

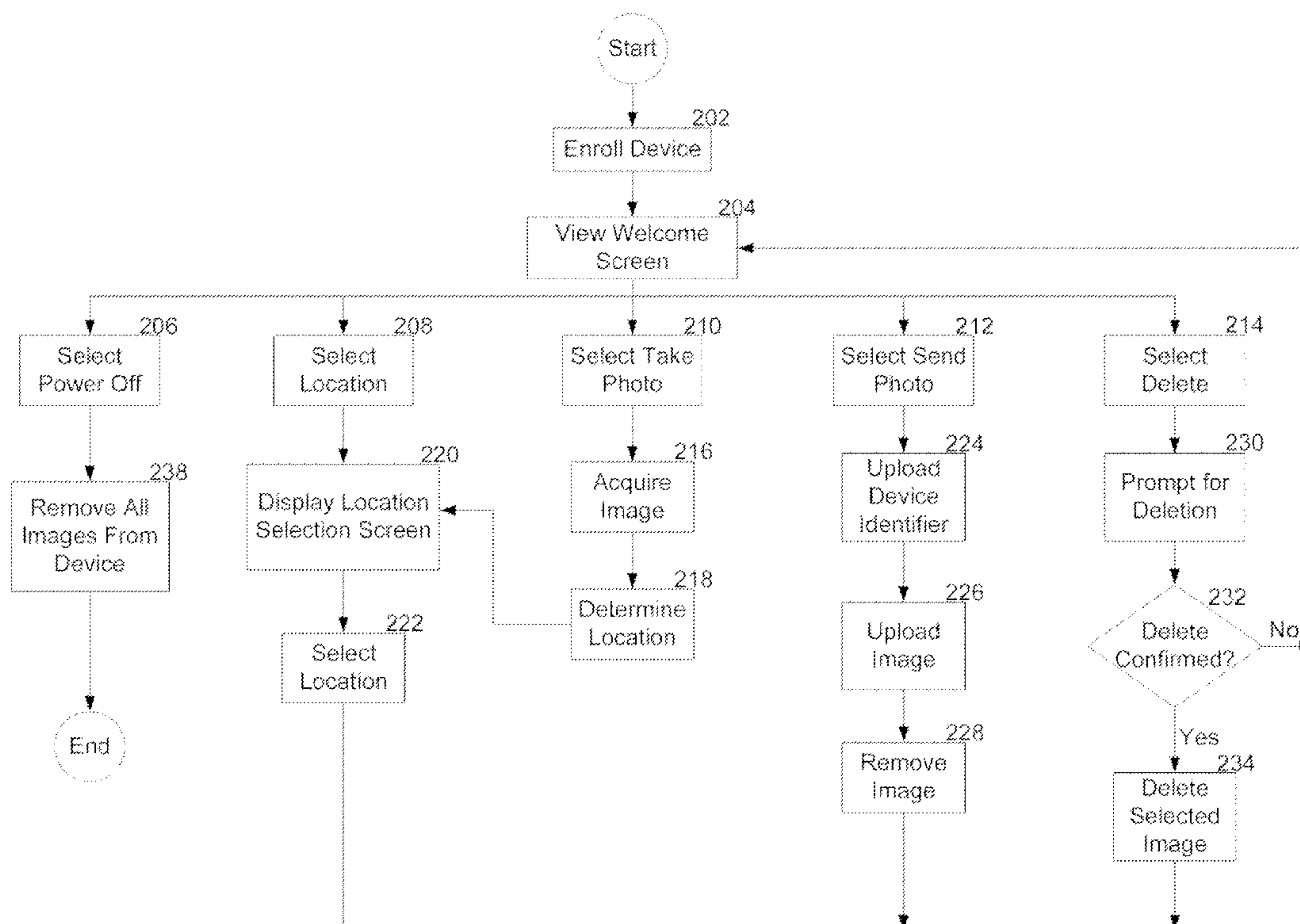


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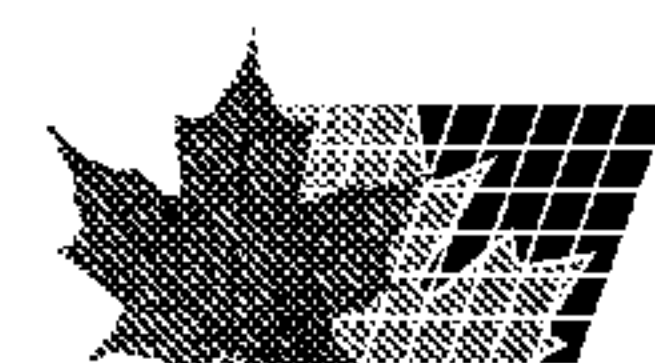
(54) Titre : DISPOSITIF DE CAPTURE D'IMAGE MOBILE POUR LE TRAITEMENT DE BLESSURES
(54) Title: WOUND MANAGEMENT MOBILE IMAGE CAPTURE DEVICE

FIGURE 2



(57) **Abrégé/Abstract:**

A mobile device and method for capturing and transmitting medical images. The mobile device includes a camera component configured to acquire an image, a communications interface configured to establish an operable connection to a server, and a



(57) **Abrégé(suite)/Abstract(continued):**

processing device operably connected to the camera component and the communications interface. The processing device is configured perform the method of capturing and transmitting the medical images, the method including causing the camera component to acquire an image of a wound on a patient's body, receiving location information associated with the acquired image, wherein the location information indicates where on the patient's body the wound is located, and transmitting, in response to a user request, the acquired image and location information to the server via the communications interface.

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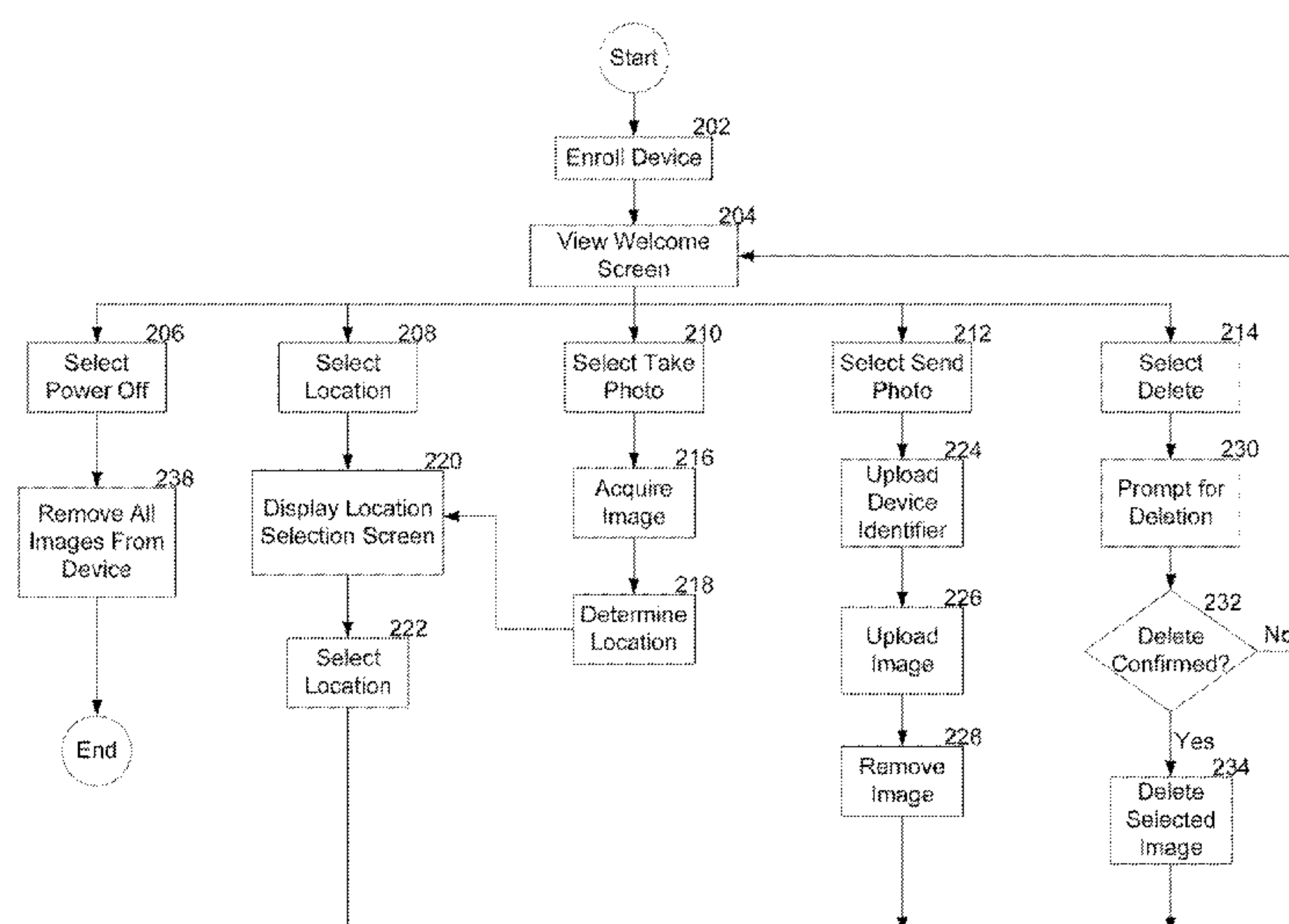
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FIGURE 2



(57) Abstract: A mobile device and method for capturing and transmitting medical images. The mobile device includes a camera component configured to acquire an image, a communications interface configured to establish an operable connection to a server, and a processing device operably connected to the camera component and the communications interface. The processing device is configured perform the method of capturing and transmitting the medical images, the method including causing the camera component to acquire an image of a wound on a patient's body, receiving location information associated with the acquired image, wherein the location information indicates where on the patient's body the wound is located, and transmitting, in response to a user request, the acquired image and location information to the server via the communications interface.

WOUND MANAGEMENT MOBILE IMAGE CAPTURE DEVICE

RELATED APPLICATION AND CLAIM OF PRIORITY

[0001] This application claims the priority benefit of U.S. Provisional Application No. 61/391,959 entitled “Wound Management Mobile Image Capture Device” filed October 11, 2010, and U.S. Patent Application No. 13/270,586 entitled “Wound Management Mobile Image Capture Device,” each of which is hereby incorporated by reference in its entirety.

BACKGROUND

[0002] Recent advances in medical imaging technology have allowed medical professionals to collaborate on more projects than were previously possible. For example, a doctor in Europe can quickly forward an image to a doctor in the United States for review and evaluation. However, image capture, processing, and review devices for medical images are typically costly devices that require a major financial investment.

[0003] Portable devices have become more prominent in the medical field as well. A doctor may carry around a notebook computer, tablet computer, personal digital assistant (PDA) or other similar device to access and review medical images. However, the software programs run on these devices to access and review images are generally complicated and require training or repeated use to become proficient.

[0004] The cost and complexity of capturing, storing, transmitting and evaluating medical images have limited the use of medical image capturing to those working in the medical fields, specifically to those working in medical facilities where secure image capture devices are available. The cost and complexity have generally prevented the technology from expanding beyond typical use in medical facilities to use by patients at their homes,

caregivers providing homecare to patients, and in-patient and out-patient treatment facilities and providers.

SUMMARY OF THE INVENTION

[0005] This disclosure is not limited to the particular systems, devices and methods described, as these may vary. The terminology used in the description is for the purpose of describing the particular versions or embodiments only, and is not intended to limit the scope.

[0006] As used in this document, the singular forms “a,” “an,” and “the” include plural references unless the context clearly dictates otherwise. Unless defined otherwise, all technical and scientific terms used herein have the same meanings as commonly understood by one of ordinary skill in the art. Nothing in this document is to be construed as an admission that the embodiments described in this document are not entitled to antedate such disclosure by virtue of prior invention. As used in this document, the term “comprising” means “including, but not limited to.”

[0007] In one general respect, the embodiments disclose a method of acquiring and transmitting an image from a mobile device to a server. The method includes acquiring, via a camera component of the mobile device, an image of a wound on a patient’s body; receiving, by a processing device operably connected to the camera component, location information associated with the acquired image, wherein the location information indicates where on the patient’s body the wound is located; and transmitting, in response to a user request, the acquired image and location information to the server via a communications interface operably connected to the processing device.

[0008] In another general respect, the embodiments disclose a mobile device for capturing and transmitting medical images. The mobile device includes a camera component configured to acquire an image, a communications interface configured to establish an

operable connection to a server, and a processing device operably connected to the camera component and the communications interface. The processing device is configured to cause the camera component to acquire an image of a wound on a patient's body, receive location information associated with the acquired image, wherein the location information indicates where on the patient's body the wound is located, and transmit, in response to a user request, the acquired image and location information to the server via the communications interface.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 illustrates an exemplary data transfer network for using an exemplary image capture device according to an embodiment.

[0010] FIG. 2 illustrates an exemplary process for enrolling a patient, acquiring and uploading a wound image from a mobile image capture device to a secure server according to an embodiment.

[0011] FIGS. 3a-3g illustrate exemplary screenshots of an exemplary mobile image capture device running a software application for performing the exemplary image capture process of FIG. 2.

[0012] FIG. 4 illustrates an exemplary process for registering a new patient and using an image capture device in a homecare environment according to an embodiment.

[0013] FIGS. 5a-5g illustrate exemplary screenshots of an exemplary mobile image capture device running a software application for performing the exemplary process of FIG. 4.

[0014] FIG. 6 illustrates an embodiment of a computing device for implementing the various methods and processes described herein.

DETAILED DESCRIPTION

[0015] As used in this document, the terms “image” or “medical image” refer to an image of a wound, scar, burn, mole, growth, anomaly, or other similar malady of a bodily area of medical concern of a patient for review and evaluation by a medical professional.

[0016] “Mobile device” refers to any portable computing device capable of connecting to a communications network for the purposes of transmitting and receiving data. Examples of mobile devices include, but are not limited to, notebook computers, netbook computers, tablet computers, personal digital assistants (PDAs), cellular telephones, smartphones (i.e., a cellular telephone with an integrate mobile operating system incorporating additional features beyond those of a standard cellular telephone), and other similar devices.

[0017] An “image capture device” refers to a camera or photo sensor configured to transfer a captured image of an object to a computer readable memory device. As used herein, an image capture device will generally refer to a digital image capture device unless otherwise specified. Additionally, an image capture device will generally be integrated into a mobile and wireless digital device unless otherwise specified.

[0018] The present invention relates to a mobile device including software for capturing a medical image, defining a location of the medical image, and uploading the medical image from the mobile device to a secure server for plametric measurement, review and evaluation by a medical professional. The mobile device may be used by a patient or caregiver to capture and define the medical images so that repeated trips to a doctor’s office are avoided for routine check-ups for a healing wound or other area of concern. The mobile device provides a portable means for documenting a patient’s wound care.

[0019] The medical mobile device, such as a smartphone, may be owned by the patient. A medical professional, caregiver or medical provider may install appropriate software such as a downloadable application onto the patient's mobile device and review the software with the patient, including the steps followed to capture, define and upload a medical image. Then, the patient may capture medical images in their own home, forwarding the images to their doctor or other medical professional, and receive information related to the area of concern without the added inconvenience of going to the doctor's office, thereby saving time and expense. An exemplary process and application interface for such a device is discussed below with respect to FIGS. 2 and 3a-3g.

[0020] Similarly, an in-home caregiver may have a single mobile device including a similar application for use with multiple patients for whom the caregiver is providing treatment. The caregiver's mobile device may allow the caregiver to access a patient's record and capture and upload additional images associated with that specific patient's record. An exemplary process and application interface for a caregiver's mobile device is discussed below with respect to FIGS. 4 and 5a-5g.

[0021] FIG. 1 illustrates an exemplary data network **100**. The network **100** may include a plurality of mobile devices **105a**, **105b** and **105c**. The mobile devices **105a**, **105b** and **105c** may be operably connected to a network **110** via a wireless connection. The network **110** may be a local area network, such as an intranet, or a wide area network, such as the Internet. The mobile devices **105a**, **105b** and **105c** may be operably connected to the network **110** via a standard wireless connection, such as Wi-Fi (e.g., via IEEE standard 802.11n). Alternatively, the mobile devices **105a**, **105b** and **105c** may be connected to the network **110** via a cellular wireless data standard, such as a 3G data connection.

[0022] The network **110** may be operably connected to a second network **120** via a firewall **115**. The second network may be a secure local area network, such as a hospital

intranet, and thus require the security provided by the firewall. Multiple workstations **125a**, **125b** and **125c** may be operably connected to the network **120**. Additionally, a back-end **130** may be operably connected to the network **120**. The back-end **130** may include one or more database servers **135** operably connected to one or more application servers **140**. The back-end **130** may be configured to interact with the mobile devices **105a**, **105b** and **105c** to allow for patient identification and image capture/uploading via the mobile devices. The back-end **130** may be further configured to interact with the workstations **125a**, **125b** and **125c** to allow for a user of the workstations to access patient related information stored on the database server **135**. The function of the various devices as shown in FIG. 1, including the interaction between the mobile devices **105a**, **105b** and **105c** and the back-end **130**, is discussed in greater detail with respect to FIGS. 2-6.

[0023] It should be noted the arrangement and number of components as shown in FIG. 1 is shown by way of example only. Additional configurations of components may be used depending on the configuration and intended application of the network **100**.

[0024] FIGS. 2 and 3a-3g will be alternatively discussed to illustrate a first exemplary embodiment of the present disclosure. FIG. 2 illustrates an exemplary process that may be performed such that a patient can capture, define, review and upload one or more medical images from a mobile device (e.g., one of mobile devices **105a**, **105b** and **105c** as shown in FIG. 1) to a secure server (e.g., application server **140** as shown in FIG. 1) for review and evaluation by a medical professional via a secure workstation (e.g., one or workstations **125a**, **125b** and **125c** as shown in FIG. 1) operably connected to the server.

[0025] When a mobile device is issued or otherwise configured for a patient's use, the patient and associated information may be enrolled **202**. Enrollment **202** may include creating a digital patient record including vital information related to the patient. Enrollment **202** may further include associating a mobile device identification (ID) number with the

patient's record. The patient may then access a dedicated application installed on the mobile device to acquire and upload digital images to the secure server. Specifically, the patient may use the dedicated application to acquire and upload wound images for recording a wound care management process the patient is following.

[0026] When the mobile device is initialized, the software may display **204** a welcome screen where the patient can view **204** various function buttons to select a function to perform. FIG. 3a shows an exemplary screenshot of the welcome screen as viewed **102** upon initialization of the mobile device **300**. As shown in FIG. 3A, no medical images have yet been captured and thus, there are no thumbnails to view. Rather, the screen **305** provides a welcome and an instruction to take a photo.

[0027] The initial screen may include options for the patient to select **206** power off, select **208** location, select **210** take photo, select **212** send photo, and select **214** delete. As shown in FIG. 3a, upon initialization, the button **310** for selecting **204** power off may be selectable along with the button **315** for selecting **210** take photo. The other buttons may be grayed out and inaccessible.

[0028] The patient may select **210** take photo by pressing button **315**. Selecting **210** take photo may cause the software application to enter photo acquisition mode as shown in FIG. 3b. In this mode, the layout of the software application may shift to landscape mode, thus prompting the patient to rotate the mobile device **300** such that the mobile device is situated like a traditional camera. The software may display a screen **320** showing what is being captured by the camera component of the mobile device **300**. A focus icon **325** may be included for centering the image on the area of concern. The patient may acquire **216** the image by pressing the acquire image button **330** on the mobile device **300**. When the patient pushes the acquire image button **330**, the camera component of the mobile device **300** may perform various functions depending on its capabilities. For example, the camera component

may auto-focus, stabilize the image, detect surrounding light levels and, if the light levels are too low, produce a flash.

[0029] In accordance with a doctor's instructions, the patient may include a measuring device in the image to provide a reference as to the scale of the image being acquired **216**. For example, as shown in FIG. 3b, a ruler is included in the image. The measuring device may provide a medical professional analyzing the captured image a reference object to gauge the size of the wound or area of concern being photographed. The medical professional may then be able to calibrate the captured medical image on their display device based upon the measuring device such that they are looking at a life-sized view of the medical image. It should be noted that the measuring device is shown in FIG. 3B as a ruler for exemplary purposes only. Additional measuring devices with a known set of dimensions, such as a coin, may additionally or alternatively be used. Similarly, a color swatch may be used to provide a color calibration feature.

[0030] After the patient acquires **216** the medical image, the software may prompt, via textual and visual prompting, the patient to determine **218** a location of where on the patient's body the image was acquired **216** from. The mobile device may display **220** a location selection screen. An exemplary location selection screen is shown in FIG. 3c. From the location selection screen, the patient may select **222** a location indicating where the image was acquired **216** from. A screen **335** may be displayed on the mobile device **300** including an avatar of a human body. Multiple views of the avatar may be cycled through by selecting one of the directional buttons **340**. For example, the patient may view the avatar from the front, right, back or left. Each individual view may be divided into multiple regions of interest **345**. The patient may select **222** one of the specific regions of interest **345**, thereby indicating where on their body the image was acquired **216** from. The patient may exit the location screen by selecting a save button **350**.

[0031] After selecting **222** a location, the software application may return to the welcome screen **204**. FIG. 3d illustrates an exemplary view of the screen **305** including the acquired **216** image. Here, additional buttons are available to select, including button **355** for selecting **212** to send the photo, button **360** for selecting **214** to delete the image, and button **365** to select **208** the location. If the patient selects button **365** for selecting **208** the location of the image, the process is identical to the above-discussed process for displaying **220** the location select screen and selecting **222** a location. A patient may select **208** the location again if they previously entered the location of the image incorrectly.

[0032] The patient may select **212** to send the acquired **216** photo. If not already connected, the mobile device **300** may establish a wireless network connection with the application server and initiate the uploading process. As shown in FIG. 3e, the screen **305** may indicate the upload is in progress. The upload process may include uploading **224** a device identifier. As discussed above, during enrollment **202**, a patient's record may be associated with a specific device identifier, thereby linking the patient's record with the mobile device **300** assigned to the patient. During the upload process, the mobile device **300** uploads **224** the device identifier. The application server receives the identifier and, based upon this information, identifies the patient's record associated with the image to be uploaded. The image is then uploaded **226** to the application server. Additionally, information specific to the image being uploaded **226** may be uploaded as well. For example, information related to the location of the wound included in the image, date and timestamp information, and other related information to the acquisition **216** of the image may be uploaded to the application server as well.

[0033] Depending on the configuration of the mobile device **300** and the application server, one or more encryption techniques may be used to ensure the image is securely transmitted. Additionally, HIPAA regulations may require a particular encryption/decryption

technique be used. Once the image is uploaded **226**, the image may be removed **228** from the mobile device **300** for additional patient security. FIG. 3f illustrates an exemplary view showing screen **305** of the mobile device **300** confirming the image was uploaded **226** successfully.

[0034] The patient may also select **214** to delete an acquired **216** image. The patient may be prompted **230** to confirm that he wishes to delete an image. If the software application determines **232** the patient has selected to delete the image, the image is deleted **234** from the mobile device **300** and the software returns to the welcome screen **202**. If the software determines **232** the patient does not wish to delete an image, the software returns to the welcome screen **202** where the patient may select another option for processing the acquired **216** image. FIG. 3g illustrates an exemplary view of mobile device **300** where a prompt **370** is displayed on screen **305**, requesting the patient confirm deletion of the image.

[0035] The patient may also select **206** to power off the mobile device **300**. Upon selecting **206** to power off, any images captured by the device may be deleted **238** and the application ends.

[0036] It should be noted the process as discussed above is shown by way of example only and may be modified. For example, a feature may be incorporated where after a set amount of time after an image is acquired **216** (e.g., 2 minutes), the image may be automatically uploaded **226** to the secured server. Similarly, the patient may only be prompted to determine **218** a location of the image the first time the patient uses the mobile device. The mobile device may then default to that location for each additional image acquired **216**.

[0037] After the image is uploaded **226**, a user at one of the workstations may access the back-end (e.g., back-end **130**) to view and analyze the wound images. Analysis may include determining the size of the wound, measuring growth or deterioration of healthy

tissue, tracing an outline of the wound and performing planimetric measuring of the surface area of the wound, and other similar analysis techniques.

[0038] Additional safety features may be implemented into the software application to protect the personal information of the patient. For example, if the mobile device enters a sleep mode, or otherwise is inactive for a period of time (e.g., 10 minutes), an acquired image stored on the device may be deleted. Additionally, a user name/password security feature may be implemented into the software, thereby requiring a patient log on to access the software application.

[0039] FIGS. 4 and 5a-5g will be alternatively discussed to illustrate a second exemplary embodiment of the present disclosure. FIG. 4 illustrates an exemplary process that may be performed such that a caregiver can capture, define, review and upload one or more medical images of a patient under the supervision of the caregiver from a mobile device (e.g., one of mobile devices **105a**, **105b** and **105c** as shown in FIG. 1) to a secure application server (e.g., application server **140** as shown in FIG. 1) for review and evaluation by a medical professional via a secure workstation (e.g., one or workstations **125a**, **125b** and **125c** as shown in FIG. 1) operably connected to the application server.

[0040] The caregiver may have an associated mobile device used by the caregiver to capture and upload wound images for multiple patients under the supervision of the caregiver. When a mobile device is issued or otherwise configured for a caregiver's use, the caregiver is assigned a username and password for logging **402** into the device. FIG. 5a illustrates an exemplary log in screen as displayed on mobile device **500**. The log in screen may include a username or ID field **505**, a password field **510**, a Power Off button **515** and a Login button **520**. The caregiver may enter their username and password into the appropriate fields **505** and **510** and select login **520** to unlock the mobile device **500** and access the application server.

[0041] Once the caregiver has accessed **402** the device, the software application may determine **404** if the caregiver is visiting a new patient or an existing patient. If the caregiver is visiting an existing patient, the caregiver may search **406** for the existing patient's record. FIG. 5b illustrates an exemplary search screen. The caregiver may enter the patient's name into fields **525** and select a search button **530**. Results **535** of the search may be displayed for selection by the caregiver.

[0042] If the patient is determined **404** to be a new patient, the caregiver may enroll **408** the new patient via the mobile device. As before, enrollment **408** may include creating a digital patient record including vital information related to the patient.

[0043] If the patient is an existing patient, the caregiver may decide **410** if the patient's wound is at a new site or an existing site already listed in the patient's record. If the site is an existing site, the caregiver can select **414** the existing site from the patient's record. As shown in FIG. 5c, a list **540** of existing sites for a patient is shown on mobile device **500**. The caregiver may also select button **545** to locate **412** a new site. Additionally, if the patient is enrolled **408** as a new patient, the caregiver may select **412** a new site as well.

[0044] FIG. 5d illustrates an exemplary screen that mobile device **500** may display if the caregiver opts to select **412** a new site. The software application may prompt, via textual and visual prompting, the caregiver to determine a location of where on the patient's body a wound being photographed is located. The mobile device **500** may display a location selection screen **550**. The location selection screen **550** may include an avatar of a human body. Multiple views of the avatar may be cycled through by selecting one of the directional buttons **550**. For example, the caregiver may view the avatar from the front, right, back or left. Each individual view may be divided into multiple regions of interest **560**. The caregiver may select the appropriate region and exit the location screen by selecting the save button **565**.

[0045] Once the caregiver has identified a site, the caregiver may take **416** a photo of the wound. FIG. 5e illustrates an exemplary view of the mobile device **500** in ready to take a photo. In this mode, the layout of the software application may shift to landscape mode, thus prompting the caregiver to rotate the mobile device **500** such that the mobile device is situated like a traditional camera. The software may display a screen **570** showing what is being captured by the camera component of the mobile device **500**. A focus icon **575** may be included for centering the image on the area of concern. The caregiver may take **416** the photo by pressing the acquire image button **580** on the mobile device **500**. When the caregiver pushes the acquire image button **580**, the camera component of the mobile device **500** may perform various functions depending on its capabilities. For example, the camera component may auto-focus, stabilize the image, detect surrounding light levels and, if the light levels are too low, produce a flash.

[0046] After taking **416** an image, the caregiver may opt to send **418** the photo to the application server or delete **422** the photo from the phone. FIG. 5f shows an exemplary screenshot of an acquired image and a send photo **585** button for sending **418** the photo securely from the mobile device to the application server. Conversely, FIG. 5g shows a screenshot of the mobile device **500** when a caregiver selects to delete a photo. Upon selecting the delete button **590**, the software application may display a prompt **595** confirming the caregiver wishes to delete the photo. The caregiver may select to delete the photo or to return to the acquired image screen (as shown in FIG. 5f). After the caregiver sends **418** a photo to the application server, the caregiver may opt **420** to take **416** another photo.

[0047] As discussed above, after a photo is sent **418**, a user at one of the workstations may access the back-end (e.g., back-end **130**) to view and analyze the wound images. Analysis may include determining the size of the wound, measuring growth or

deterioration of healthy tissue, tracing an outline of the wound and performing planimetric measuring of the surface area of the wound, and other similar analysis techniques.

[0048] FIG. 6 depicts a block diagram of exemplary internal hardware that may be incorporated into the mobile devices as discussed above. A bus **600** serves as the main information highway interconnecting the other illustrated components of the hardware. CPU **605** is the central processing unit of the system, performing calculations and logic operations required to execute a program. CPU **605**, alone or in conjunction with one or more of the other elements disclosed in FIG. 6, is an exemplary processing device, computing device or processor as such terms are used within this disclosure. Read only memory (ROM) **610** and random access memory (RAM) **615** constitute exemplary memory devices.

[0049] A controller **620** interfaces with one or more optional memory devices **625** to the system bus **600**. These memory devices **625** may include, for example, a hard drive, flash memory, or the like. Additionally, the memory devices **625** may be configured to include individual files for storing any acquired images, software modules or instructions, auxiliary data, common files for storing groups of results and related information as discussed above.

[0050] Program instructions, software or interactive modules for performing any of the functional steps associated with the software applications as discussed above may be stored in the ROM **610** and/or the RAM **615**. Optionally, the program instructions may be stored on a tangible computer readable medium such as a flash memory, a memory card and/or other recording medium.

[0051] A display interface **630** may permit information from the bus **600** to be displayed on the display **635** in audio, visual, graphic or alphanumeric format. The information may include an acquired image and other related information. Communication with external devices may occur using various communication ports **640**. An exemplary

communication port **640** may be attached to a communications network, such as the Internet or a local area network.

[0052] An input interface **645** may be operably connected to an input device **655** such as the camera component as discussed above as well as a keyboard **650**. In the mobile device as discussed above, the display **635** may also be configured to act as an input device **655** via a touch-screen interface.

[0053] It will be appreciated that various of the above-disclosed and other features and functions, or alternatives thereof, may be desirably combined into many other different systems or applications. It will also be appreciated that various presently unforeseen or unanticipated alternatives, modifications, variations or improvements therein may be subsequently made by those skilled in the art which are also intended to be encompassed by the disclosed embodiments.

CLAIMS

What is claimed is:

1. A method of acquiring and transmitting an image from a mobile device to a server,

the method comprising:

acquiring, via a camera component of the mobile device, an image of a wound on a patient's body;

receiving, by a processing device operably connected to the camera component, location information associated with the acquired image, wherein the location information indicates where on the patient's body the wound is located; and

transmitting, in response to a user request, the acquired image and location information to the server via a communications interface operably connected to the processing device.

2. The method of claim 1, further comprising associating identification information unique to the mobile device with the acquired image.

3. The method of claim 2, further comprising transmitting the identification information along with the acquired image.

4. The method of claim 1, wherein the receiving the location information further comprises:

displaying, via a display operably connected to the processing device, an image of a human body having a plurality of selectable regions of interest;

receiving a user selection of at least one of the plurality of selectable regions of interest; and

defining the location information based on the user selection.

5. The method of claim 1, further comprising enrolling a patient by associating a unique identifier associated with the mobile device to a patient's record such that any information received at the server from the mobile device is associated with the patient's record.

6. The method of claim 1, further comprising deleting an acquired image from the mobile device.

7. The method of claim 6, wherein the deleting the acquired image occurs if the acquired image is not transmitted to the server within a time period.

8. The method of claim 6, wherein the deleting the acquired image occurs in response to receiving a user request to delete the image.

9. The method of claim 6, wherein the deleting the acquired image occurs after the acquired image is transmitted to the server.

10. The method of claim 1, further comprising establishing a connection between the mobile device and the server via a cellular telephone network.

11. A mobile device for capturing and transmitting medical images, the device comprising:

a camera component configured to acquire an image;

a communications interface configured to establish an operable connection to a server; and

a processing device operably connected to the camera component and the communications interface, and configured to:

cause the camera component to acquire an image of a wound on a patient's body,

receive location information associated with the acquired image, wherein the location information indicates where on the patient's body the wound is located, and

transmit, in response to a user request, the acquired image and location information to the server via the communications interface.

12. The mobile device of claim 11, wherein the mobile device further comprises a non-transitory storage medium comprising unique identification information.

13. The mobile device of claim 12, wherein the processing device is further configured to transmit the unique identification information with the acquired image.

14. The mobile device of claim 11, wherein the mobile device further comprises a display operably connected to the processing device, and wherein the processing device is further configured to:

cause the display to display an image of a human body having a plurality of selectable regions of interest;

receive a user selection of at least one of the plurality of selectable regions of interest; and

define the location information based on the user selection.

15. The mobile device of claim 11, wherein the mobile device further comprises a non-transitory storage medium, and wherein the processing device is further configured to store the acquired image on the non-transitory storage medium.
16. The mobile device of claim 15, wherein the processing device is further configured to delete the acquired image from the mobile device.
17. The mobile device of claim 15, wherein the processing device is further configured to delete the acquired image if the acquired image is not transmitted to the server within a time period.
18. The mobile device of claim 15, wherein the processing device is further configured to delete the acquired image in response to receiving a user request to delete the image.
19. The mobile device of claim 15, wherein the processing device is further configured to delete the acquired image after the acquired image is transmitted to the server.
20. The mobile device of claim 11, wherein the operable connection between the communications interface and the server comprises a cellular telephone network.

FIGURE 1

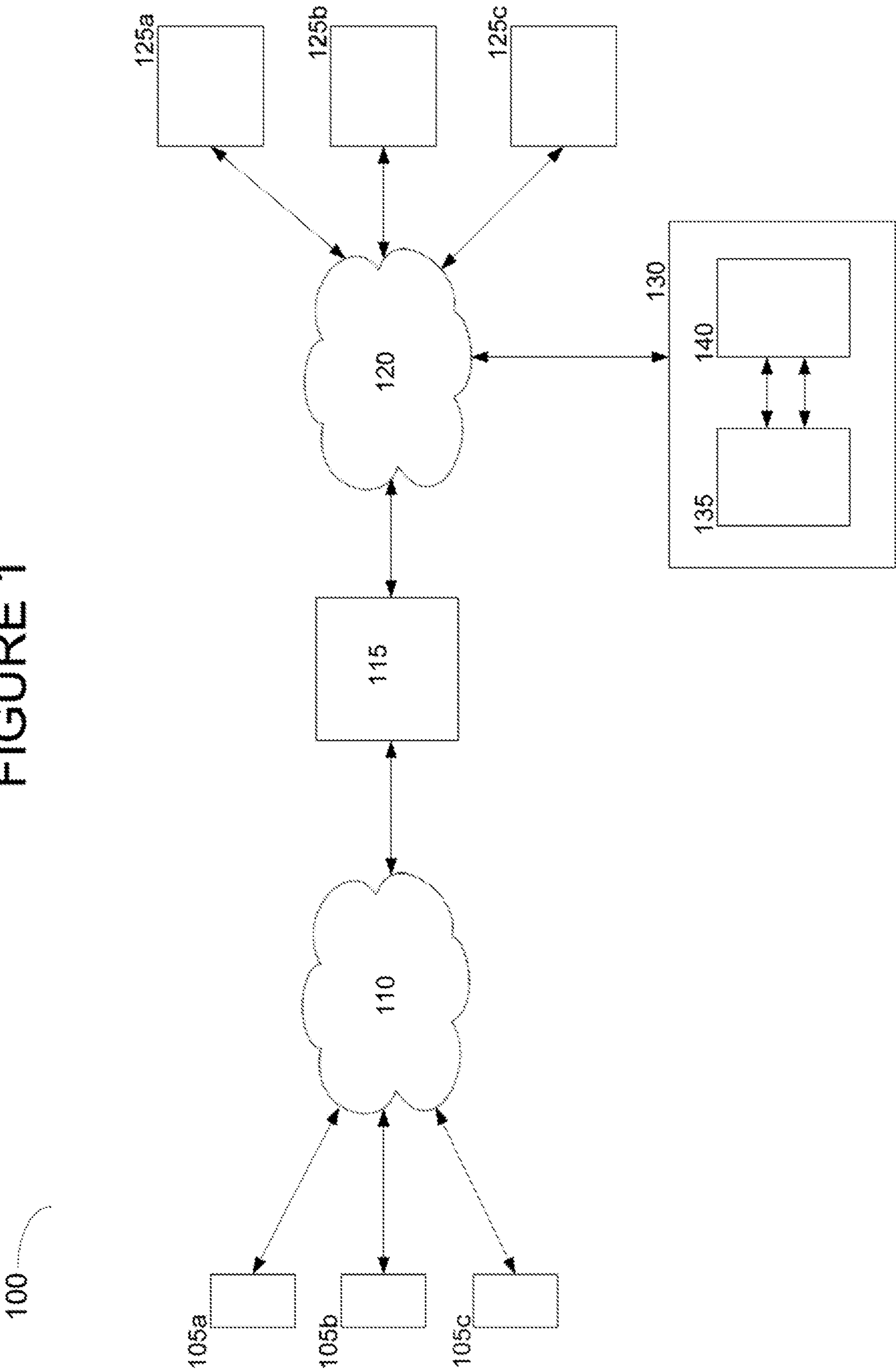


FIGURE 2

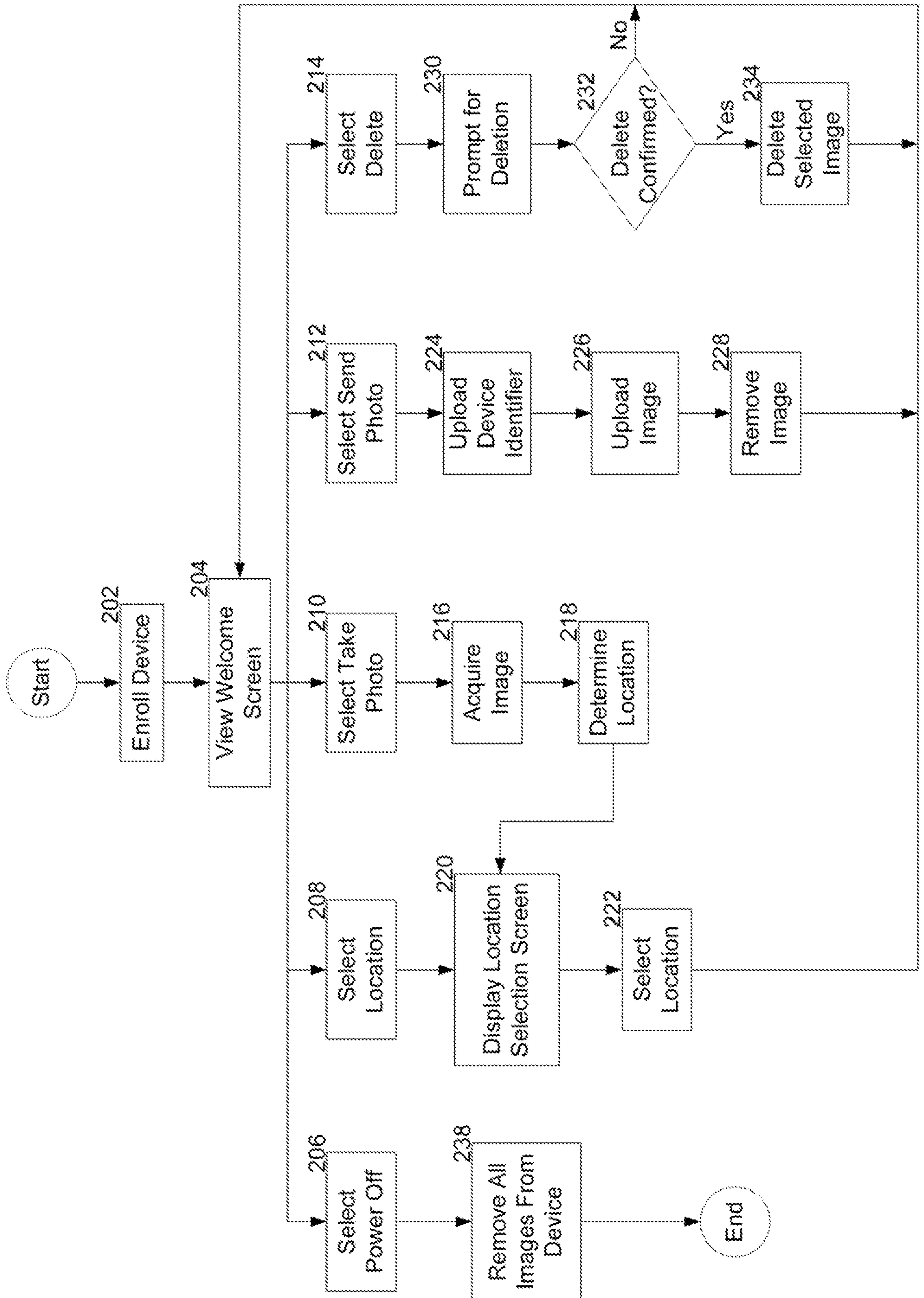


FIGURE 3a

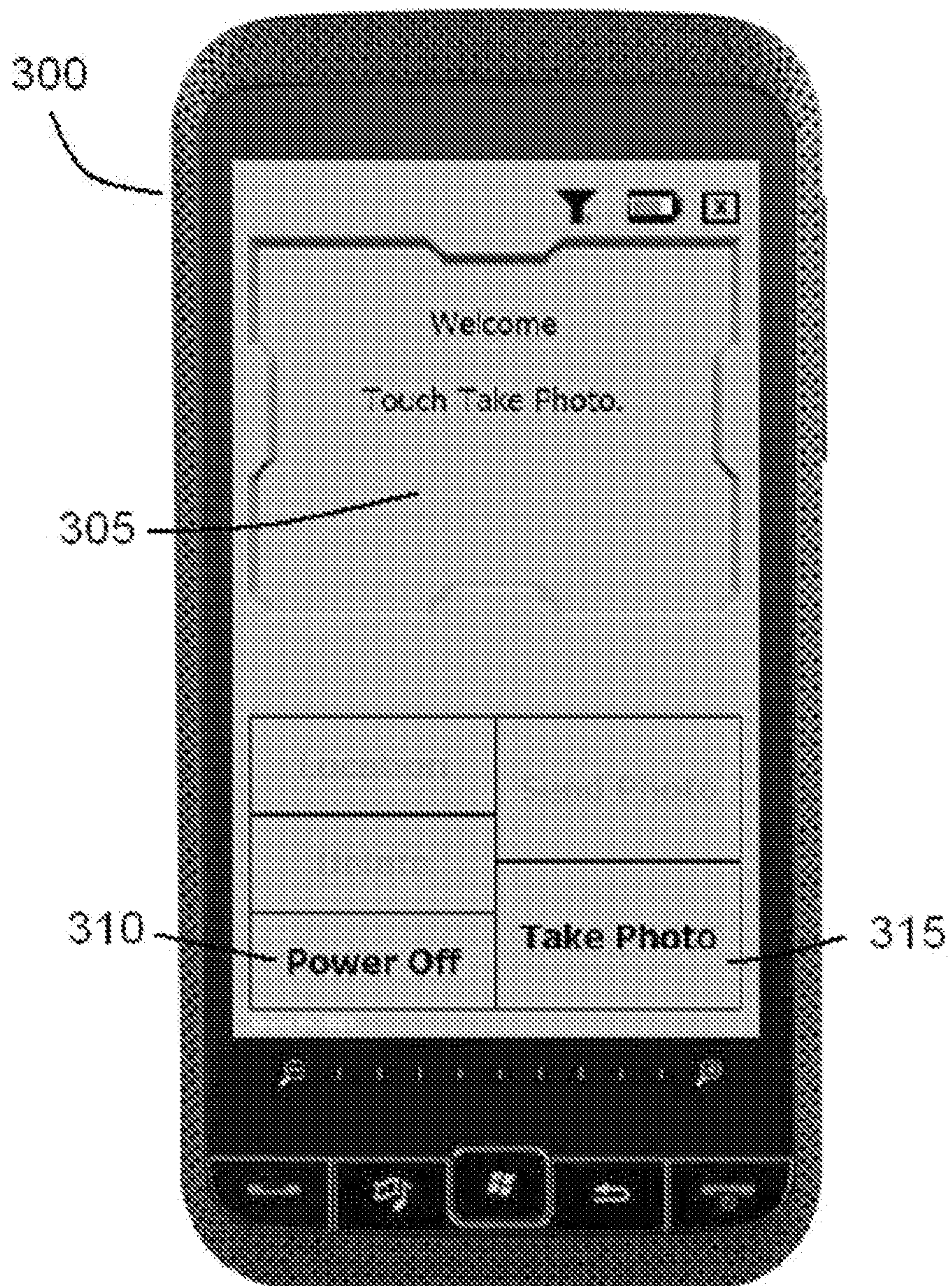


FIGURE 3b

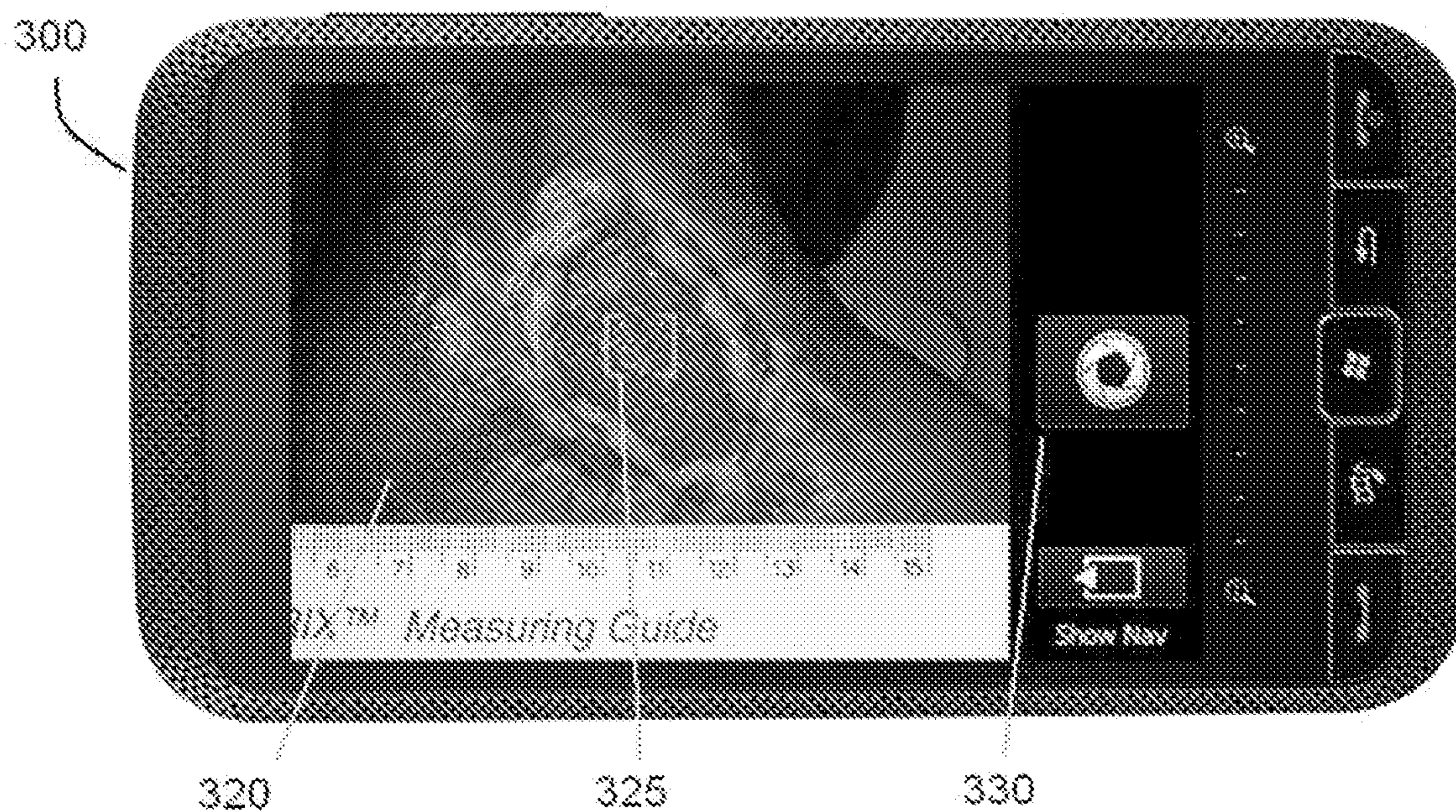


FIGURE 3c

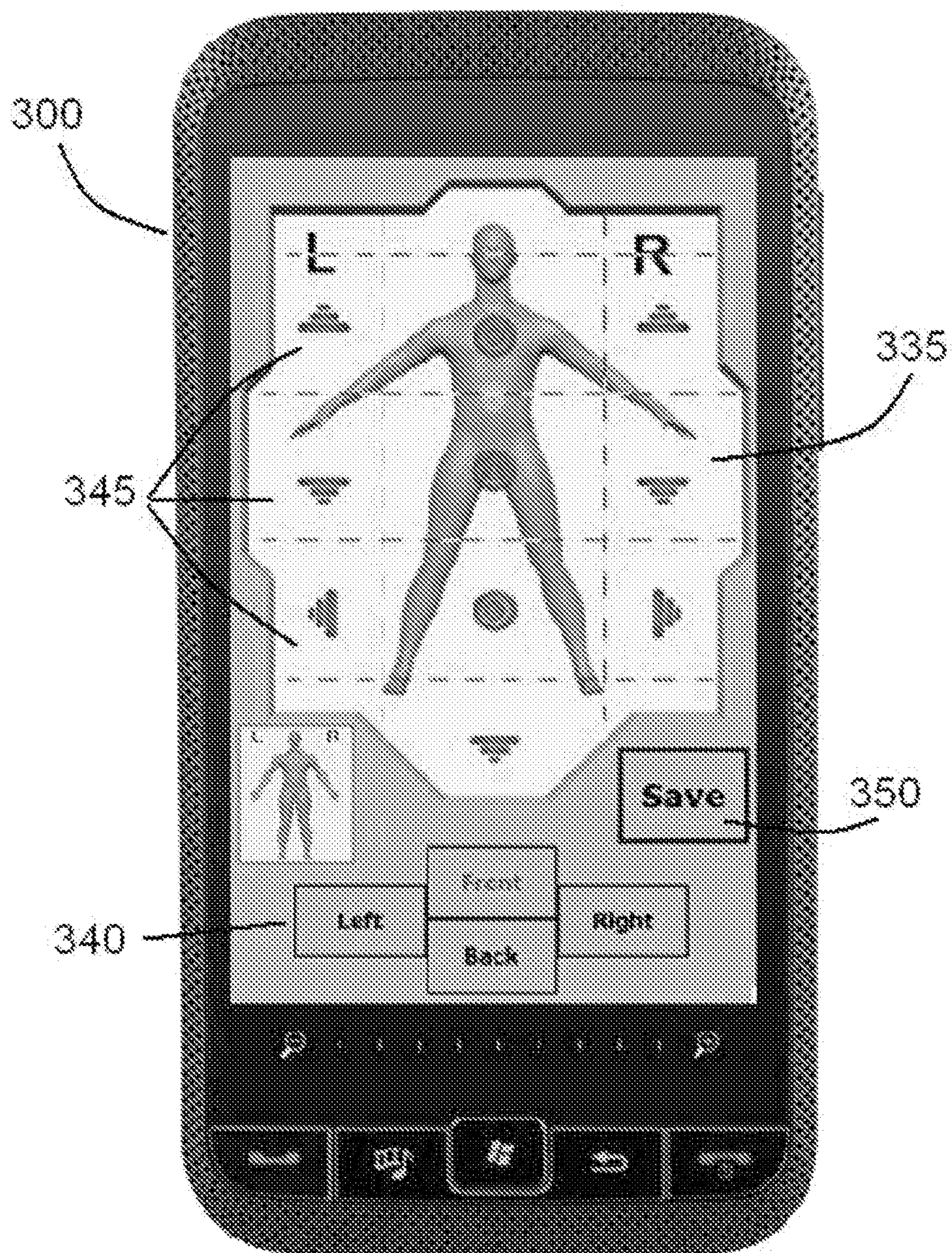


FIGURE 3d



FIGURE 3e

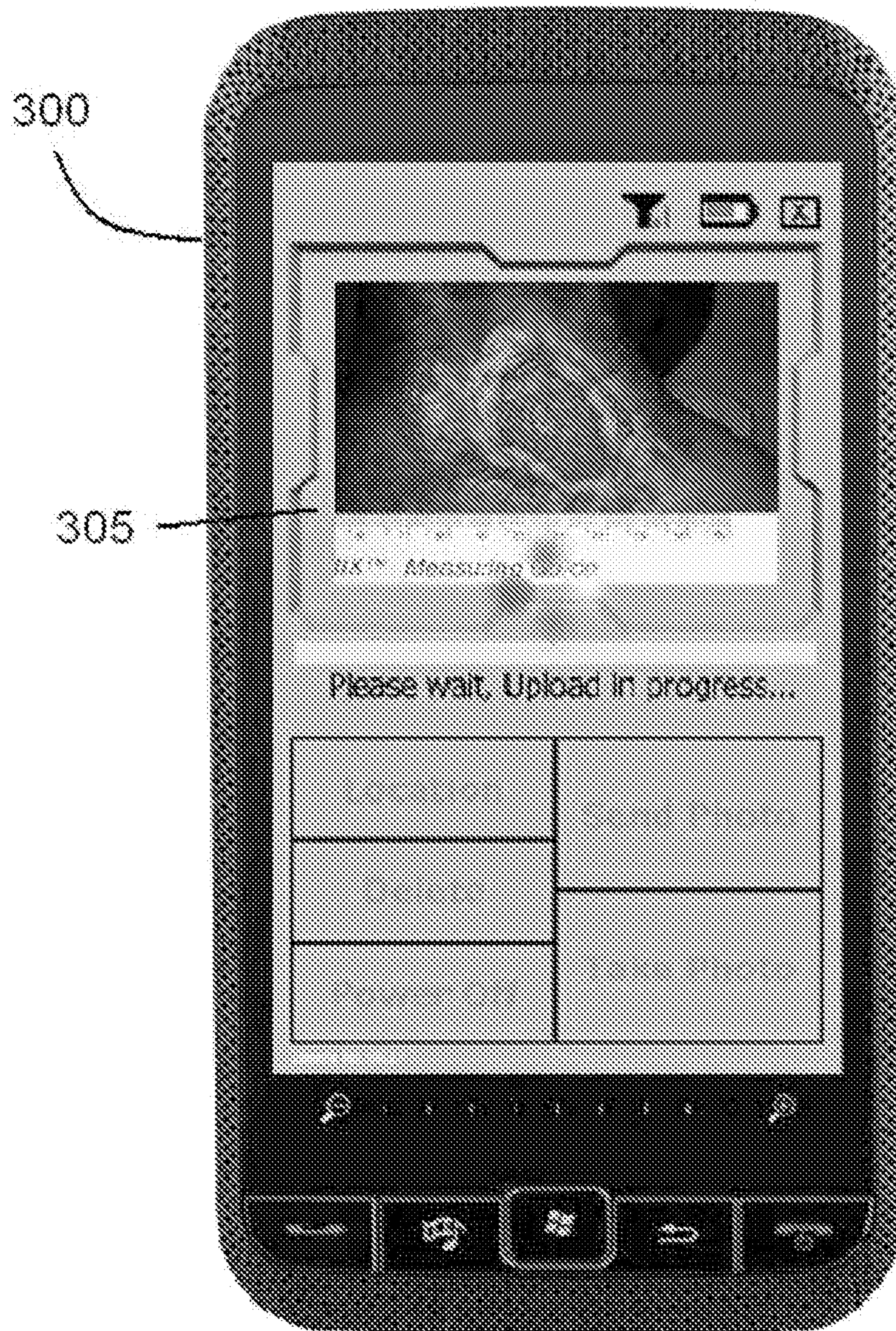


FIGURE 3f



FIGURE 3g

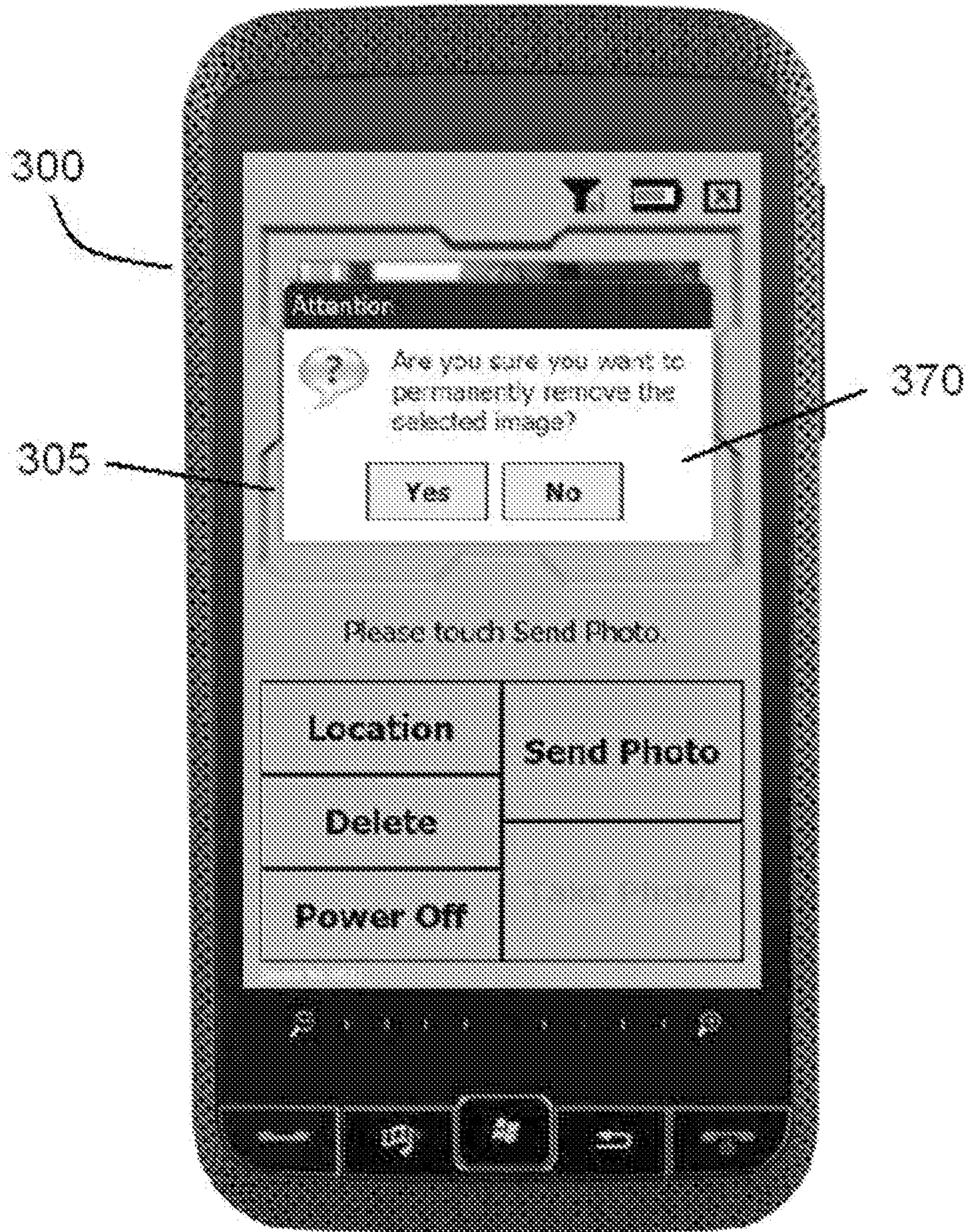


FIGURE 4

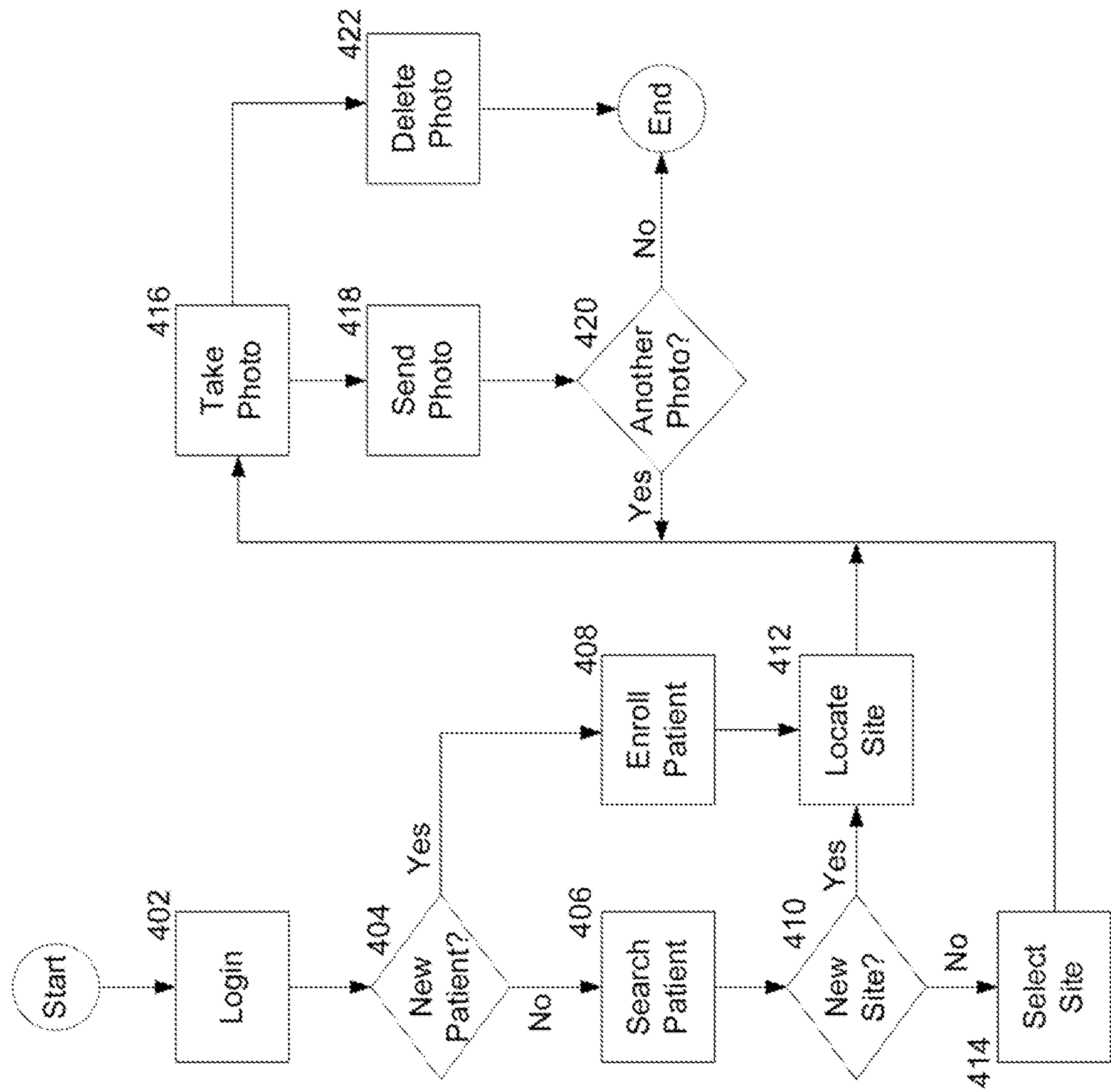


FIGURE 5a

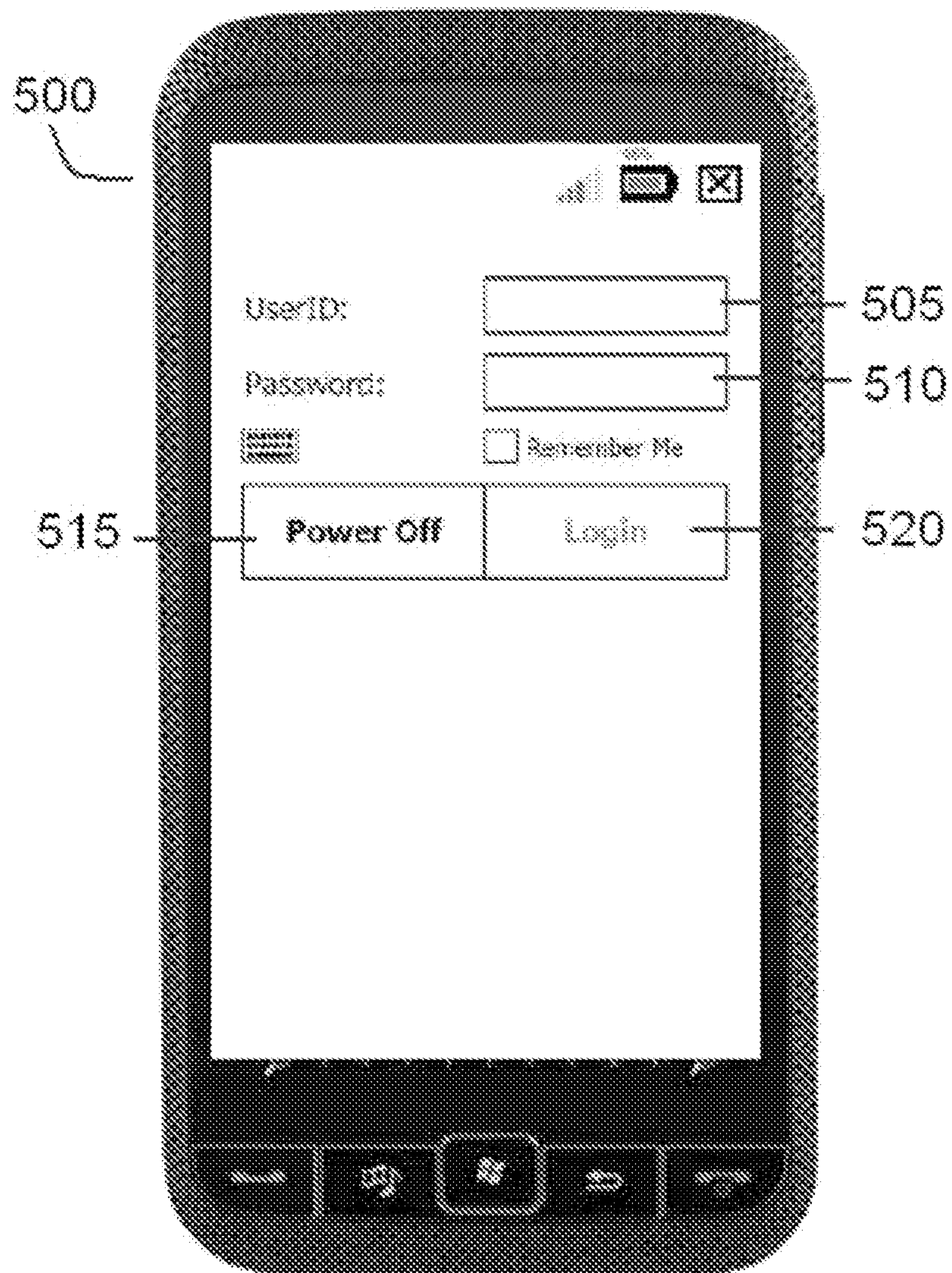


Figure 5b

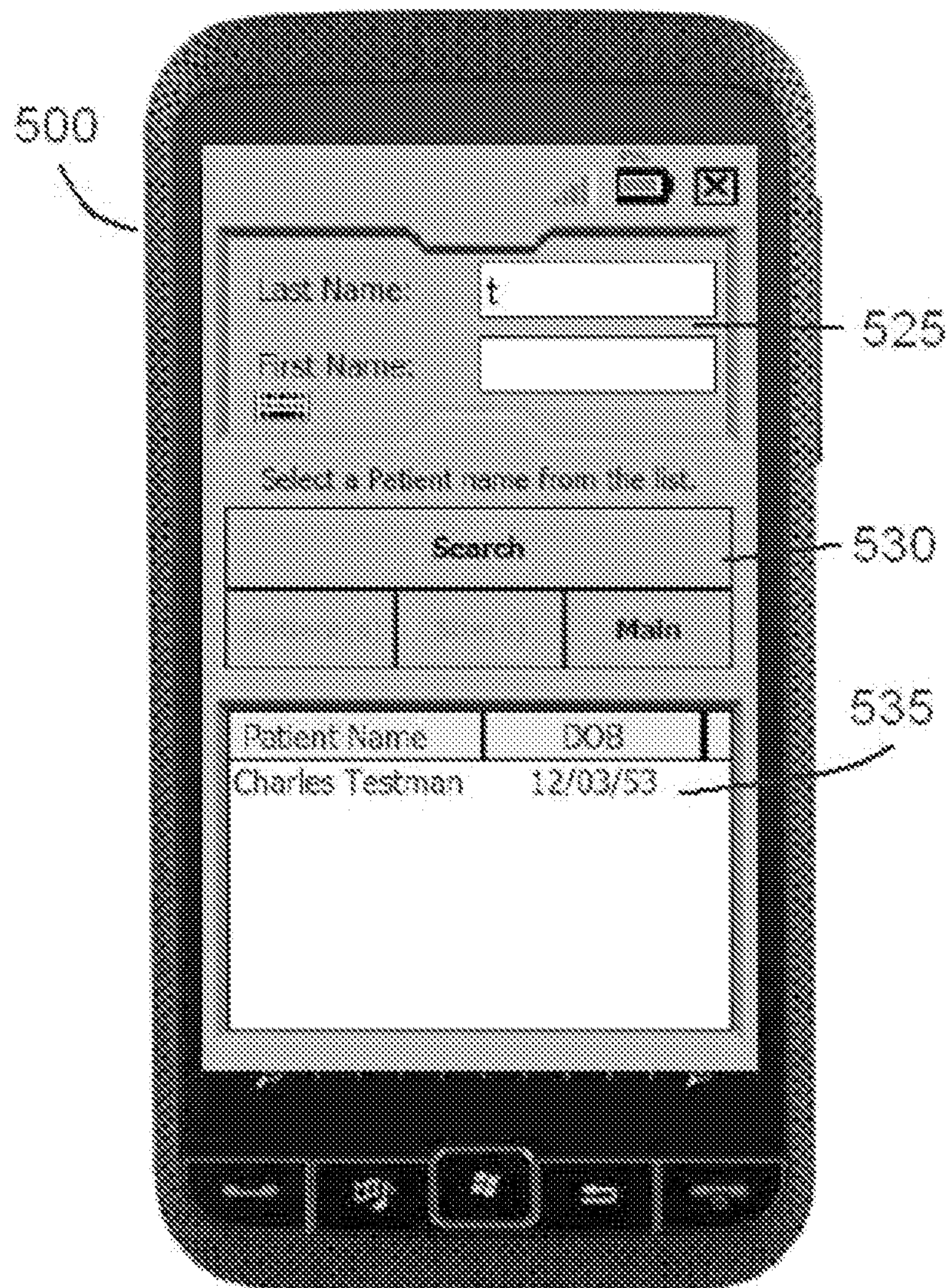


FIGURE 5c

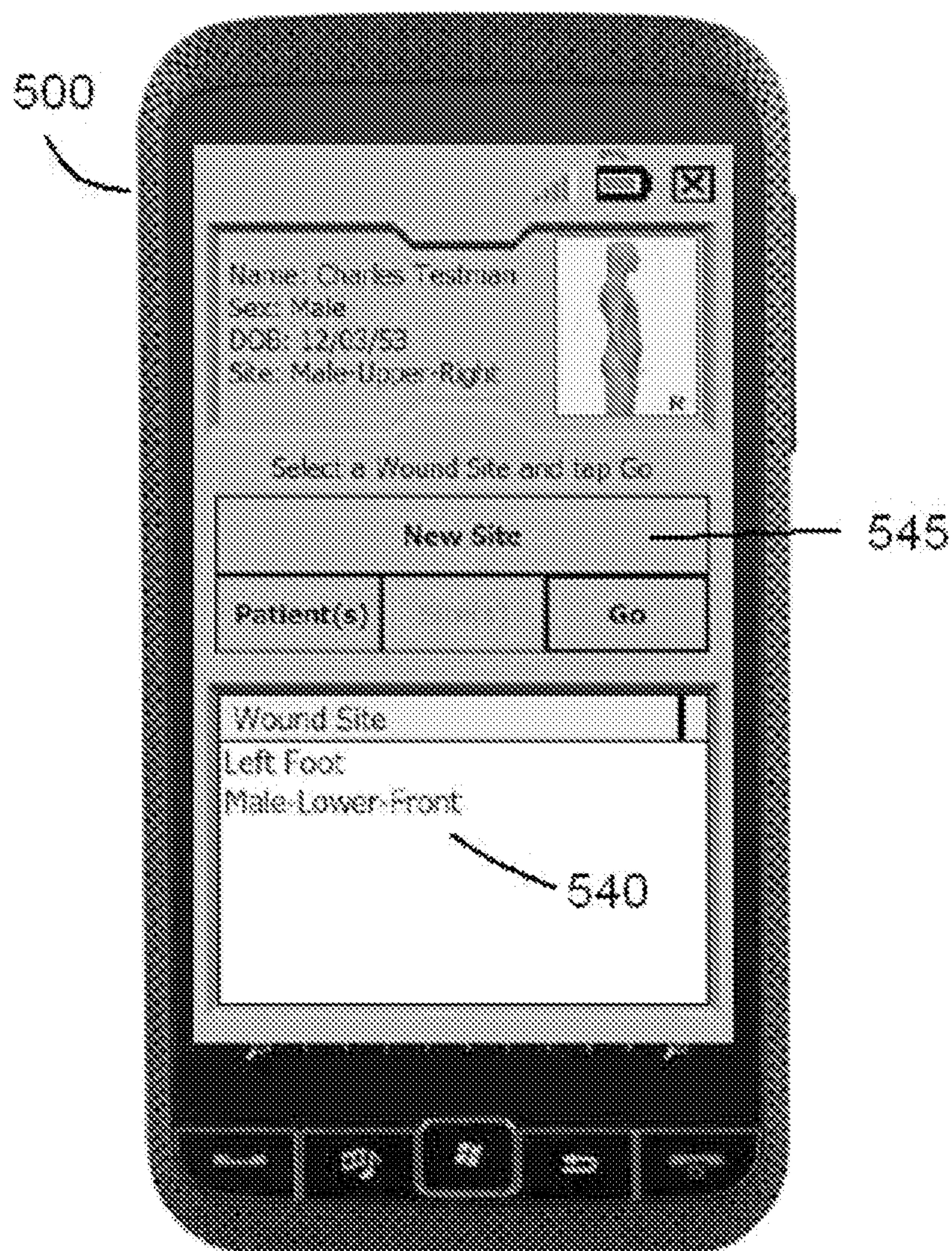


FIGURE 5d

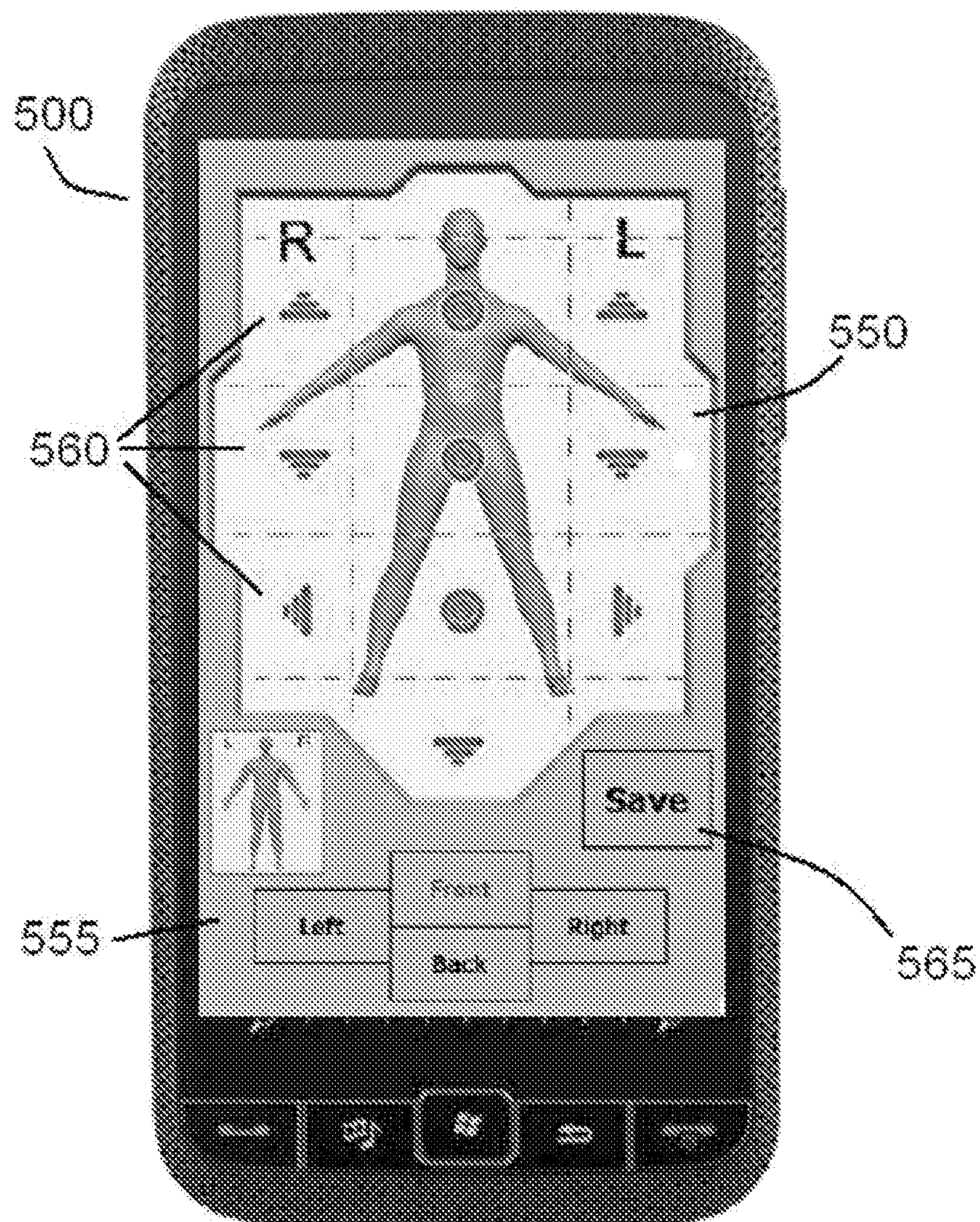


FIGURE 5e

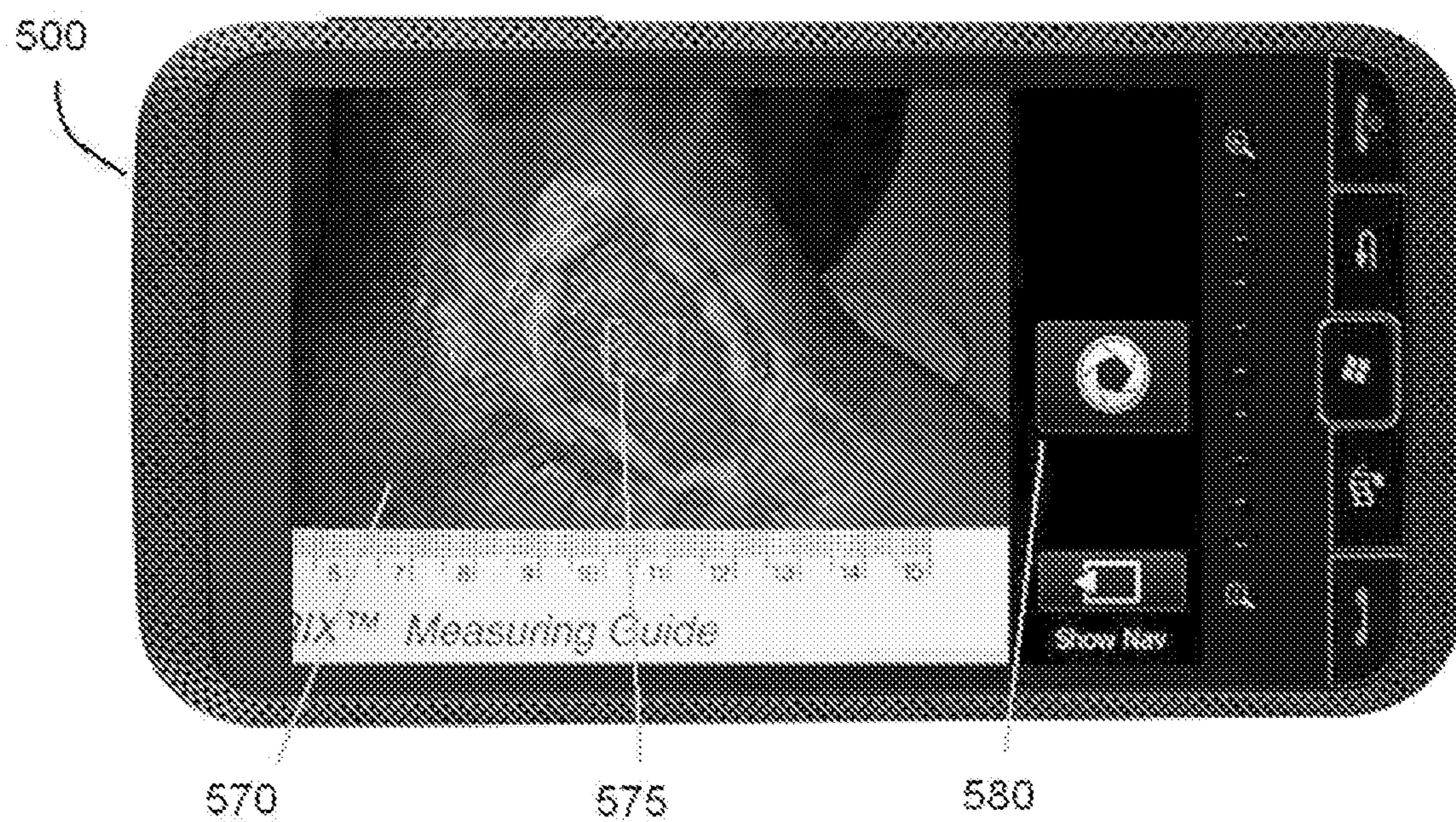


FIGURE 5f



FIGURE 5g

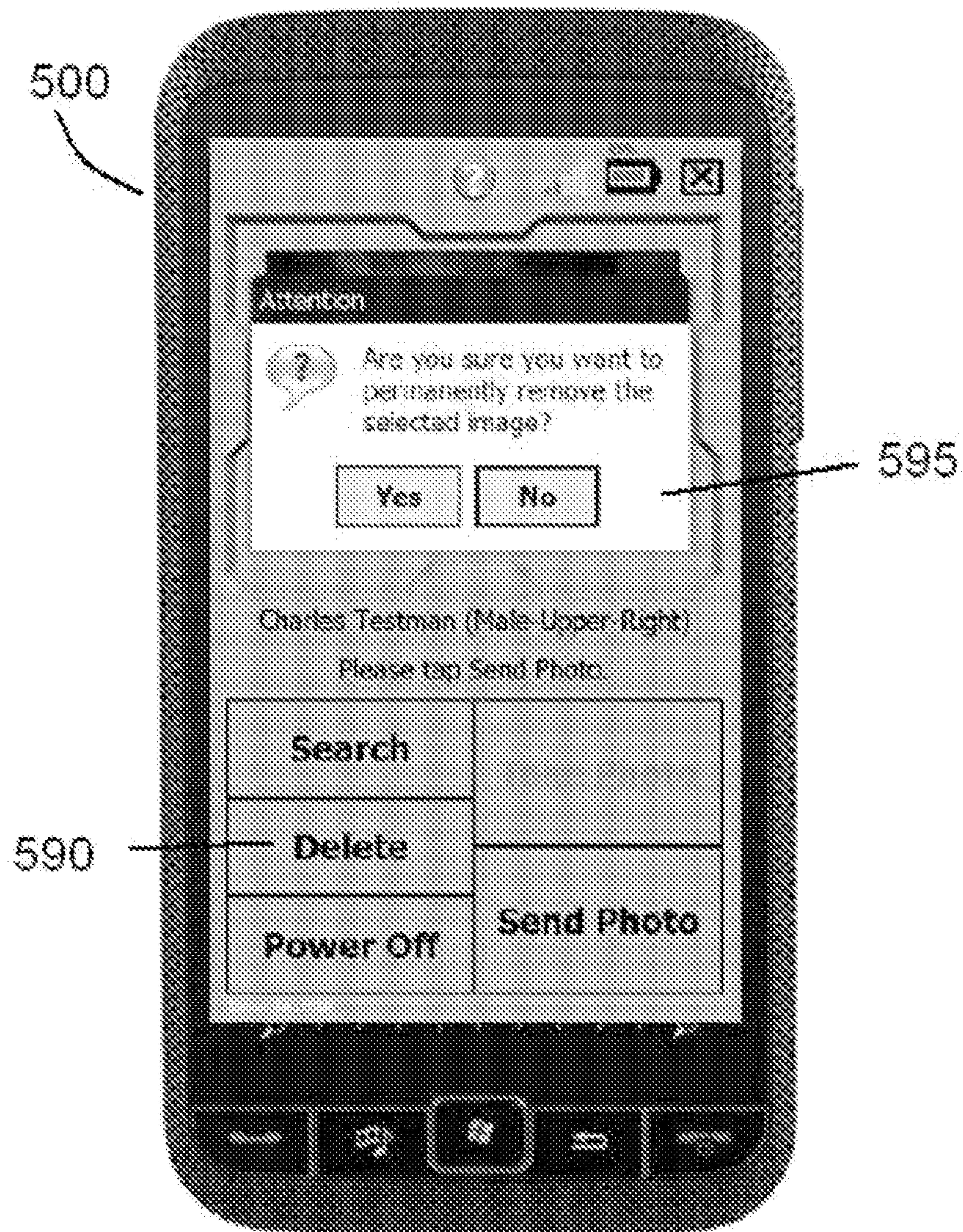


FIGURE 6

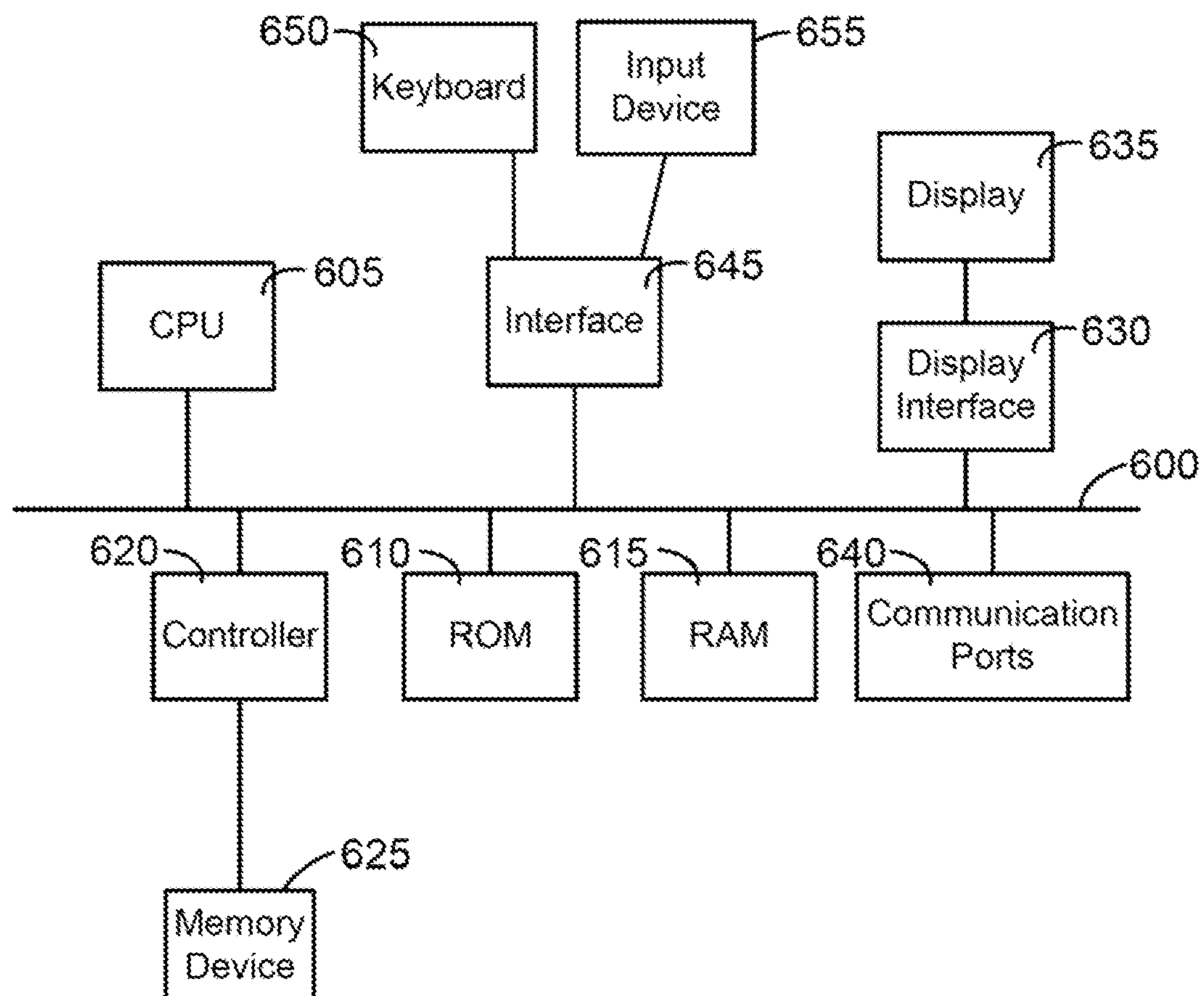


FIGURE 2

