direction to display items in the list above the deleted entry.

Referring back to operation **310**, if the last motion was not in the downward direction, the direction of the user's last motion cannot be determined. In some examples, the example method **300** may not be able to determine the most recent motion in the list due to an intervening event such as a phone call, a multitasking event, for example. Accordingly, if user's last motion cannot be determined, the list above the deleted entry is moved in the downward direction and the list below the deleted entry is moved in the upward direction at operation **314**.

In other examples, the displayed list may have a default list movement (e.g., upward) if it cannot determine the direction of the most recent movement. Further, the example process **300** may have a minimum amount of input in the list movement to determine that the list moves in a particular direction. For example, if the list movement changed by displaying 1 new list entry and 1 partial list entry (i.e., the text of the list entry is partially displayed), it may be determined that there is sufficient movement in the list to constitute movement in that particular direction.

Referring back to operation **304**, if it is determined that a delete command is not input, the example method **300** determines if an add command is input at operation **316**. If an add command is input, the example method **300** determines a position in the list to insert the new entry at operation **316**. For example, the method **300** may insert a new entry based on the user's most recent touch location in the list.

After inserting the new entry at operation **316**, the example method **300** determines if the last motion in the list was in the upward direction at operation **318**. If the last motion in the list was in the upward direction, the portion of the list below the added entry is moved in the downward direction at operation **320**. That is, the most recently displayed list item is continued to be displayed during the adding operation.

Referring back to operation **318**, if the last motion was not in the upward direction, it is determined if the last motion was in the downward direction at operation **322**. If the last motion was in the downward direct, the example method **300** moves the list above the added entry in the upward direction at operation **324**. That is, the most recently displayed list item is continued to be displayed during the adding operation.

Referring back to operation **322**, if the last motion was not in the downward direction, the direction of the user's last motion cannot be determined. As noted above, the user's last motion cannot always be determined. Accordingly, if user's last motion cannot be determined, the list above the added entry is moved in the upward direction and the list below the added entry is moved in the downward direction at operation **326**.

Referring back to operation **316**, if an add command is not input, it is determined if an exit list command is input at operation **328**. If an exit list operation in not input at operation **328**, the example method **300** returns to operation **302** to continue execution. If an exit list operation in input, the example method **300** ends by exiting the display of the list.

As described above, the example method **300** determines the user's most recent motion and controls the display of the list based on recent movement. By continuing to display the most recently displayed item, the example method **300** enhances the user experience.

In other examples, the method **300** may determine the last motion based on a history of movement after the input of the addition or deletion command. For example, if the user frequently scrolls downward after the addition of a list item, then the example method **300** may determine that the last motion is downward direction, even if actual most recent movement is upward.

FIGS. **4**A and **4**B are diagrams illustrating a method of manipulating a list according to an embodiment of the present disclosure.

Referring to FIG. **4**A, it is presumed that the terminal **400** initiates an application that displays a list **410** of contacts in alphabetical ordering beginning with given names of the letter "A" (e.g., Alexander Brown) and the user scroll has previously scrolled downward to display items in the list **410** such that contacts in the "D" and "E" are displayed. In this case, the contact "Elizabeth Clarke" is the most recently displayed and a contact below is partially displayed.

The user selects an input option **420** that corresponds to a delete command as illustrated in FIG. **4**A to remove an entry as described above. Specifically, when the user inputs a command to remove "Dominic Sawyer," that particular entry in the list **410** is removed. Because the most recent movement in the list was downward, the entries below "Dominic Sawyer" are moved in the upward direction. Specifically, as illustrated in FIG. **4**B, the partially displayed contact corresponding to "Erren Williams" is now fully displayed and a new partially displayed contact is provided.

FIG. **5** is a flowchart illustrating a method of manipulating a list according to an embodiment of the present disclosure.

Referring to FIG. **5**, another example method **500** is provided for displaying and manipulating a list. Although FIG. **5** is discussed within the context of a vertically displayed list, the example method **500** may also be implemented in a horizontally based list (e.g., a list of tabs, etc.). For purposes of clarity, it is presumed that FIG. **5** provides a list that displays names alphabetically in descending order (i.e., from A to Z), however the example of FIG. **5** can apply to any list that do not have any particular order (e.g., a list of notes, a grocery list, and so forth).

The method **500** is initiated at operation **502** when a user of the terminal device initiates a list by any suitable operation (e.g., viewing a list of contacts, creating multiple tabs in a web browser application, and so forth). The user at operation **502** moves through the list via any suitable input (e.g., scrolling through the list with a touch input, a stylus input at a fixed location to move the display down, etc.).

At operation **504**, the method **500** determines if there are two simultaneous touch inputs. If there are two touch inputs at operation **504**, it is determined if the touch inputs are moving closer together at operation **506**. If the touch inputs are moving closer together, the method **500** determines a delete list item command is being input and deletes the corresponding list item at operation **508**. As will be described in detail below, as the touch input moves closer together, the corresponding list entry is scaled (i.e., resized) according to the touch input to provide feedback to the user to display the list item to be deleted. After deletion of the list item at operation **508**, the method **500** returns to operation **502**.

Referring back to operation **506**, if the two touch inputs are not moving closer together, it is determined if the touch inputs are moving farther apart at operation **510**. If the touch inputs are moving farther apart, the method determines that

an insert list item is being input and inserts a list item at operation **512**. After operation **512**, the method **500** returns to operation **502**.

Referring back to operation **504**, if it is determined that two touch inputs are not received, it is determined if an exit list command is input at operation **514**. Further, referring back to operation **510**, if the touch inputs are not moving farther apart at operation **510**, it is determined if an exit list command is input at operation **514**. If an exit list operation in not input at operation **514**, the example method **500** returns to operation **502** to continue execution. If an exit list operation in input, the example method **500** ends by exiting the display of the list.

FIGS. **6**A, **6**B, and **6**C are diagrams illustrating a method of manipulating a list according to an embodiment of the present disclosure.

Referring to FIG. **6**A, it is presumed that a terminal **600** initiates an application that displays a list **610** of contacts in alphabetical ordering beginning with given names of the letter "A" (e.g., Alexander Brown) and the user scroll has previously scrolled downward to display items in the list **410** such that contacts in the "D" and "E" range are displayed. In this case, the contact "Elizabeth Clarke" is the most recently displayed and a contact below is partially displayed.

The user touches the terminal **600** as illustrated by points **620** and **630**, which is separated by a distance 3d. As illustrated in FIG. **6**A, the contact corresponding to "Dominic Sawyer" is disposed between the points **620** and **630** and may constitute the selected list entry. In other examples, multiple list entries may also be selected in this manner.

Referring to FIG. **6**B, the user moves the touch inputs closer together such points **620** and **630** are separated by a distance of 2 d (i.e., the distance between **620** and **630** decreases 33%). Correspondingly, the terminal device **600** displays a list movement corresponding to the input, which moves content above the point **620** downward and content below the point **630** upward. As such, the display adjusts the display of the selected item by rescaling the selected list entry or list entries. Accordingly, this provides feedback to the user that the list entry corresponding to "Dominic Sawyer" will be deleted.

Referring to FIG. **6**C, the user continues to move the touch inputs closer together such points **620** and **630** are separated by a distance of d (i.e., the distance between **620** and **630** decreases 66% with respect to the initial touch inputs). Accordingly, the terminal device **600** determines that a delete input is provided and deletes the entry corresponding to "Dominic Sawyer" as noted above.

FIGS. **7**A, **7**B, and **7**C are diagrams illustrating a method of manipulating a list according to an embodiment of the present disclosure.

Referring to FIGS. **7**A, **7**B, and **7**C, another example of manipulating a list is disclosed in the form of tabs or windows that are arranged horizontally. In a terminal device, a web browser application may include a tabs or windows, which may be limited to a number of tabs due to memory limitations, for example.

As illustrated in FIG. **7**A, to select a different tab or window, the browser is reduced in size and displayed such that the user can change the focus of the reduced tab and provide an input (e.g., a swipe) to the different tabs (e.g., delete, select, bookmark, and so forth). Specifically, in FIG. **7**A, the application includes three tabs and the third tab **710** is displayed with the current focus. According to the related art, deletion of a tab results in the focus shifting to the most adjacent right tab. However, according to an embodiment of the present disclosure, the left adjacent tab may be selected according to previous input.

For example, as illustrated in FIG. **7**A, three tabs are configured and the third tab **710** is the current focus. The third tab includes an icon **715** to remove the third tab **710** via a touch input. If the user is viewing the third tab, the user selects a command to move between the tabs. For example, if the user swipes from right to left, the swipe is determined to correspond to a leftword movement. As such, as illustrated in FIG. **7**B, the focus is shifted leftward to the second tab **720**, which includes an icon **725** to remove the second tab via a touch input. The first tab **730** and the third tab **710** may also be partially displayed in a reduced form in FIG. **7**B. If the user selects the icon **725** to delete the second tab, the terminal device **700** deletes the second tab **720** from the group of tabs and determines that the recent movement is in the leftward direction. As such, and as illustrated in FIG. **7**C, the terminal device continues the leftward movement and changes the focus to the first tab **730**, which includes the icon **735** to delete the first tab from the group.

Accordingly, rather than return to the third tab after deleting the second tab, the terminal device continues the previous input motion during the manipulation of a list of items. As such, the inconvenience of always selecting the adjacent right tab can be mitigated.

While the present disclosure has been shown and described with reference to various embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the present disclosure as defined by the appended claims and their equivalents.

What is claimed is:

1. A method for manipulating a list in a mobile terminal, the method comprising:

scrolling an item list in response to a first received command;

displaying a first set of items from the item list in the mobile terminal;

changing the item list based on a second received command to perform at least one of adding a new item to the item list or deleting an *existing* item from the item list;

determining, subsequent to the second received command, a previous scroll direction of the item list, the scroll direction in response to receipt of the first command;

determining items from the item list to display based on the determined previous scroll direction and the change of the item list; and

displaying the determined items from the item list.

2. The method of claim **1**, wherein the displaying of the determined items **[**list**]** from the item list comprises scrolling the item list according to the determined previous direction of the scrolling of the item list and according to the second received command to change the item list.

3. The method of claim **1**, wherein the determining of the items from the item list to display comprises:

determining, if the second received command is to delete **[**an**]** *the existing* item from the item list and if the determined previous direction is a downward direction, an item from the item list to display that is subsequent to the deleted *existing* item and is not displayed in the first set of items; and

determining, if the second received command is to delete the *existing* item from the item list and if the determined previous direction is an upward direction, an

item from the *item* list [of items] to display that is prior to the deleted *existing* item and is not displayed in the first set of items.

4. The method of claim **3**, wherein the determining of the items from the item list to display comprises:

determining, if the second received command is to add [an] *the new* item to the item list and if the determined previous direction is the downward direction, an item from the first set of items to remove from the display that is prior to the added *new* item; and

determining, if the second received command is to add the *new* item to the item list and if the determined previous direction is the upward direction, an item from the first set of items to remove from the display that is subsequent to the added *new* item.

5. The method of claim **3**, further comprising:

determining, if the direction of the scrolling cannot be determined and if the second received command is to add the *new* item to the item list, content from the first set of items to remove from the display that is prior to and subsequent to the added *new* item; and

determining, if the direction of the scrolling cannot be determined and if the second received command is to delete the *existing* item from the item list, content from the item list to display that is prior to and subsequent to the deleted *existing* item.

6. The method of claim **1**, wherein the direction of the scrolling is input when a most recent input exceeds a threshold value that represents scrolling in the corresponding direction.

7. The method of claim **1**, wherein the determining of the previous direction of the scrolling in the item list further comprises:

determining, based on historical data, a historical direction of scrolling after the changing of the item list; and

setting, if the determined previous direction does not match the historical data of scrolling, the historical data of scrolling as the determined previous direction.

8. A method for manipulating a list in a mobile terminal, the method comprising:

displaying a first set of items from an item list in the mobile terminal;

changing the item list based on a received command;

determining a direction of a scrolling of the item list that occurred before receipt of the command;

determining items from the item list to display based on the determined direction and the change of the item list; and

displaying the determined items from the item list;

wherein the determining of the items from the item list to display comprises:

determining, if the command is to delete an *existing* item from the item list and if the determined scrolling direction is a downward direction, an item from the item list to display that is subsequent to the deleted *existing* item and is not displayed in the first set of items; and

determining, if the command is to delete the *existing* item from the item list and if the determined scrolling direction is an upward direction, an item from the *item* list [of items] to display that is prior to the deleted *existing* item and is not displayed in the first set of items.

9. The method of claim **8**, wherein the determining of the items from the item list to display comprises:

determining, if the command is to add [an] *a new* item to the item list and if the determined scrolling direction is the downward direction, an item from the first set of items to remove from the display that is prior to the added *new* item; and

determining, if the command is to add the *new* item to the item list and if the determined scrolling direction is the upward direction, an item from the first set of items to remove from the display that is subsequent to the added *new* item.

10. The method of claim **8**, further comprising:

determining, if the direction of the scrolling cannot be determined and if the command is to add [the] *a new* item to the item list, content from the first set of items to remove from the display that is prior to and subsequent to the added *new* item; and

determining, if the direction of the scrolling cannot be determined and if the command is to delete the *existing* item from the item list, content from the item list to display that is prior to and subsequent to the deleted *existing* item.

11. An electronic device comprising:

a processor; and

a memory including stored instructions executable by the processor and configured to cause to the processor to:

scroll an item list in response to a first received command,

display a first set of items from the item list in the [mobile terminal] *electronic device*,

change the item list based on a second received command to perform at least one of adding a new item to the item list or deleting an *existing* item from the item list,

determine, subsequent to the second received command, a previous direction of the scrolling of the item list, the scrolling in response to receipt of the first command,

determine items from the item list to display based on the determined previous direction and the change of the item list, and

display the determined items from the item list.

12. The electronic device of claim **11**, wherein the displaying of the determined items [list] from the item list comprises scrolling the item list according to the determined previous direction of the scrolling of the item list and according to the second received command to change the item list.

13. The electronic device of claim **11**, wherein the determining of the items from the item list to display comprises:

determining, if the second received command is to delete [an] *the existing* item from the item list and if the determined previous direction is a downward direction, an item from the item list to display that is subsequent to the deleted *existing* item and is not displayed in the first set of items; and

determining, if the second received command is to delete the *existing* item from the item list and if the determined previous direction is an upward direction, an item from the *item* list [of items] to display that is prior to the deleted *existing* item and is not displayed in the first set of items.

14. The electronic device of claim **13**, wherein the determining of the items from the item list to display comprises:

determining, if the second received command is to add [an] *the new* item to the item list and if the determined previous direction is the downward direction, an item from the first set of items to remove from the display that is prior to the added *new* item; and

determining, if the second received command is to add the *new* item to the item list and if the determined previous direction is the upward direction, an item from the first set of items to remove from the display that is subsequent to the added *new* item.

15. The electronic device of claim **13**, wherein the stored instructions executable by the processor are further configured to cause [to] the processor to:

determine, if the direction of the scrolling cannot be determined and if the second received command is to add the *new* item to the item list, content from the first set of items to remove from the display that is prior to and subsequent to the added *new* item; and

determine, if the direction of the scrolling cannot be determined and if the second received command is to delete the *existing* item from the item list, content from the item list to display that is prior to and subsequent to the deleted *existing* item.

16. A non-transitory computer processor readable storage medium including instructions, executable by a processor, stored thereon to perform a method comprising:

scrolling an item list in response to a first received command;

displaying a first set of items from the item list in [the] *a* mobile terminal;

changing the item list based on a second received command to perform at least one of adding a new item to the item list or deleting an *existing* item from the item list;

determining, subsequent to the second received command, a previous direction of the scrolling of the item list, the scrolling in response to receipt of the first command;

determining items from the item list to display based on the determined previous direction and the change of the item list; and

displaying the determined items from the item list.

17. The non-transitory computer processor readable storage medium of claim **16**, wherein the displaying of the determined items [list] from the item list comprises scrolling the item list according to the determined previous direction of the scrolling of the item list and according to the second received command to change the item list.

18. The non-transitory computer processor readable storage medium of claim **16**, wherein the determining of the items from the item list to display comprises:

determining, if the second received command is to delete [an] *the existing* item from the item list and if the determined previous direction is a downward direction, an item from the item list to display that is subsequent to the deleted *existing* item and is not displayed in the first set of items; and

determining, if the second received command is to delete the *existing* item from the item list and if the determined previous direction is an upward direction, an item from the *item* list [of items] to display that is prior to the deleted *existing* item and is not displayed in the first set of items.

19. The non-transitory computer processor readable storage medium of claim **18**, wherein the determining of the items from the item list to display comprises:

determining, if the second received command is to add [an] *the new* item to the item list and if the determined previous direction is the downward direction, an item from the first set of items to remove from the display that is prior to the added *new* item; and

determining, if the second received command is to add the *new* item to the item list and if the determined previous direction is the upward direction, an item from the first set of items to remove from the display that is subsequent to the added *new* item.

20. The non-transitory computer processor readable storage medium of claim **18**, wherein the instructions executable by the processor are further configured to cause [to] the processor to:

determine, if the direction of the [movement-scrolling] *scrolling* cannot be determined and if the second received command is to add the *new* item to the item list, content from the first set of items to remove from the display that is prior to and subsequent to the added *new* item; and

determine, if the direction of the scrolling cannot be determined and if the second received command is to delete the *existing* item from the item list, content from the item list to display that is prior to and subsequent to the deleted *existing* item.

21. A method for manipulating a list in a mobile terminal, the method comprising:

scrolling an item list in response to a first received command;

displaying a set of items from the item list in the mobile terminal;

changing the item list based on a second received command to perform at least one of adding a new item to the item list or deleting an existing item from the item list;

determining, subsequent to the second received command, a previous scroll direction of the item list, the scroll direction in response to receipt of the first command;

determining at least one item from the item list to display based on the determined previous scroll direction and the change of the item list; and

displaying the at least one determined item from the item list.

22. The method of claim 21, wherein displaying the at least one determined item from the item list comprises scrolling the item list according to the determined previous scroll direction and according to the second received command.

23. The method of claim 21, wherein determining the at least one item from the item list to display comprises:

determining, if the second received command is to delete the existing item from the item list and if the determined previous scroll direction is a downward direction, an item from the item list to display that is subsequent to the deleted existing item and is not displayed in the set of items; and

determining, if the second received command is to delete the existing item from the item list and if the determined previous scroll direction is an upward direction, an item from the item list to display that is prior to the deleted existing item and is not displayed in the set of items.

24. The method of claim 21, wherein determining the at least one item from the item list to display comprises:

determining, if the second received command is to add the new item to the item list and if the determined previous scroll direction is a downward direction, an item from the set of items to remove from the display that is prior to the added new item; and

determining, if the second received command is to add the new item to the item list and if the determined previous scroll direction is an upward direction, an item from the

set of items to remove from the display that is subsequent to the added new item.

25. The method of claim 21, further comprising:

determining, if the previous scroll direction cannot be determined and if the second received command is to add the new item to the item list, content from the set of items to remove from the display that is prior to and subsequent to the new added item; and

determining, if the previous scroll direction cannot be determined and if the second received command is to delete the existing item from the item list, content from the item list to display that is prior to and subsequent to the deleted existing item.

26. The method of claim 21, wherein the previous scroll direction is input when a most recent input exceeds a threshold value that represents scrolling in the corresponding direction.

27. The method of claim 21, wherein determining the previous scroll direction of the item list comprises:

determining, based on historical data, a historical direction of scrolling after the changing of the item list; and

setting, if the determined previous scroll direction does not match the historical data of scrolling, the historical data of scrolling as the determined previous scroll direction.

28. A method for manipulating a list in a mobile terminal, the method comprising:

displaying a set of items from an item list in the mobile terminal;

changing the item list based on a received command;

determining a direction of a scrolling of the item list that occurred before receipt of the command;

determining at least one item from the item list to display based on the determined direction and the change of the item list; and

displaying the at least one determined item from the item list;

wherein determining the at least one item from the item list to display comprises:

determining, if the command is to delete an existing item from the item list and if the determined direction is a downward direction, an item from the item list to display that is subsequent to the deleted existing item and is not displayed in the set of items; and

determining, if the command is to delete the existing item from the item list and if the determined direction is an upward direction, an item from the item list to display that is prior to the deleted existing item and is not displayed in the set of items.

29. The method of claim 28, wherein determining the at least one item from the item list to display further comprises:

determining, if the command is to add a new item to the item list and if the determined direction is the downward direction, an item from the set of items to remove from the display that is prior to the added new item; and

determining, if the command is to add the new item to the item list and if the determined direction is the upward direction, an item from the set of items to remove from the display that is subsequent to the added new item.

30. The method of claim 28, further comprising:

determining, if the direction of the scrolling cannot be determined and if the command is to add the new item to the item list, content from the set of items to remove from the display that is prior to and subsequent to the added new item; and

determining, if the direction of the scrolling cannot be determined and if the command is to delete the existing item from the item list, content from the item list to display that is prior to and subsequent to the deleted existing item.

31. An electronic device comprising:

a processor; and

a memory including stored instructions executable by the processor and configured to cause the processor to:

scroll an item list in response to a first received command;

display a set of items from the item list in the electronic device;

change the item list based on a second received command to perform at least one of adding a new item to the item list or deleting an existing item from the item list;

determine, subsequent to the second received command, a previous direction of the scrolling of the item list, the scrolling in response to receipt of the first command;

determine at least one item from the item list to display based on the determined previous direction and the change of the item list; and

display the at least one determined item from the item list.

32. The electronic device of claim 31, wherein the instructions executable by the processor are configured to cause the processor to display the at least one determined item from the item list by scrolling the item list according to the determined previous direction and according to the second received command.

33. The electronic device of claim 31, wherein the instructions executable by the processor are configured to cause the processor to determine the at least one item from the item list to display by:

determining, if the second received command is to delete the existing item from the item list and if the determined previous direction is a downward direction, an item from the item list to display that is subsequent to the deleted existing item and is not displayed in the set of items; and

determining, if the second received command is to delete the existing item from the item list and if the determined previous direction is an upward direction, an item from the item list to display that is prior to the deleted existing item and is not displayed in the set of items.

34. The electronic device of claim 31, wherein the instructions executable by the processor are configured to cause the processor to determine the at least one item from the item list to display by:

determining, if the second received command is to add the new item to the item list and if the determined previous direction is a downward direction, an item from the set of items to remove from the display that is prior to the added new item; and

determining, if the second received command is to add the new item to the item list and if the determined previous direction is an upward direction, an item from the set of items to remove from the display that is subsequent to the added new item.

35. The electronic device of claim 31, wherein the instructions executable by the processor are further configured to cause the processor to:

determine, if the previous direction of the scrolling cannot be determined and if the second received command is to add the new item to the item list, content from the set

of items to remove from the display that is prior to and subsequent to the added item; and

determine, if the previous direction of the scrolling cannot be determined and if the second received command is to delete the existing item from the item list, content from the item list to display that is prior to and subsequent to the deleted item.

36. A non-transitory computer processor readable storage medium including instructions that when executed cause a processor to:

scroll an item list in response to a first received command;

display a set of items from the item list in a mobile terminal;

change the item list based on a second received command to perform at least one of adding a new item to the item list or deleting an existing item from the item list;

determine, subsequent to the second received command, a previous direction of the scrolling of the item list, the scrolling in response to receipt of the first command;

determine at least one item from the item list to display based on the determined previous direction and the change of the item list; and

display the at least one determined item from the item list.

37. The non-transitory computer processor readable storage medium of claim 36, wherein the instructions that when executed cause the processor to display the at least one determined item from the item list comprise:

instructions that when executed cause the processor to scroll the item list according to the determined previous direction and according to the second received command.

38. The non-transitory computer processor readable storage medium of claim 36, wherein the instructions that when executed cause the processor to determine the at least one item from the item list to display comprise:

instructions that when executed cause the processor to:

determine, if the second received command is to delete the existing item from the item list and if the determined previous direction is a downward direction, an item from the item list to display that is subsequent to the deleted existing item and is not displayed in the set of items; and

determine, if the second received command is to delete the existing item from the item list and if the determined previous direction is an upward direction, an item from the item list to display that is prior to the deleted existing item and is not displayed in the set of items.

39. The non-transitory computer processor readable storage medium of claim 36, wherein the instructions that when executed cause the processor to determine the at least one item from the item list to display comprise:

instructions that when executed cause the processor to:

determine, if the second received command is to add the new to the item list and if the determined previous direction is a downward direction, an item from the set of items to remove from the display that is prior to the added new item; and

determine, if the second received command is to add the new item to the item list and if the determined previous direction is an upward direction, an item from the set of items to remove from the display that is subsequent to the added new item.

40. The non-transitory computer processor readable storage medium of claim 36, further including instructions that when executed cause the processor to:

determine, if the direction of the scrolling cannot be determined and if the second received command is to add the new item to the item list, content from the set of items to remove from the display that is prior to and subsequent to the added new item; and

determine, if the direction of the scrolling cannot be determined and if the second received command is to delete the existing item from the item list, content from the item list to display that is prior to and subsequent to the deleted existing item.

41. The method of claim 8, wherein the received command comprises a command to delete the existing item from the item list or to add a new item to the item list.

42. The method of claim 28, wherein the received command comprises a command to delete the existing item from the item list or to add a new item to the item list.

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