(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
6 September 2013 (06.09.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/127013 A1

(51) International Patent Classification:
G06T 5/00 (2006.01) *G06F 3/0488* (2013.01)
G06F 3/0484 (2013.01) *G06T 11/60* (2006.01)

(21) International Application Number:
PCT/CA2013/050149

(22) International Filing Date:
28 February 2013 (28.02.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

61/605,417	1 March 2012 (01.03.2012)	US
13/459,490	30 April 2012 (30.04.2012)	US
13/552,823	19 July 2012 (19.07.2012)	US
13/552,840	19 July 2012 (19.07.2012)	US

(71) Applicant: **RESEARCH IN MOTION LIMITED** [CA/CA]; 295 Phillip Street, Waterloo, Ontario N2L 3W8 (CA).

(72) Inventors: **FREYHULT, Maria Christina Nathalie**; c/o Research In Motion TAT AB, Torggatan 2, SE-21140 Malmo (SE). **KUMAR, Arun**; 295 Phillip Street, Ext. 78595, Waterloo, Ontario N2L 3W8 (CA).

(74) Agent: **RIDOUT & MAYBEE LLP**; 250 University Avenue, 5th Floor, Toronto, Ontario M5H 3E5 (CA).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

— *with amended claims (Art. 19(1))*

(54) Title: DRAG HANDLE FOR APPLYING IMAGE FILTERS IN PICTURE EDITOR

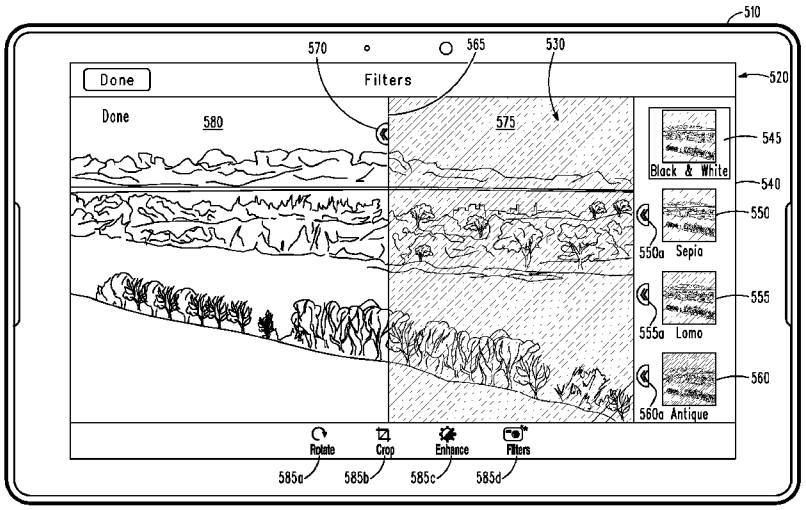


FIG. 5 500

(57) Abstract: The present disclosure provides for dynamic application of image filters in picture editor applications. A selected filter is dynamically applied to a portion of an image displayed on a screen as a drag handle is moved across the image, the portion of the image to which the selected filter is applied being changeable in size with motion of handle across the image and determined by a position of the handle on the screen. Changes to the portion of the image caused by application of the selected filter are dynamically displayed as the handle is moved across the image displayed on the screen.

WO 2013/127013 A1

DRAG HANDLE FOR APPLYING IMAGE FILTERS IN PICTURE EDITOR

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to provisional application serial number 61/605,417 titled "Drag Handle for Applying Image Filters in Picture Editor", filed March 1, 2012, which is hereby incorporated herein by reference. This application also claims priority to US non provisional application No. 13/459,490 filed April 30, 2012, US non provisional application No. 13/552,823 filed July 19, 2012, and US non provisional application No. 13/552,840 filed July 19, 2012 which are hereby incorporated herein by reference.

BACKGROUND

[0002] When applying filters to images in picture editor applications, it is often difficult for a user to discern the changes made to an image in the application of various filters and, as such, it is often difficult for the user to select the best filter or filters to effect desired image processing. In some cases, the user can revert back to the original picture but must try to retain a recollection of the image to determine whether a particular filter is desired. In other cases, "before" and "after" images can be placed side by side for viewing, but the changes in the image for a particular filter are applied to an entire image, making it difficult for the user to gain perspective on the changes made to an image through the application of filters, other than to form a generalized impression about previously applied filters.

[0003] It would be useful to provide a more intuitive, straightforward and user friendly approach for the application of image filters in picture editor applications.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] Exemplary embodiments of the present disclosure will be described below with reference to the included drawings such that like reference numerals refer to like elements and in which:

[0005] **FIG. 1** is a front view of a mobile electronic device, in accordance with various aspects of the present disclosure.

[0006] **FIG. 2** is a block diagram of an example functional representation of the electronic device of FIG. 1, in accordance with certain aspects of the present disclosure.

[0007] **FIG. 3** is a front view of an electronic device having a larger touch screen, in accordance with aspects of the present disclosure.

[0008] **FIG. 4** is a block diagram of an example functional representation of the electronic device of FIG. 3, in accordance with certain aspects of the present disclosure.

[0009] **FIG. 5** illustrates a drag handle of a picture editor application for use in dynamically applying image filters, in accordance with various aspects of the present disclosure.

[0010] **FIG. 6** is a flowchart that illustrates a method for dynamically applying image filters, in accordance with various aspects of the present disclosure.

[0011] **FIGS. 7a** and **7b** are a flowchart that illustrates a method for dynamically applying image filters, in accordance with various additional aspects of the present disclosure.

DETAILED DESCRIPTION

[0012] The various illustrative examples presented herein outline methods, user interfaces, and electronic devices that allow a filter to be dynamically applied to an image in a manner that is easily controllable by a user of a photo editor application and that allows the user to progressively see changes to an image as the filter is being applied. The use of a drag handle by a user in a user interface of a photo editor application allows the user to focus on the image as it changes during application of the filter.

[0013] For simplicity and clarity of illustration, reference numerals may be repeated among the figures to indicate corresponding or analogous elements.

Numerous details are set forth to provide an understanding of the illustrative embodiments described herein. The embodiments may be practiced without these details. In other instances, well-known methods, procedures, and components have not been described in detail to avoid obscuring the disclosed embodiments. The description is not to be considered as limited to the scope of the embodiments shown and described herein.

[0014] Therefore, in accordance with certain aspects of the present disclosure, there is provided a method of dynamically applying image filters, comprising: dynamically applying a selected filter of a plurality of selectable filters to a portion of an image displayed on a screen as a drag handle is moved across the image, the portion of the image to which the selected filter is applied being changeable in size with motion of handle across the image and determined by a position of the handle on the screen; and dynamically displaying the changes to the portion of the image caused by application of the selected filter as the handle is moved across the image displayed on the screen.

[0015] In accordance with another aspect of the present disclosure, there is provided an electronic device, comprising: a screen; a processor coupled to the screen; a memory coupled to and in cooperative arrangement with the processor, the processor and the memory configured to: dynamically apply a selected filter of a plurality of selectable filters to a portion of an image displayed on a screen as a drag handle is moved across the image, the portion of the image to which the selected filter is applied being changeable in size with motion of handle across the image and determined by a position of the handle on the screen; and dynamically display the changes to the portion of the image caused by application of the selected filter as the handle is moved across the image displayed on the screen.

[0016] In accordance with still further aspects of the present disclosure, there is provided a non-transitory computer-readable medium having computer-executable instructions for performing the method of dynamically applying image filters, comprising: dynamically applying a selected filter of a plurality of selectable filters to a portion of an image displayed on a screen as a drag handle is moved across the image, the portion of the image to which the selected filter is applied being changeable in size with motion of handle across the image and

determined by a position of the handle on the screen; and dynamically displaying the changes to the portion of the image caused by application of the selected filter as the handle is moved across the image displayed on the screen.

[0017] **FIG. 1** is an illustration of an example electronic device 100 in accordance with aspects of the present disclosure. Electronic device 100 may be a mobile or portable device with a touch-sensitive touch screen. Examples of such electronic devices include mobile phones, cellular phones, smart phones, personal digital assistants (PDAs), digital cameras, wireless organizers, wirelessly enabled notebook computers, tablet computing devices, handheld electronic gaming devices, digital photograph albums, and the like. Electronic device 100 has a touch screen 110 for displaying information, and may also have a keyboard 120 for entering information such as composing email messages, and a pointing device 130 such as a trackball, track wheel, touchpad, and the like, for navigating through items on screen 110. Navigation keys 140 and 150 may be used for navigating content. In some examples, display 110 is a touch screen and the plurality of keys and/or keyboard are soft keys or icons displayed on display 110 and actuated by a human finger or a stylus.

[0018] **FIG. 2** is a block diagram of an example functional representation of the electronic device 100 of FIG. 1, in accordance with certain aspects of the present disclosure. Electronic device 100 includes multiple components, such as a processor 202 that controls the overall operation of electronic device 100. Communication functions, including data and voice communications, are performed through a communication subsystem 204. Communication subsystem 204 receives data from and sends data to a network 250, such as a wide area network, in long-range communication. An example of the data sent or received by the communication subsystem includes but is not limited to email messages, short messaging service (SMS), instant messages, web content, and other electronic content. The wireless network 250 is, for example, a cellular network. In some examples, network 250 is a WIMAX network, a wireless local area network (WLAN) connected to the Internet, or any other suitable communications network. In other examples, other wireless networks are contemplated, including, but not limited to, data wireless networks, voice

wireless networks, and networks that support both voice and data communications.

[0019] A power source 242, such as one or more rechargeable batteries, a port to an external power supply, a fuel cell, or a solar cell, powers electronic device 100.

[0020] The processor 202 interacts with other functional components, such as Random Access Memory (RAM) 208, memory 210, a touch screen 110 (such as, for example, a LCD) which is operatively connected to an electronic controller 216 so that together they comprise a display subsystem 218, an input/output (I/O) subsystem 224, a data port 226, a speaker 228, a microphone 230, short-range communications subsystem 232, and other subsystems 234. It will be appreciated that the electronic controller 216 of the display subsystem 218 need not be physically integrated with the touch screen 110.

[0021] The auxiliary I/O subsystems 224 could include input devices other than the touch screen if desired, such as one or more control keys, a keyboard or keypad, navigational tool (input device), or both. The navigational tool could be a clickable/depressible trackball or scroll wheel, or touchpad. User-interaction with a graphical user interface is performed through the I/O subsystem 224.

[0022] Electronic device 100 also includes one or more clocks including a system clock (not shown) and sleep clock (not shown). In other examples, a single clock operates as both system clock and sleep clock. The sleep clock is a lower power, lower frequency clock.

[0023] To identify a subscriber for network access, electronic device 100 uses a Subscriber Identity Module or a Removable User Identity Module (SIM/RUIM) card 238 for communication with a network, such as the wireless network 250. Alternatively, user identification information is programmed into memory 210.

[0024] Electronic device 100 includes an operating system 246 and software programs, subroutines or components 248 that are executed by the processor 202 and are typically stored in a persistent, updatable store such as the memory 210. In some examples, software programs or applications 248

include, for example, personal information management application; communications applications such as Instant Messaging (IM), presentation and email applications; messaging applications; video game applications; web browser applications; photo applications; address applications; music applications; and the like. As will be described further below, such applications may be represented by a representative icon or image. Additional applications or programs can be loaded onto electronic device 100 through data port 226, for example. In some examples, programs are loaded over the wireless network 250, the auxiliary I/O subsystem 224, the short-range communications subsystem 232, or any other suitable subsystem 234.

[0025] An electronic content manager 280 is included in memory 210 of device 100. Electronic content manager 280 enables device 100 to fetch, download, send, receive, and display electronic content as will be described in detail below.

[0026] An electronic content repository 290 is also included in memory 210 of device 100. The electronic content repository or database, 290 stores electronic content such as electronic books, videos, music, multimedia, photos, and the like.

[0027] Referring now to **FIG. 3**, an illustration of an electronic device 300 having a larger touch screen 310 is presented, in accordance with an example of the present disclosure. The electronic device 300 has a housing 320 which holds a large touch screen display 310 suitable for viewing visual electronic content such as electronic books, photos, videos, and the like. The mobile device 300 includes an input subsystem 430 (indicated within dashed lines in FIG. 3) that in addition to the touch screen display may include keys 330, 340, 350, 360, 370, and 380, located in the housing 320 of the device. For example, menu key 370 is used to cause the electronic device 300 to render on display 310 a graphical user interface (GUI), action key 360 is used to initiate an action by activating an element from the GUI, and escape key 350 is used to cancel the last action performed or return to a previous screen on the GUI. Of course, these keys may be soft keys or icons displayed on touch screen 310 and actuated by a human finger or stylus.

[0028] Navigation keys 330 and 340 are used, for example, to navigate forwards and backwards within content viewed on touch screen display 310, respectively. As an example, keys 330 and 340 are used to flip pages when viewing an electronic book, to navigate to a different scene in video content, or to select a different audio track to play. The home key 380 causes the mobile electronic device 300 to render on touch screen display 310 a default home screen (not shown). Electronic device 300 also comprises a speaker (not shown) for playing back audio content, the audio component of video content, or audio produced by text-to-speech of text content, multimedia, and the like.

[0029] In various aspects of the disclosure, touch screen 310 serves as a display and an interface between a user and the device 300. Touch screen 310 and the plurality of keys 330, 340, 350, 360, 370, and 380 may be soft keys or icons displayed on touch screen display 310 and actuated by a human finger or a stylus.

[0030] **FIG. 4** provides an example functional representation of electronic device 300. Additionally, FIG. 4 may provide an alternate example of a block diagram representation of the electronic device 300 of FIG. 3. As shown in FIG. 4, electronic device 300 has a processor 410 that controls the overall operation of the electronic device 300. Short-range communications subsystem 440, such as a BLUETOOTH® subsystem, is coupled to processor 410 provides short-range communications capability used for sending and receiving electronic content at mobile electronic device 300. A data port 460, such as a Universal Serial Bus (USB) port, is used for sending and receiving electronic content at mobile electronic device 300.

[0031] Memory 420 may be a Flash memory chip and contains an operating system and other software modules subroutines utilized by processor 410 to operate electronic device 300. Memory 420 also contains modules for carrying out the methods of the present disclosure, as will be described below. Software programs or applications that may reside in memory 420 may include personal information management applications; communications applications such as Instant Messaging (IM), presentation and email applications; messaging applications; video game applications; web browser applications; photo and picture editor applications; address applications; music applications; and the

like. As will be described further below, such applications may be represented by a representative icon or image. Additional applications or programs can be loaded onto electronic device 300 through data port 460, for example.

[0032] Electronic device 300 also includes an input subsystem 430 for controlling the device, navigating through content, selecting content to playback, and the like. Input subsystem 430 may also include, for example, keys 330, 340, 350, 360, 370, and 380, described above. Input subsystem 430 may comprise a touchpad, a trackball, a roller wheel, a touch screen with or without a stylus, or any other suitable input device.

[0033] A power source 450, such as a battery, is used to power up the processor 410, memory 420, and other subsystems on electronic device 300. In some examples, power source 450 is a power supply connector, a fuel cell, a solar cell, or any other suitable power source.

[0034] Touch screen 310 of output subsystem 435 may be, for example, a liquid crystal display (LCD) coupled to processor 410 and displays electronic content as described above. Touch screen display 310 may be a light emitting diode (LED) display, a plasma display, an electronic ink display (e-ink), a Thin Film Transistor (TFT) LCD, or any other suitable display type. Operation of touch screen display 310 is controlled by display controller 475. Touch screen display 470 corresponds to touch screen 310 of FIG. 3 and is controlled by display controller 475 as shown.

[0035] Electronic device 300 also has speaker 480 for playing back audio content, the audio component of video content, or audio produced by text-to-speech of text content, and the like.

[0036] In some examples of the disclosure, short-range communications subsystem 440 is a wireless local area network (WLAN) subsystem, an Infra Red Data Association (IrDA) subsystem, or a ZIGBEE® subsystem. Other short-range communications subsystems would also be apparent to those of skill in the art.

[0037] Data port 460 is a serial port according to the RS-232 specifications, an IEEE 1394 FireWire port, an optical connection, a local area network (LAN) connection such as Ethernet, or any other suitable data

communications port.

[0038] Memory 420 may be a Random Access Memory (RAM), a serial electrically erasable programmable read only memory (SEEPROM), a removable secure digital (SD) card, a removable compact flash card, a USB flash drive, or any other suitable memory module as would be apparent to those of skill in the art.

[0039] As previously described, software programs or applications, referred to herein as applications, may be executed on an electronic device have a touch screen with a viewable area. In particular, photo or picture editors may be run as part of a photo application, for example, in order for a user to select and then apply changes to a chosen image using a selected filter. In accordance with various illustrative embodiments presented herein, a filter may be dynamically applied to an image in a manner that is easily controllable by a user of a photo editor application and that allows the user to progressively see changes to the image as the filter is being applied. The use of a drag handle by a user in a user interface of a photo editor application allows the user to focus on the image as it changes during application of the filter.

[0040] Referring now to **FIG. 5**, an illustration 500 of a user interface of a picture editor application running on an electronic device is shown. Electronic device 510 has a viewable area 520 of a touch screen in which the user interface of a picture editor application is displayed. A number of display parameters 585a, 585b, 585c, and 585d, corresponding to Rotate, Crop, Enhance, and Filters, respectively, can be changed in the picture editor application. It can be seen that the "Filters" option 585d in the picture editor application has been selected by its highlighted status, and this selection is reflected in panel 520 as shown. A number of selectable filters available for selection are displayed in a selection area 540 of the screen. In this particular example, previews 545, 550, 555, 560 corresponding to selectable filters Black & White, Sepia, Lomo, and Antique applied to image 530, respectively, are displayed in the selection area 540 of the screen. As shown here, the previews 545, 550, 555, and 560 may be thumbnail views.

[0041] The selectable filters, represented by previews 545, 550, 555, and

560, may be displayed, as shown here, in a list that is scrollable; thus, there may likely be more filters than the four filters currently displayed: Black & White, Sepia, Lomo, and Antique. The ordering of the filters in the selection area 540 may be arranged in various ways, including placing the most popular or most used filters first, alphabetically, most recent, etc.

[0042] The selected filter is this particular example is Black & White filter preview 545, which is highlighted by the placement of a highlighted box around it, as shown. The selected filter may be highlighted or indicated in other ways, such as by placing a color background behind it, outlining it in some way, etc. It is noted that the selected filter preview 545 is in fact also highlighted by the absence of its drag handle 570 from the selection area 540. The drag handle 570 associated with the selected filter 545 may be dynamically applied to image 530 in a manner that is easily controllable by control of the drag handle by the user, thereby allowing the user to progressively see changes to the image as the selected filter 545 is applied. The use of drag handle 570 by a user allows the user to focus on the image 530 and to see how it progressively changes during application of Black & White filter 545, without having to remember how the image changes in response to application of this filter.

[0043] In this particular example, the user has moved drag handle 570 over a portion 575 of image 530; the selected Black & White filter 545 has been applied has the user moved drag handle 570 over this portion 575. The selected Black & White filter 545 has only been moved over a portion of image 530 and the unfiltered portion 580 shows the image in its original "raw" form with no filtering applied. The draft handle 570 is connected to the area where the user is "dragging" the handle. So, if a user dragged out the handle, but then released the handle, the handles does not stay in that place on the screen; if the handle was beyond the threshold when released, it is applied to the entire image and if the handle was not beyond the threshold when released it is put "back" with its associated filter in the preview area, where it was originally located, without application of the associated filter to the image. This dynamic and partial application of a selected filter to a portion of a displayed image allows the user to progressively see changes to the image as the selected filter is applied and also allow the user to focus on the image as it changes. There is no need for the user to try to recollect how an image previously looked when filter was applied.

[0044] As indicated by the directional arrows of drag handle 570, the selected Black & White filter 570 has been applied to the image 530 by dragging the handle in a right-to-left horizontal motion by the user. The user can control movement of drag handle by a user finger or by use of a mouse, stylus or the like. The drag handle could also be configured to apply a selected filter in a left-to-right horizontal motion across the image, a top-to-bottom vertical motion across the image, a bottom-to-top vertical motion across the image, or even a corner-to-corner diagonal motion across the image. Of course, it is understood that rotation of the device itself may change a horizontal motion to a vertical motion across the image, and vice-versa. The partial and dynamic application of a filter in response to user manipulation of a drag handle remains unchanged.

[0045] In accordance with certain aspects, a selected filter may be applied to the entire image displayed by the electronic device when the drag handle is moved beyond a threshold line in the image that is representative of a threshold portion of the image. Where the threshold line and threshold portion of the image reside may be defined in the picture editor application and that definition may be changed by the user if desired. The threshold portion of the image may be defined as a percentage of a width dimension of the image displayed on the screen and so movement of the drag handle beyond that percentage would cause the selected filter to be applied to the entire image. For example, if the threshold portion is approximately 50% of the width of the image, movement of the drag handle beyond 50% of the width of the image will cause the selected filter to be applied to the entire image. Application of the selected filter to the rest of the image 580 once the threshold line and threshold portion of the image may be exceeded may happen quickly, in a snap application of the filter to the image, or the selected filter may be applied progressively in the direction of movement of the drag handle, in this case from right to left. If the threshold portion is approximately 75% of the width of the image, movement of the drag handle beyond 75% of the width of the image will cause the selected filter to be applied to the entire image, meaning application of the selected filter to the non-filtered, non-threshold portion of the image in a direction of movement of the drag handle.

[0046] It can thus be seen that once the drag handle has been dragged beyond a threshold line in the image, if the handle is released, then the filter is

applied to the rest of the image. Alternately, if the handle is released before the threshold portion or line is passed, such as by the user removing a finger from the drag handle when using a touch screen device, removing a stylus from the drag handle, or removing a mouse from the drag handle before the threshold portion is passed, the selected filter is not applied. The image may then be displayed in an unfiltered state on the screen of the electronic device or the image may be displayed in a previously displayed, filtered state. Deselection of a selected filter may also occur in response to a tap on the preview of the selected filter in the selection are of the screen. Application of a selected filter in response to user manipulation of the drag handle thus provides a simple, intuitive way to apply filters without requiring additional user input to undo or to apply filter buttons, or to display separate "before" and "after" pictures of the image.

[0047] Alternately, a selected filter may be applied to an entire displayed image in response to a tap on the portion of the image to which the selected filter has been applied; in this example, in response to a tap on portion 575. When the screen is a touch responsive screen, for example, a tap by the user on portion 575 may cause the selected filter to be applied to the entire image.

[0048] It is further envisioned that changing a display parameter of a displayed image will cause a corresponding change to the displayed filter previews 545, 550, 555, 560. Thus, rotating a displayed image on the screen of the electronic device will cause the displayed filter previews 545, 550, 555, 560 to also be rotated.

[0049] Non-selected filters 550, 555, 560 are each available for selected and each have an associated drag handle 550a, 555a, 560a as shown. If a user wishes to apply a filter that is not currently selected, the user selects the desired filter and can then move the drag handle associated with the selected filter across the displayed image. Selection of another filter deselects the currently selected filter and removes the previously applied filter. The previously selected and applied filter may seem to disappear from the image to not convey simultaneously the application of multiple filters.

[0050] In certain circumstances, some filters may be inactivated for selection in the selection area of the display screen and thus not be selectable by the user. Such would be the case, for example, for a selectable filter that depends on face recognition when it is determined that the image does not contain any face(s).

[0051] It can be seen that application of a selected filter in response to user manipulation of the drag handle thus provides a simple, intuitive way to apply filters without requiring additional user input to undo or to apply filter buttons, or to display separate "before" and "after" pictures of the image. Referring now to **FIG. 6**, flowchart 600 illustrates dynamically applying image filters. In Block 605, a selected filter is dynamically applied to a portion of an image displayed on a screen as the drag handle is moved across the image. As discussed, the portion of the image to which the selected filter is applied is changeable in size with motion of the drag handle across the image and is determined by a position of the drag handle on the screen. At Block 610, changes to the image caused by application of the selected filter are dynamically displayed as the drag handle is moved across the displayed image. As will be appreciated from reference to flowchart 700 of **FIG. 7**, these operations may involve many considerations.

[0052] At Block 710, selectable filters are displayed in a selection area of the screen and flow continues to Block 745. If a filter is selected by the user, the flow continues to Decision Block 750, where the inquiry is whether the drag handle is being moved across the displayed image. If yes, then the position of the drag handle on the screen is determined at Block 755. The selected filter is then dynamically applied to the displayed image as the drag handle is moved across the image at Block 760. The determined position of the drag handle is compared to a threshold line to determine whether the drag handle has been moved beyond a threshold line or threshold portion of the image at Decision Block 765. If yes, then the selected filter may be applied to the entire image displayed, such as by dynamically applying it to a portion of the image not previously filtered with the selected filter.

[0053] If the drag handle has not moved beyond the threshold, the flow continues from Decision Block 765 to Decision Block 775. The inquiry here is

whether the drag handle is released before being moved across the threshold. If yes, then the selected filter is not applied to the displayed image after the drag handle is released. Otherwise, the flow returns to Decision Block 750.

[0054] Referring back to Decision Block 750, if the drag handle is not being moved across the image, then the inquiry at Decision Block 785 is whether the filter has been previously applied to a portion of the image. If yes, then at Block 790 the inquiry is whether a tap has been received by a touch responsive screen on the portion of the image to which the selected filter has been previously applied. If yes, then at Block 795 the selected filter is applied to the entire image in response to the tap. If no, the flow returns to Decision Block 750.

[0055] Following display of selectable filters so that they can be selected by a user at Block 710, there are a number of optional actions that may be undertaken and have been described above. These optional actions are indicated by dashed lines. The inquiry at Decision Block 715 is whether the displayed image contains faces. If no, then selectable filters that use face recognition as part of the filtering may inactivated at Block 720. Alternately, Block from Block 710 may go to Block 725 where a preview of each the selectable filters are displayed. In FIG. 5 these previews where thumbnail previews 545, 550, 555, and 560, for instance. Or, the flow may continue to Block 730, where, in response to a display parameter of the image changing, the preview of each of the selectable filters are updated and displayed in accordance with the changed display parameter. Further, the selected filter may be highlighted or otherwise indicated as being selected in the selection area of the screen, at Block 735. The selected filter may be deselected in response to a tap on the displayed preview of the selected filter at Block 740.

[0056] The order in which the optional operations represented in Blocks 715-740 occurs is not predetermined or predefined, and these operations may occur in any order or not at all after occurrence of the operation of Block 710. Thus, while the blocks comprising the methods are shown as occurring in a particular order, it will be appreciated by those skilled in the art that many of the blocks are interchangeable and can occur in different orders than that shown without materially affecting the end results of the methods.

[0057] The implementations of the present disclosure described above are intended to be merely exemplary. It will be appreciated by those of skill in the art that alterations, modifications and variations to the illustrative embodiments disclosed herein may be made without departing from the scope of the present disclosure. Moreover, selected features from one or more of the above-described embodiments may be combined to create alternative embodiments not explicitly shown and described herein.

[0058] It will be appreciated that any module or component disclosed herein that executes instructions may include or otherwise have access to non-transient and tangible computer readable media such as storage media, computer storage media, or data storage devices (removable or non-removable) such as, for example, magnetic disks, optical disks, or tape data storage. Computer storage media may include volatile and non-volatile, removable and non-removable media implemented in any method or technology for storage of information, such as computer readable instructions, data structures, program modules, or other data. Examples of computer storage media include RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store the desired information and which can be accessed by an application, module, or both. Any such computer storage media may be part of the server, any component of or related to the network, backend, etc., or accessible or connectable thereto. Any application or module herein described may be implemented using computer readable/executable instructions that may be stored or otherwise held by such computer readable media.

[0059] The present disclosure may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the disclosure is, therefore, indicated by the appended claims rather than by the foregoing description. All changes that come within the meaning and range of equivalency of the claims are to be embraced within their scope.

[0060] What is claimed is:

CLAIMS

1. A method of dynamically applying image filters, comprising:

dynamically applying a selected filter of a plurality of selectable filters to a portion of an image displayed on a screen as a drag handle is moved across the image, the portion of the image to which the selected filter is applied being changeable in size with motion of handle across the image and determined by a position of the handle on the screen; and

dynamically displaying the changes to the portion of the image caused by application of the selected filter as the handle is moved across the image displayed on the screen.

2. The method of claim 1, further comprising:

applying the selected filter to the entire image displayed on the screen in response to the handle being moved and released beyond a threshold line in the image representative of a threshold portion of the image.

3. The method of claim 2, wherein the threshold portion of the image is a defined percentage of a width dimension of the image displayed on the screen.

4. The method of claim 2, further comprising in response to the handle being moved and released beyond the threshold line in the image dynamically applying the selected filter to the entire image progressively in the direction of movement of the handle.

5. The method of claim 4, further comprising in response to the handle being moved and released beyond the threshold line in the image dynamically applying the selected filter to a non-threshold portion of the image to which the selected filter has not been applied progressively in the direction of movement of the handle.

6. The method of claim 1, further comprising in response to the handle being released before being moved beyond a threshold line in the image representative of a threshold portion of the image, not applying the selected filter to the image displayed on the screen.

7. The method of claim 6, further comprising displaying the image in one of an unfiltered state and a previously displayed, filtered state.

8. The method of claim 1, further comprising displaying for selection the plurality of selectable filters in a selection area of the screen

9. The method of claim 8, further comprising displaying a preview of each of the plurality of selectable filters applied to the image in the selection area of the screen

10. The method of claim 9, further comprising displaying thumbnail views of each of the plurality of selectable filters in the selection area of the screen

11. The method of claim 10, wherein the screen is a touch responsive screen and further comprising deselecting the selected filter in response to a tap on the thumbnail view of the selected filter in the selection area of the touch responsive screen.

12. The method of claim 9, further in response to changing a display parameter of the image, updating and displaying the preview of each of the plurality of selectable filters in accordance with the changed display parameter.

13. The method of claim 12, wherein in response to rotating the displayed image, rotating and displaying the preview of each of the plurality of selectable filters.

14. The method of claim 9, wherein the screen is a touch responsive screen and further comprising: deselecting the selected filter in response to a tap on the preview of the selected filter in the selection area of the touch responsive screen.

15. The method of claim 8, further comprising indicating the selected filter of the plurality of selectable filters as selected in the selection area of the screen.

16. The method of claim 15, wherein the selected filter is highlighted in the selection area of the screen.

17. The method of claim 16, wherein the selected filter is further indicated by the absence of a handle icon for the selected filter in the selection area of the screen.

18. The method of claim 8, further comprising inactivating for selection any of the plurality of selectable filters dependent on face recognition when the image does not contain any faces.

19. The method of claim 8, further comprising displaying the plurality of selectable filters in a selectable listing of selectable filters.

20. The method of claim 19, the selectable filters being ordered in the selectable listing in accordance with one or more of degree of popularity of the selectable filters and most recent selections.

21. The method of claim 1, further comprising displaying the handle in a vertical orientation on the image, the handle moveable in a horizontal motion across the image.

22. The method of claim 21, wherein the handle is moveable in either a left-to-right motion across the image or a right-to- left motion across the image.

5

23. An electronic device, comprising:

a screen;

a processor coupled to the screen;

a memory coupled to and in cooperative arrangement with the processor, the processor and the memory configured to:

dynamically apply a selected filter of a plurality of selectable filters to a portion of an image displayed on a screen as a drag handle is moved across the image, the portion of the image to which the selected filter is applied being changeable in size with motion of handle across the image and determined by a position of the handle on the screen; and

dynamically display the changes to the portion of the image caused by application of the selected filter as the handle is moved across the image displayed on the screen.

24. The device of claim 23, the processor and memory further configured to: apply the selected filter to the entire image displayed on the screen in response to the handle being moved and released beyond a threshold line in the image representative of a threshold portion of the image.

25. The device of claim 24, wherein the threshold portion of the image is a defined percentage of a width dimension of the image displayed on the screen.

26. The device of claim 24, the processor and memory further configured to in response to the handle being moved and released beyond the threshold line in the image:

dynamically apply the selected filter to the entire image progressively in the direction of movement of the handle.

27. The device of claim 26, the processor and memory further configured to in response to the handle being moved and released beyond the threshold line in the image:
dynamically apply the selected filter to a non-threshold portion of the image to which the selected filter has not been applied progressively in the direction of movement of the handle.

28. The device of claim 23, in response to the handle being released before being moved beyond a threshold line in the image representative of a threshold portion of the image, the processor and memory further configured to:
not apply the selected filter to the image displayed on the screen.

29. The device of claim 28, the processor and memory further configured to:
display the image in either an unfiltered state or in a previously displayed, filtered state.

30. The device of claim 23, the processor and memory further configured to:
display for selection the plurality of selectable filters in a selection area of the screen.

31. The device of claim 23, the processor and memory further configured to:

display a preview of each of the plurality of selectable filters applied to the image in the selection area of the screen.

32. The device of claim 31, the screen is a touch responsive screen and the processor and memory further configured to:
deselect a selected filter in response to a tap on a preview of the selected filter in the selection area of the touch responsive screen.

5

33. The device of claim 31, the processor and memory further configured to: indicate the selected filter of the plurality of selectable filters as selected in the selection area of the screen.

34. The device of claim 31, the processor and memory further configured to: inactivate for selection any of the plurality of selectable filters dependent on face recognition when the image does not contain any faces.

35. The device of claim 23, the processor and memory further configured to: display the handle in a vertical orientation on the image, the handle moveable in a horizontal motion across the image.

5

36. A non-transitory computer-readable medium comprising computer-executable instructions for performing the method of dynamically applying image filters, comprising:

dynamically applying a selected filter of a plurality of selectable filters to a portion of an image displayed on a screen as a drag handle is moved across the image, the portion of the image to which the selected filter is applied being changeable in size with motion of handle across the image and determined by a position of the handle on the screen; and

dynamically displaying the changes to the portion of the image caused by application of the selected filter as the handle is moved across the image displayed on the screen.

AMENDED CLAIMS
received by the International Bureau on 19 July 2013 (19.07.2013)

1. A method of dynamically applying image filters, comprising:
dynamically applying a selected filter of a plurality of selectable filters to a portion of an image displayed on a screen as a drag handle is moved across the image, the portion of the image to which the selected filter is applied being changeable in size with motion of handle across the image and determined by a position of the handle on the screen; and

dynamically displaying the changes to the portion of the image caused by application of the selected filter as the handle is moved across the image displayed on the screen.

2. The method of claim 1, further comprising:

applying the selected filter to the entire image displayed on the screen in response to the handle being moved and released beyond a threshold line in the image representative of a threshold portion of the image.

3. The method of claim 2, wherein the threshold portion of the image is a defined percentage of a width dimension of the image displayed on the screen.

4. The method of claim 2, further comprising in response to the handle being moved and released beyond the threshold line in the image dynamically applying the selected filter to the entire image progressively in the direction of movement of the handle.

5. The method of claim 4, further comprising in response to the handle being moved and released beyond the threshold line in the image dynamically applying the selected filter to a non-threshold portion of the image to which the selected filter has not been applied progressively in the direction of movement of the handle.

6. The method of claim 1, further comprising in response to the handle being released before being moved beyond a threshold line in the image representative of a threshold portion of the image, not applying the selected filter to the image displayed on the screen.

7. The method of claim 6, further comprising displaying the image in one of an unfiltered state and a previously displayed, filtered state.

8. The method of claim 1, further comprising displaying for selection the plurality of selectable filters in a selection area of the screen

9. The method of claim 8, further comprising displaying a preview of each of the plurality of selectable filters applied to the image in the selection area of the screen

10. The method of claim 9, further comprising displaying thumbnail views of each of the plurality of selectable filters in the selection area of the screen

11. The method of claim 10, wherein the screen is a touch responsive screen and further comprising deselecting the selected filter in response to a tap on the thumbnail view of the selected filter in the selection area of the touch responsive screen.

12. The method of claim 9, further in response to changing a display parameter of the image, updating and displaying the preview of each of the plurality of selectable filters in accordance with the changed display parameter.

13. The method of claim 12, wherein in response to rotating the displayed image, rotating and displaying the preview of each of the plurality of selectable filters.

14. The method of claim 9, wherein the screen is a touch responsive screen and further comprising: deselecting the selected filter in response to a tap on the preview of the selected filter in the selection area of the touch responsive screen.

15. The method of claim 8, further comprising indicating the selected filter of the plurality of selectable filters as selected in the selection area of the screen.

16. The method of claim 15, wherein the selected filter is highlighted in the selection area of the screen.

17. The method of claim 16, wherein the selected filter is further indicated by the absence of a handle icon for the selected filter in the selection area of the screen.

18. The method of claim 8, further comprising inactivating for selection any of the plurality of selectable filters dependent on face recognition when the image does not contain any faces.

19. The method of claim 8, further comprising displaying the plurality of selectable filters in a selectable listing of selectable filters.

20. The method of claim 19, the selectable filters being ordered in the selectable listing in accordance with one or more of degree of popularity of the selectable filters and most recent selections.

21. The method of claim 1, further comprising displaying the handle in a vertical orientation on the image, the handle moveable in a horizontal motion across the image.

22. The method of claim 21, wherein the handle is moveable in either a left-to-right motion across the image or a right-to- left motion across the image.

23. An electronic device, comprising:

a screen;

a processor coupled to the screen;

a memory coupled to and in cooperative arrangement with the processor, the processor and the memory configured to:

dynamically apply a selected filter of a plurality of selectable filters to a portion of an image displayed on a screen as a drag handle is moved across the image, the portion of the image to which the selected filter is applied being changeable in size with motion of handle across the image and determined by a position of the handle on the screen; and

dynamically display the changes to the portion of the image caused by application of the selected filter as the handle is moved across the image displayed on the screen.

24. The device of claim 23, the processor and memory further configured to: apply the selected filter to the entire image displayed on the screen in response to the handle being moved and released beyond a threshold line in the image representative of a threshold portion of the image.

25. The device of claim 24, wherein the threshold portion of the image is a defined percentage of a width dimension of the image displayed on the screen.

26. The device of claim 24, the processor and memory further configured to in response to the handle being moved and released beyond the threshold line in the image:

dynamically apply the selected filter to the entire image progressively in the direction of movement of the handle.

27. The device of claim 26, the processor and memory further configured to in response to the handle being moved and released beyond the threshold line in the image:

dynamically apply the selected filter to a non-threshold portion of the image to which the selected filter has not been applied progressively in the direction of movement of the handle.

28. The device of claim 23, in response to the handle being released before being moved beyond a threshold line in the image representative of a threshold portion of the image, the processor and memory further configured to:

not apply the selected filter to the image displayed on the screen.

29. The device of claim 28, the processor and memory further configured to: display the image in either an unfiltered state or in a previously displayed, filtered state.

30. The device of claim 23, the processor and memory further configured to:

display for selection the plurality of selectable filters in a selection area of the screen.

31. The device of claim 23, the processor and memory further configured to: display a preview of each of the plurality of selectable filters applied to the image in the selection area of the screen.

32. The device of claim 31, the screen is a touch responsive screen and the processor and memory further configured to:

deselect a selected filter in response to a tap on a preview of the selected filter in the selection area of the touch responsive screen.

33. The device of claim 31, the processor and memory further configured to: indicate the selected filter of the plurality of selectable filters as selected in the selection area of the screen.

34. The device of claim 31, the processor and memory further configured to: inactivate for selection any of the plurality of selectable filters dependent on face recognition when the image does not contain any faces.

35. The device of claim 23, the processor and memory further configured to: display the handle in a vertical orientation on the image, the handle moveable in a horizontal motion across the image.

36. A non-transitory computer-readable medium comprising computer-executable instructions for performing the method of dynamically applying image filters, comprising:

dynamically applying a selected filter of a plurality of selectable filters to a portion of an image displayed on a screen as a drag handle is moved across the image, the portion of the image to which the selected filter is applied being changeable in size with motion of handle across the image and determined by a position of the handle on the screen; and

dynamically displaying the changes to the portion of the image caused by application of the selected filter as the handle is moved across the image displayed on the screen.

37. A method of dynamically applying image effect filters on an electronic device, comprising:

dynamically applying a selected image effect filter of a plurality of selectable image effect filters to a portion of an image rendered on a screen as a drag handle also rendered on the screen is moved across the image to dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size relative to the unfiltered portion with motion of the handle across the image and determined by a position of the handle on the screen; and

dynamically displaying the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image rendered on the screen.

38. The method of claim 37, further comprising:

applying the selected image effect filter to the entire image rendered on the screen in response to the handle being moved and released beyond a threshold line in the image representative of a threshold portion of the image.

39. The method of claim 38, wherein the threshold portion of the image is a defined percentage of a width dimension of the image rendered on the screen.

40. The method of claim 38, further comprising in response to the handle being moved and released beyond the threshold line in the image dynamically applying the selected image effect filter to the entire image progressively in the direction of movement of the handle.

41. The method of claim 40, further comprising in response to the handle being moved and released beyond the threshold line in the image dynamically applying the selected image effect filter to a non-threshold portion of the image to which the selected image effect filter has not been applied progressively in the direction of movement of the handle.

42. The method of claim 37, further comprising in response to the handle being released before being moved beyond a threshold line in the image

representative of a threshold portion of the image, not applying the selected image effect filter to the image rendered on the screen.

43. The method of claim 42, further comprising displaying the image in one of an unfiltered state and a previously displayed, filtered state.

44. The method of claim 37, further comprising displaying for selection the plurality of selectable image effect filters in a selection area of the screen

45. The method of claim 44, further comprising displaying a preview of each of the plurality of selectable image effect filters applied to the image in the selection area of the screen.

46. The method of claim 45, further comprising displaying thumbnail views of each of the plurality of selectable image effect filters in the selection area of the screen.

47. The method of claim 46, wherein the screen is a touch responsive screen and further comprising deselecting the selected image effect filter in response to a tap on the thumbnail view of the selected filter in the selection area of the touch responsive screen.

48. The method of claim 45, further in response to changing a display parameter of the image, updating and displaying the preview of each of the plurality of selectable image effect filters in accordance with the changed display parameter.

49. The method of claim 48, wherein in response to rotating the displayed image, rotating and displaying the preview of each of the plurality of selectable image effect filters.

50. The method of claim 45, wherein the screen is a touch responsive screen and further comprising: deselecting the selected image effect filter in response to a tap on the preview of the selected image effect filter in the selection area of the touch responsive screen.

51. The method of claim 44, further comprising indicating the selected image effect filter of the plurality of selectable image effect filters as selected in the selection area of the screen.

52. The method of claim 51, wherein the selected image effect filter is highlighted in the selection area of the screen.

53. The method of claim 52, wherein the selected image effect filter is further indicated by the absence of a handle icon for the selected image effect filter in the selection area of the screen.

54. The method of claim 44, further comprising inactivating for selection any of the plurality of selectable image effect filters dependent on face recognition when the image does not contain any faces.

55. The method of claim 44, further comprising displaying the plurality of selectable image effect filters in a selectable listing of selectable image effect filters.

56. The method of claim 55, the selectable image effect filters being ordered in the selectable listing in accordance with one or more of degree of popularity of the selectable image effect filters and most recent selections.

57. The method of claim 37, further comprising displaying the handle in a vertical orientation on the image, the handle moveable in a horizontal motion across the image.

58. The method of claim 57, wherein the handle is moveable in either a left-to-right motion across the image or a right-to-left motion across the image.

59. An electronic device, comprising:

a screen;

a processor coupled to the screen;

a memory coupled to and in cooperative arrangement with the processor, the processor and the memory configured to:

dynamically apply a selected image effect filter of a plurality of selectable image effect filters to a portion of an image displayed on a screen as a drag handle is moved across the image to dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size relative to the unfiltered portion with motion of the handle across the image and determined by a position of the handle on the screen; and

dynamically display the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image displayed on the screen.

60. The device of claim 59, the processor and memory further configured to: apply the selected image effect filter to the entire image displayed on the screen in response to the handle being moved and released beyond a threshold line in the image representative of a threshold portion of the image.

61. The device of claim 60, wherein the threshold portion of the image is a defined percentage of a width dimension of the image displayed on the screen.

62. The device of claim 60, the processor and memory further configured to in response to the handle being moved and released beyond the threshold line in the image:

dynamically apply the selected image effect filter to the entire image progressively in the direction of movement of the handle.

63. The device of claim 62, the processor and memory further configured to in response to the handle being moved and released beyond the threshold line in the image:

dynamically apply the selected image effect filter to a non-threshold portion of the image to which the selected image effect filter has not been applied progressively in the direction of movement of the handle.

64. The device of claim 59, in response to the handle being released before being moved beyond a threshold line in the image representative of a threshold

portion of the image, the processor and memory further configured to:

not apply the selected image effect filter to the image displayed on the screen.

65. The device of claim 64, the processor and memory further configured to:

display the image in either an unfiltered state or in a previously displayed, filtered state.

66. The device of claim 59, the processor and memory further configured to:

display for selection the plurality of selectable image effect filters in a selection area of the screen.

67. The device of claim 59, the processor and memory further configured to:

display a preview of each of the plurality of selectable image effect filters applied to the image in the selection area of the screen.

68. The device of claim 67, the screen is a touch responsive screen and the processor and memory further configured to:

deselect a selected image effect filter in response to a tap on a preview of the selected image effect filter in the selection area of the touch responsive screen.

69. The device of claim 67, the processor and memory further configured to:

indicate the selected image effect filter of the plurality of selectable image effect filters as selected in the selection area of the screen.

70. The device of claim 67, the processor and memory further configured to:

inactivate for selection any of the plurality of selectable image effect filters dependent on face recognition when the image does not contain any faces.

71. The device of claim 59, the processor and memory further configured to: display the handle in a vertical orientation on the image, the handle moveable in a horizontal motion across the image.

72. A non-transitory computer-readable medium comprising computer-executable instructions for performing the method of dynamically applying image effect filters, comprising:

dynamically applying a selected image effect filter of a plurality of selectable image effect filters to a portion of an image displayed on a screen as a drag handle is moved across the image to dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size relative to the unfiltered portion with motion of the handle across the image and determined by a position of the handle on the screen; and

dynamically displaying the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image displayed on the screen.

73. The method of claim 37, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

74. The method of claim 37, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

75. The device of claim 59, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

76. The device of claim 59, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

77. The non-transitory computer-readable medium of claim 72, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

78. The non-transitory computer-readable medium of claim 72, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

79. A method of dynamically applying image effect filters on an electronic device, comprising:

dynamically applying a selected image effect filter of a plurality of selectable image effect filters to a portion of an image rendered on a screen as a drag handle also rendered on the screen is moved across the image to dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size relative to the unfiltered portion with motion of the drag handle across the image and determined by a position of the handle on the screen;

dynamically displaying the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image rendered on the screen;

selecting another image effect filter of the plurality of selectable image effect filters; and

in response to selecting the another image effect filter, deselecting the previously selected image effect filter and removing application of the previously selected image effect filter to the rendered image.

80. The method of claim 79, where each of the selectable image effect filters of the plurality of selectable image effect filters has an associated drag handle and further in response to selecting another image effect filter of the plurality of selectable image effect filters, displaying the associated drag handle of the selected another image effect filter.

81. A method of dynamically applying image effect filters on an electronic device, comprising:

dynamically applying a selected image effect filter of a plurality of selectable image effect filters to a portion of an image rendered on a screen as a drag handle also rendered on the screen is moved across the image to

dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size with motion of the drag handle across the image and determined by a position of the handle on the screen;

dynamically displaying the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image rendered on the screen; and

in response to a tap on the portion of the image to which the selected image effect filter is applied, applying the selected image effect filter to the entire image rendered on the screen.

82. A method of dynamically applying image effect filters on an electronic device, comprising:

dynamically applying a selected image effect filter of a plurality of selectable image effect filters to a portion of an image rendered on a screen as a drag handle also rendered on the screen is moved across the image to dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size with motion of the drag handle across the image and determined by a position of the handle on the screen;

applying the selected image effect filter to the entire image rendered on the screen in response to the handle being moved and released beyond a threshold line in the image representative of a threshold portion of the image, the threshold line being user definable; and

dynamically displaying the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image rendered on the screen.

83. The method of claim 82, where the threshold line is predefined in a picture editor application and is user definable in the picture editor application.

84. The method of claim 82, where the threshold portion of the image is a defined percentage of a width dimension of the image rendered on the screen

and is one of approximately 50% of the width of the image and approximately 75% of the width of the image.

85. The method of claim 82, further comprising in response to the handle being moved beyond the threshold line in the image dynamically applying the selected image effect filter to the entire image in a snap application of the selected image effect filter to the entire image.

86. The method of claim 85, further comprising in response to the handle being moved beyond the threshold line in the image dynamically applying the selected image effect filter to a non-threshold portion of the image to which the selected image effect filter has not been applied.

87. The method of claim 82, further comprising applying the selected image effect filter to the entire image rendered on the screen in response to the handle being moved beyond the threshold line in the image representative of the handle being moved beyond a threshold portion of the image even when the handle is released after being moved beyond the threshold line in the image.

88. A method of dynamically applying image effect filters on an electronic device, comprising:

dynamically applying a selected image effect filter of a plurality of selectable image effect filters to a portion of an image rendered on a screen as a drag handle also rendered on the screen is moved across the image to dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size with motion of the drag handle across the image and determined by a position of the handle on the screen;

displaying for selection the plurality of selectable image effect filters in a selection area of the screen;

indicating the selected image effect filter of the plurality of selectable image effect filters as selected in the selection area of the screen by highlighting the selected image effect filter in the selection area by one or more

of placement of a highlighted box around the selected image effect filter and a color background behind the selected image effect filter; and

displaying the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image rendered on the screen.

89. The method of claim 88, further comprising:

displaying for selection the plurality of selectable image effect filters in a selectable listing of selectable image effect filters, the selectable listing being scrollable in the selection area of the screen.

90. The method of claim 79, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

91. The method of claim 79, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

92. The method of claim 81, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

93. The method of claim 81, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

94. The method of claim 82, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

95. The method of claim 82, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

96. The method of claim 88, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

97. The method of claim 88, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

98. An electronic device, comprising:

a screen;

a processor coupled to the screen;

a memory coupled to and in cooperative arrangement with the processor, the processor and the memory configured to:

dynamically apply a selected image effect filter of a plurality of selectable image effect filters to a portion of an image displayed on the screen as a drag handle is moved across the image to dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size relative to the unfiltered portion with motion of handle across the image and determined by a position of the handle on the screen;

dynamically display the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image displayed on the screen;

select another image effect filter of the plurality of selectable image effect filters; and

in response to selection of the another image effect filter, deselect the previously selected image effect filter and remove application of the previously selected image effect filter to the displayed image.

99. The device of claim 98, where each of the selectable image effect filters of the plurality of selectable image effect filters has an associated drag handle and further in response to selection of the another image effect filter of the plurality of selectable image effect filters, the processor and memory further configured to:

display the associated drag handle of the selected another image effect filter.

100. An electronic device, comprising:

a screen;

a processor coupled to the screen;

a memory coupled to and in cooperative arrangement with the processor, the processor and the memory configured to:

dynamically apply a selected image effect filter of a plurality of selectable image effect filters to a portion of an image displayed on the screen as a drag handle is moved across the image to dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size relative to the unfiltered portion with motion of handle across the image and determined by a position of the handle on the screen;

dynamically display the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image displayed on the screen;

in response to a tap on the portion of the image to which the selected image effect filter is applied, apply the selected image effect filter to the entire image displayed on the screen.

101. An electronic device, comprising:

a screen;

a processor coupled to the screen;

a memory coupled to and in cooperative arrangement with the processor, the processor and the memory configured to:

dynamically apply a selected image effect filter of a plurality of selectable image effect filters to a portion of an image displayed on the screen as a drag handle is moved across the image to dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size relative to the unfiltered portion

with motion of handle across the image and determined by a position of the handle on the screen;

apply the selected image effect filter to the entire image displayed on the screen in response to the handle being moved and released beyond a threshold line in the image representative of a threshold portion of the image, the threshold line being user definable; and

dynamically display the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image displayed on the screen.

102. The device of claim 101, where the threshold line is predefined in a picture editor application and is user definable in the picture editor application.

103. The device of claim 101, where the threshold portion of the image is a defined percentage of a width dimension of the image displayed on the screen and is one of approximately 50% of the width of the image and approximately 75% of the width of the image.

104. The device of claim 101, the processor and memory further configured to:

in response to the handle being moved beyond the threshold line in the image, dynamically apply the selected image effect filter to the entire image in a snap application of the selected image effect filter to the entire image.

105. The device of claim 104, the processor and memory further configured to:

in response to the handle being moved beyond the threshold line in the image, dynamically apply the selected image effect filter to a non-threshold portion of the image to which the selected image effect filter has not been applied.

106. The device of claim 101, the processor and memory further configured to:

apply the selected image effect filter to the entire image displayed on the screen in response to the handle being moved beyond the threshold line in the

image representative of the handle being moved beyond a threshold portion of the image even when the handle is released after being moved beyond the threshold line in the image.

107. An electronic device, comprising:

a screen;

a processor coupled to the screen;

a memory coupled to and in cooperative arrangement with the processor, the processor and the memory configured to:

dynamically apply a selected image effect filter of a plurality of selectable image effect filters to a portion of an image displayed on the screen as a drag handle is moved across the image to dynamically change the size of the filtered portion of the image with respect to the size of an unfiltered portion of the image, the portion of the image to which the selected image effect filter is applied being dynamically changeable in size relative to the unfiltered portion with motion of handle across the image and determined by a position of the handle on the screen;

display for selection the plurality of selectable image effect filters in a selection area of the screen;

indicate the selected image effect filter of the plurality of selectable image effect filters as selected in the selection area of the screen, where the selected image effect filter is highlighted in the selection area by one or more of placement of a highlighted box around the selected image effect filter and a color background behind the selected image effect filter; and

dynamically display the changes to the portion of the image caused by application of the selected image effect filter as the handle is moved across the image displayed on the screen.

108. The device of claim 107, the processor and memory further configured to:

display for selection the plurality of selectable image effect filters in a selectable listing of selectable image effect filters, the selectable listing being scrollable in the selection area of the screen.

109. The device of claim 98, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

110. The device of claim 98, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

111. The device of claim 100, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

112. The device of claim 100, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

113. The device of claim 101, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

114. The device of claim 101, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

115. The device of claim 107, wherein the drag handle is coupled to a first boundary of one or more boundaries of the image and to a second boundary of the one or more boundaries of the image.

116. The device of claim 107, wherein a boundary of the filtered portion extends from a first boundary of one or more boundaries of the image to a second boundary of the one or more boundaries of the image.

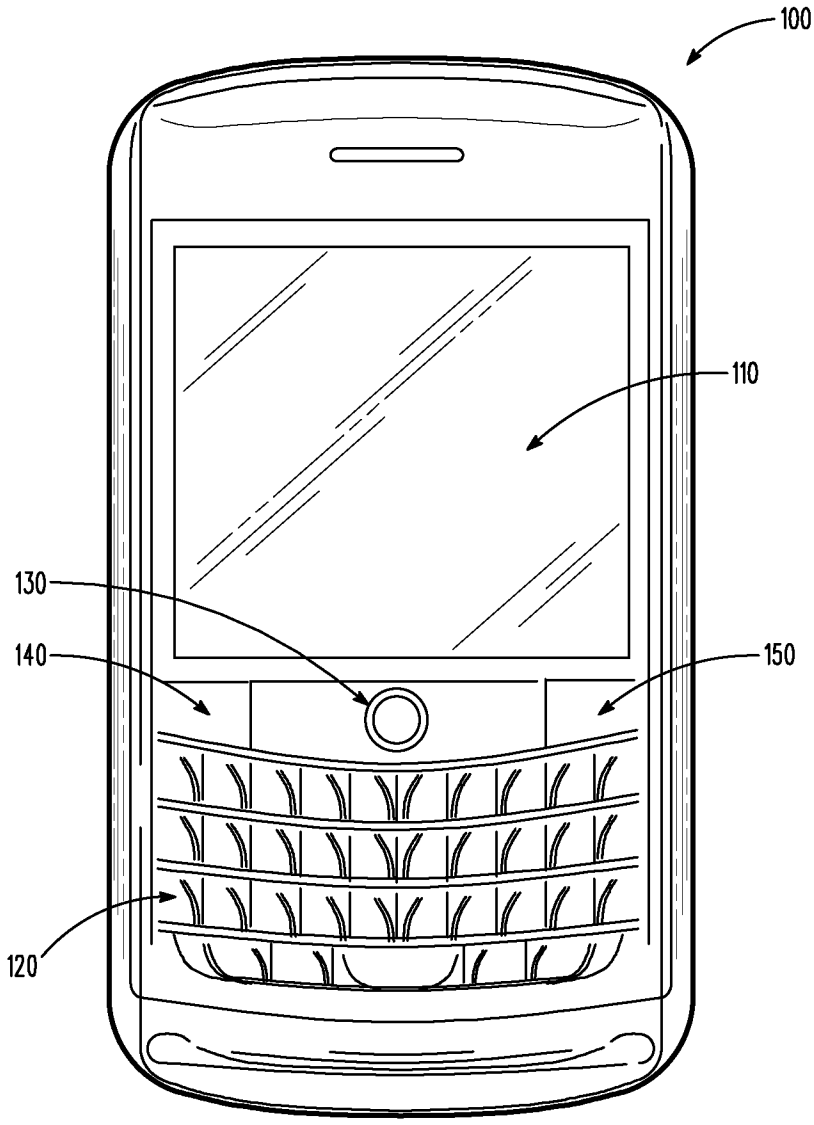


FIG. 1

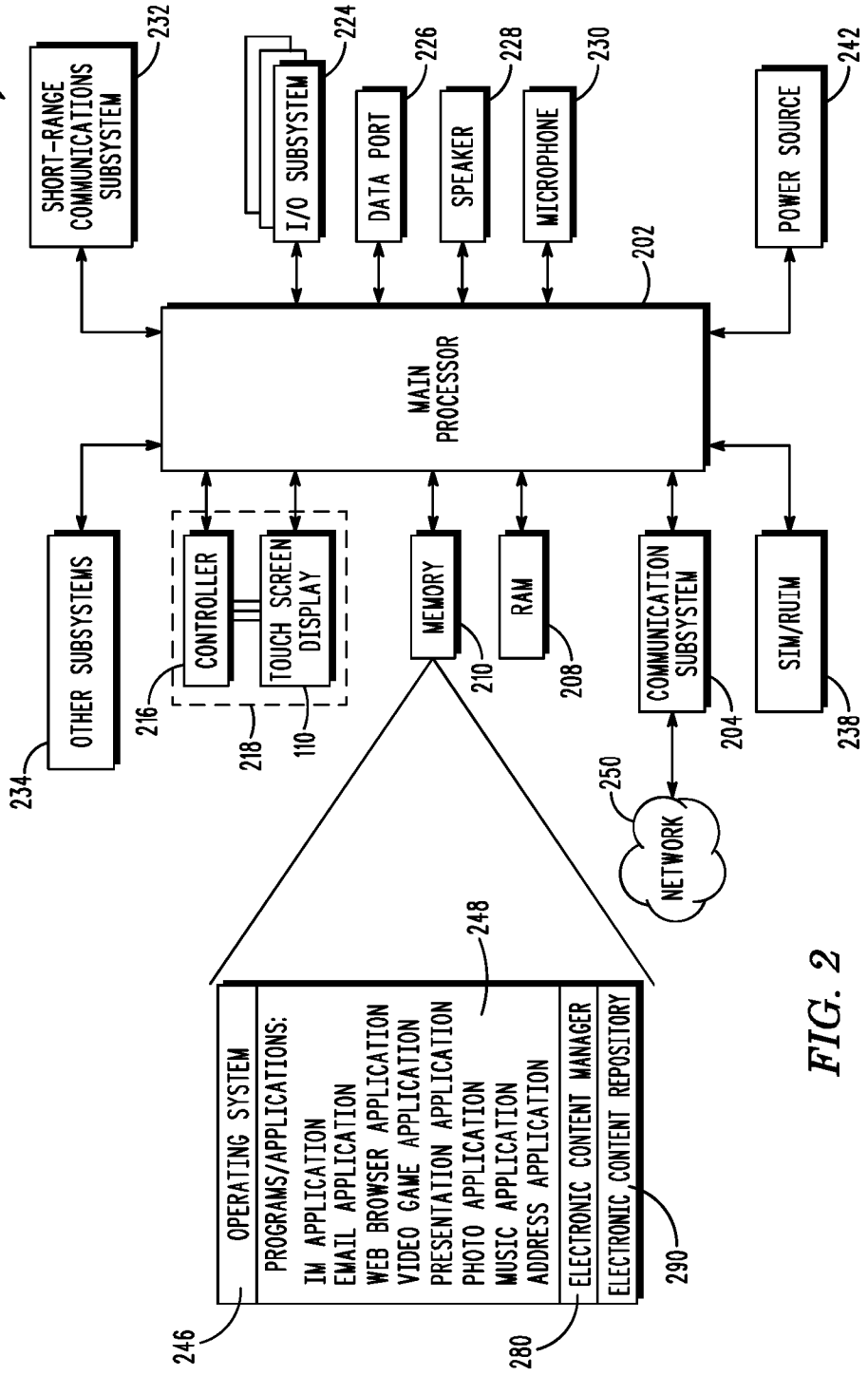

100
SHORT-RANGE COMMUNICATIONS SUBSYSTEM
232
I/O SUBSYSTEM
224
DATA PORT
226
SPEAKER
228
MICROPHONE
230
POWER SOURCE
242
202
MAIN PROCESSOR
OTHER SUBSYSTEMS
234
CONTROLLER
216
TOUCH SCREEN DISPLAY
218
110
MEMORY
210
RAM
208
COMMUNICATION SUBSYSTEM
204
SIM/RUIM
238
250
NETWORK
248
OPERATING SYSTEM
PROGRAMS/APPLICATIONS:
IM APPLICATION
EMAIL APPLICATION
WEB BROWSER APPLICATION
VIDEO GAME APPLICATION
PRESENTATION APPLICATION
PHOTO APPLICATION
MUSIC APPLICATION
ADDRESS APPLICATION
ELECTRONIC CONTENT MANAGER
ELECTRONIC CONTENT REPOSITORY
246
280
290

FIG. 2

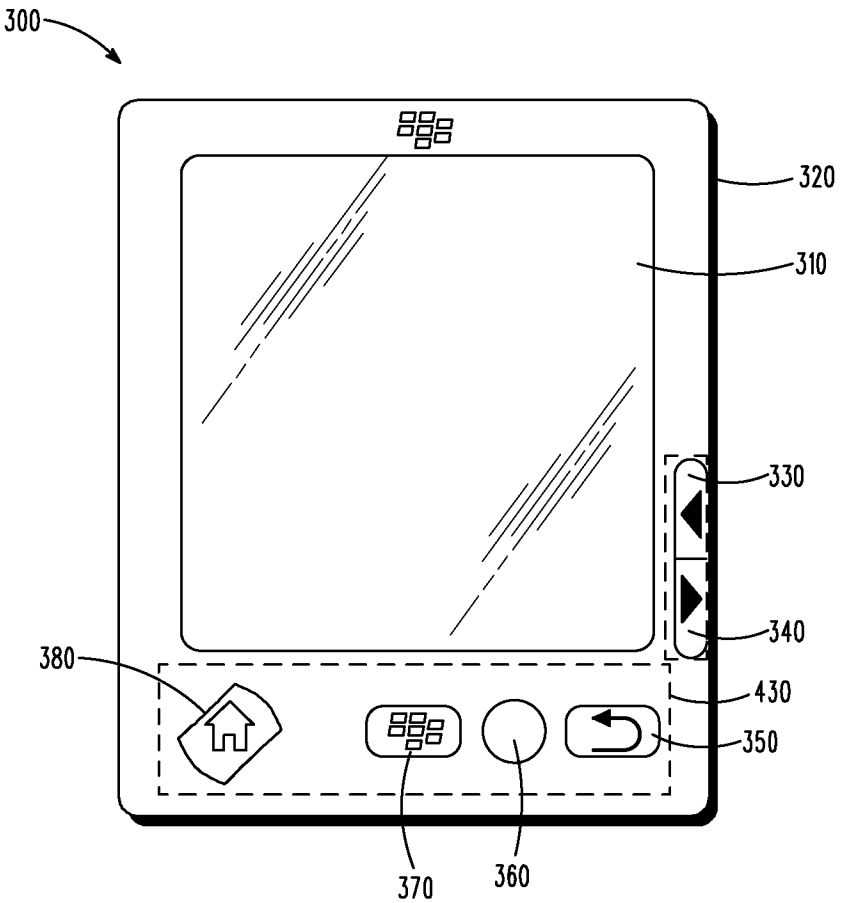


FIG. 3

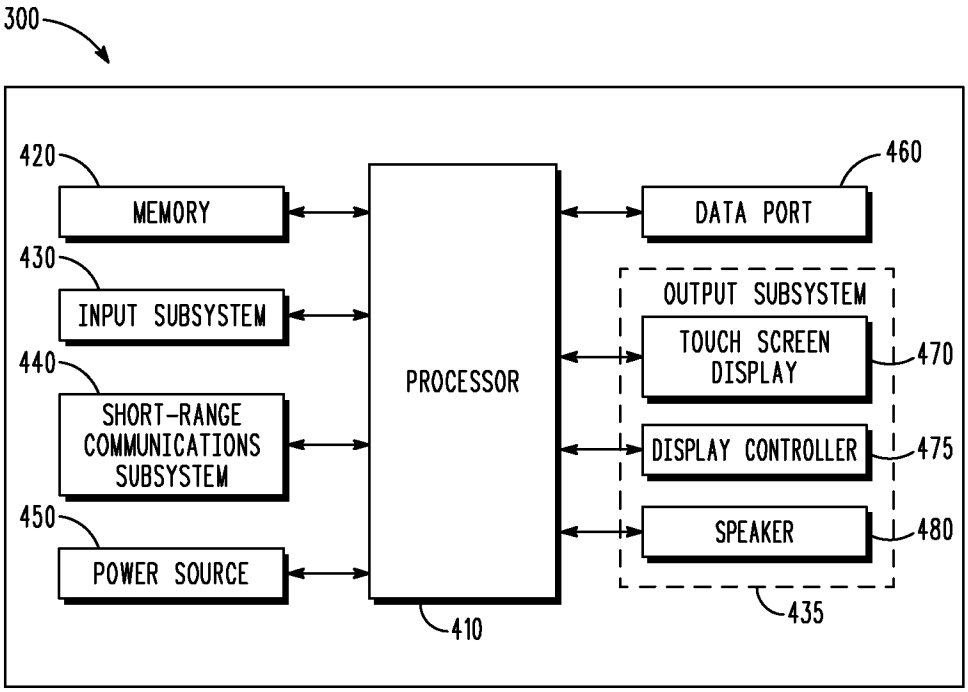

300
420
MEMORY
430
INPUT SUBSYSTEM
440
SHORT-RANGE COMMUNICATIONS SUBSYSTEM
450
POWER SOURCE
PROCESSOR
410
460
DATA PORT
OUTPUT SUBSYSTEM
TOUCH SCREEN DISPLAY
470
DISPLAY CONTROLLER
475
SPEAKER
480
435

FIG. 4

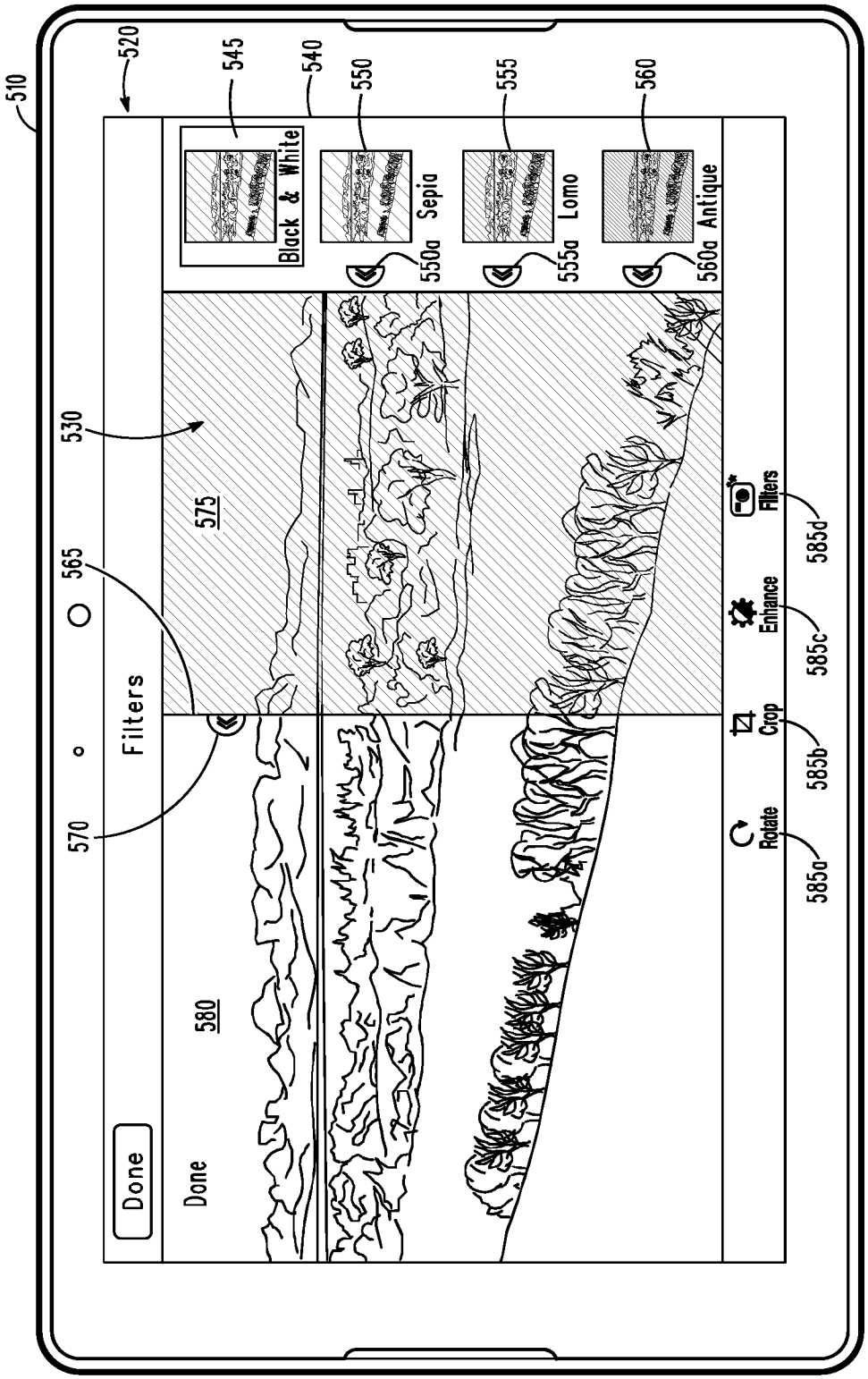

510
520
545
540
550
555
560
Black & White
Sepia
Lomo
Antique
550a
555a
560a
530
575
565
570
Filters
Done
580
Done
Rotate
Crop
Enhance
Filters
585a
585b
585c
585d

FIG. 5 500

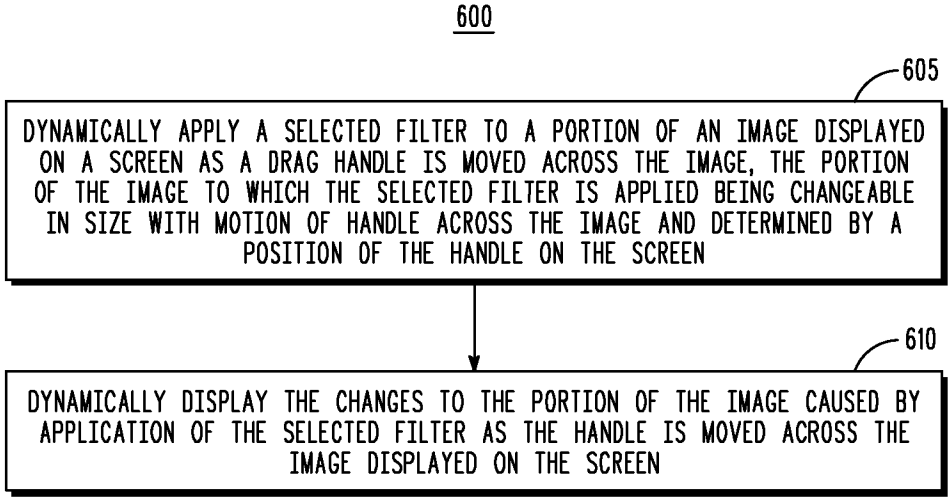

600
605
DYNAMICALLY APPLY A SELECTED FILTER TO A PORTION OF AN IMAGE DISPLAYED ON A SCREEN AS A DRAG HANDLE IS MOVED ACROSS THE IMAGE, THE PORTION OF THE IMAGE TO WHICH THE SELECTED FILTER IS APPLIED BEING CHANGEABLE IN SIZE WITH MOTION OF HANDLE ACROSS THE IMAGE AND DETERMINED BY A POSITION OF THE HANDLE ON THE SCREEN
610
DYNAMICALLY DISPLAY THE CHANGES TO THE PORTION OF THE IMAGE CAUSED BY APPLICATION OF THE SELECTED FILTER AS THE HANDLE IS MOVED ACROSS THE IMAGE DISPLAYED ON THE SCREEN

FIG. 6

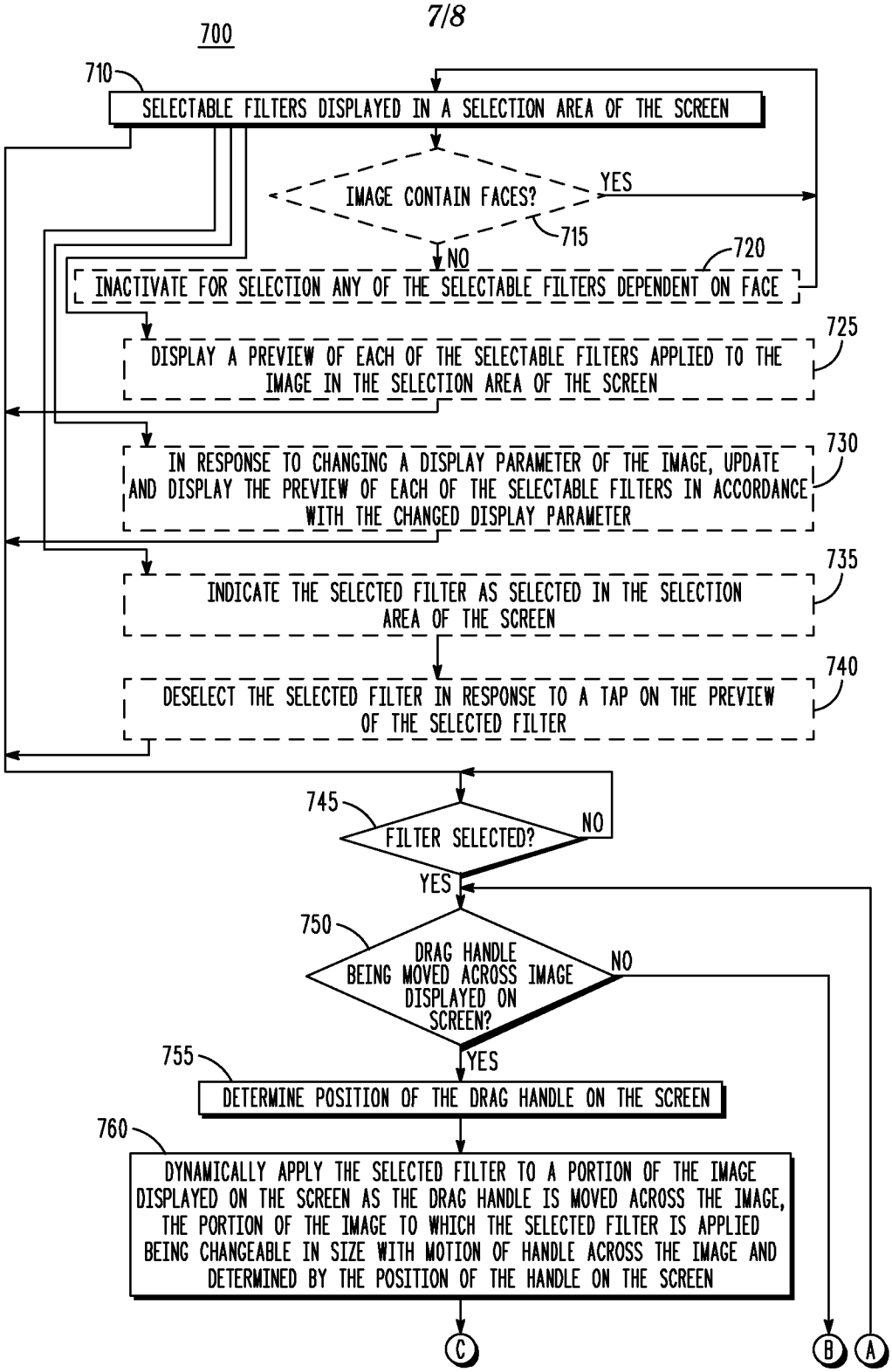

700
710
SELECTABLE FILTERS DISPLAYED IN A SELECTION AREA OF THE SCREEN
IMAGE CONTAIN FACES?
YES
715
NO
720
INACTIVATE FOR SELECTION ANY OF THE SELECTABLE FILTERS DEPENDENT ON FACE
725
DISPLAY A PREVIEW OF EACH OF THE SELECTABLE FILTERS APPLIED TO THE IMAGE IN THE SELECTION AREA OF THE SCREEN
730
IN RESPONSE TO CHANGING A DISPLAY PARAMETER OF THE IMAGE, UPDATE AND DISPLAY THE PREVIEW OF EACH OF THE SELECTABLE FILTERS IN ACCORDANCE WITH THE CHANGED DISPLAY PARAMETER
735
INDICATE THE SELECTED FILTER AS SELECTED IN THE SELECTION AREA OF THE SCREEN
740
DESELECT THE SELECTED FILTER IN RESPONSE TO A TAP ON THE PREVIEW OF THE SELECTED FILTER
745
FILTER SELECTED?
NO
YES
750
DRAG HANDLE BEING MOVED ACROSS IMAGE DISPLAYED ON SCREEN?
NO
YES
755
DETERMINE POSITION OF THE DRAG HANDLE ON THE SCREEN
760
DYNAMICALLY APPLY THE SELECTED FILTER TO A PORTION OF THE IMAGE DISPLAYED ON THE SCREEN AS THE DRAG HANDLE IS MOVED ACROSS THE IMAGE, THE PORTION OF THE IMAGE TO WHICH THE SELECTED FILTER IS APPLIED BEING CHANGEABLE IN SIZE WITH MOTION OF HANDLE ACROSS THE IMAGE AND DETERMINED BY THE POSITION OF THE HANDLE ON THE SCREEN
C
B
A

FIG. 7A

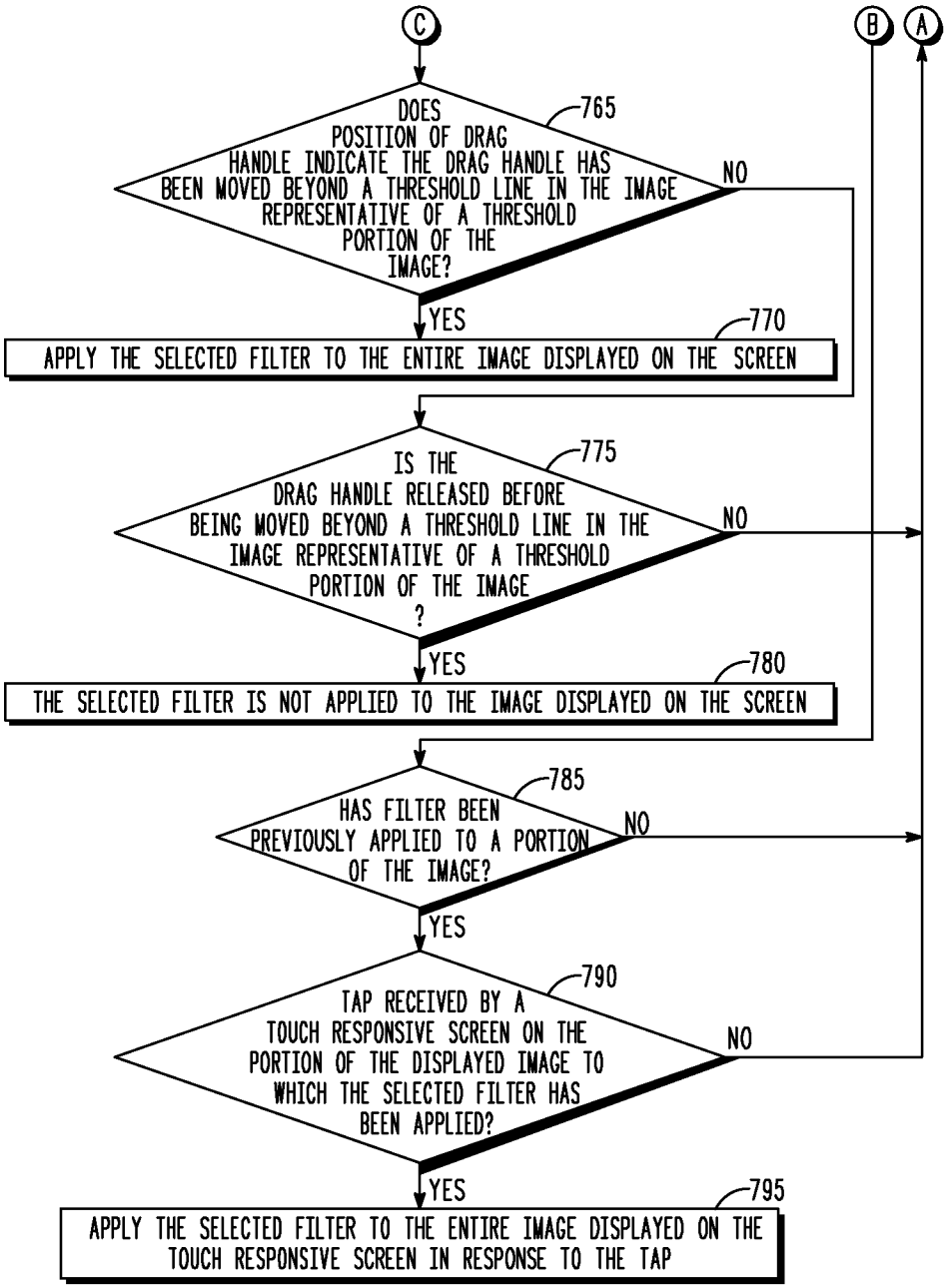

C
B
A
DOES POSITION OF DRAG HANDLE INDICATE THE DRAG HANDLE HAS BEEN MOVED BEYOND A THRESHOLD LINE IN THE IMAGE REPRESENTATIVE OF A THRESHOLD PORTION OF THE IMAGE?
765
NO
YES
APPLY THE SELECTED FILTER TO THE ENTIRE IMAGE DISPLAYED ON THE SCREEN
770
IS THE DRAG HANDLE RELEASED BEFORE BEING MOVED BEYOND A THRESHOLD LINE IN THE IMAGE REPRESENTATIVE OF A THRESHOLD PORTION OF THE IMAGE ?
775
NO
YES
THE SELECTED FILTER IS NOT APPLIED TO THE IMAGE DISPLAYED ON THE SCREEN
780
HAS FILTER BEEN PREVIOUSLY APPLIED TO A PORTION OF THE IMAGE?
785
NO
YES
TAP RECEIVED BY A TOUCH RESPONSIVE SCREEN ON THE PORTION OF THE DISPLAYED IMAGE TO WHICH THE SELECTED FILTER HAS BEEN APPLIED?
790
NO
YES
APPLY THE SELECTED FILTER TO THE ENTIRE IMAGE DISPLAYED ON THE TOUCH RESPONSIVE SCREEN IN RESPONSE TO THE TAP
795

FIG. 7B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2013/050149

A. CLASSIFICATION OF SUBJECT MATTER

IPC: ***G06T 5/00*** (2006.01) , ***G06F 3/0484*** (2013.01) , ***G06F 3/0488*** (2013.01) , ***G06T 11/60*** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: G06T 5/00 (2006.01) , G06F 3/0484 (2013.01) , G06F 3/0488 (2013.01) , G06T 11/60 (2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

Databases: Epoque™, Google Scholar™, Google™

Keywords: image editing, mobile phone, screen, drag, filter, mask, sliding

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 2,128,823 A1 (Cho et al.) 02 December 2009 (02-12-2009)	
A	US 2010/0171712 A1 (Cieplinski et al.) 08 July 2010 (08-07-2010)	
A	US 2011/0185297 A1 (Reid et al.) 28 July 2011 (28-07-2011)	

[ ] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 May 2013 (21-05-2013)	22 May 2013 (22-05-2013)

Name and mailing address of the ISA/CA	Authorized officer
Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001-819-953-2476	Liang Ji (819) 934-6241

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CA2013/050149

Patent Document Cited in Search Report	Publicatio Date	Patent Family Member(s)	Publication Date
EP2128823A1	02 December 2009 (02-12-2009)	KR20090122805A	01 December 2009 (01-12-2009)
		KR20090122806A	01 December 2009 (01-12-2009)
		KR20090126887A	09 December 2009 (01-12-2009)
		US8363019B2	29 January 2013 (29-01-2013)
		US2009303199A1	10 December 2009(10-12-2009)
US2010171712A1	08 July 2010 (08-07-2010)	None	
US2011185297A1	28 July 2011 (28-07-2011)	US8209632B2	26 June 2012 (26-06-2012)