



(51) International Patent Classification:
G06Q 30/02 (2012.01)

(21) International Application Number:
PCT/US2014/014212

(22) International Filing Date:
31 January 2014 (31.01.2014)

(25) Filing Language: English

(26) Publication Language: English

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(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, IR, IS, JP, KE, KG, 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, SA, 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, KM, ML, MR, NE, SN, TD, TG).

Published:

— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

(54) Title: SUBJECT SELECTED AUGMENTED REALITY SKIN

(57) Abstract: Technologies are generally described for systems, devices and methods effective to generate augmented image data. In some examples, a first device may receive first data from a second device. The first data may include data related to an image associated with the first device, such as an image of a user using the first device. The first device may apply an augmented reality skin to the first data to generate second data. The second data may relate to an augmented image associated with the first device. The first device may send the second data to the second device. The second device may then display the second data.



WO 2015/116183 A2

SUBJECT SELECTED AUGMENTED REALITY SKIN

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is related to Augmented Reality Skin Manager (Attorney Docket number M-6300.202), Augmented Reality Skin Evaluation (Attorney Docket number M-6300.203), and Evaluation of Augmented Reality Skins (Attorney Docket Number M-6300.205).

BACKGROUND

[0002] Unless otherwise indicated herein, the materials described in this section are not prior art to the claims in this application and are not admitted to be prior art by inclusion in this section.

[0003] Augmented reality may use the real world as a background and add a layer of augmented information. A sensor may capture real image information. A processor may change the captured real information by adding augmented information about the real world image. For example, an image of a real building may be displayed as an image of a Victorian era building.

SUMMARY

[0004] In an example, methods for generating augmented image data are generally described. The methods may include receiving, by a first device, first data from a second device. The first data may include data related to an image associated with the first device. The methods may include applying an augmented reality skin to the first data to generate second data. The second data may relate to an augmented image associated with the first device. The methods may include sending, by the first device, the second data to the second device.

[0005] In an example, a first device effective to generate augmented image data from image data received from a second device is generally described. The first device

may include a memory that includes at least one augmented reality skin. The first device may further include a processor configured to be in communication with the memory. The processor may be configured to receive first data from the second device. The first data may include data related to an image associated with the first device. The processor may be configured to apply the augmented reality skin to the first data to generate second data. The second data may relate to an augmented image associated with the first device. The processor may be further configured to send the second data to the second device.

[0006] In an example, a system is generally described. The system may include a first device, a network, and a second device. The second device may be configured to be in communication with the first device over the network. The first device may include a first memory that includes at least one augmented reality skin. The first device may include a first processor configured to be in communication with the first memory. The first processor may be configured to receive first data from the second device. The first data may include data related to an image associated with the first device. The first processor may be configured to apply the augmented reality skin to the first data to generate second data. The second data may relate to an augmented image associated with the first device. The second device may include a second memory and a second processor configured to be in communication with the second memory. The second processor may be configured to send the first data to the first device. The second processor may be configured to receive the second data from the first device. The second processor may be further configured to display the augmented image.

[0007] In an example, methods for displaying augmented image data are generally described. The methods may include sending by a first device, first data to a second device. The first data may include data related to an image associated with the second device. The methods may further include receiving, by the first device, second data from the second device. The second data may relate to an augmented image associated with the second device. The methods may further include displaying, by the first device, the augmented image.

[0008] The foregoing summary is illustrative only and is not intended to be in any way limiting. In addition to the illustrative aspects, embodiments, and features described

above, further aspects, embodiments, and features will become apparent by reference to the drawings and the following detailed description.

BRIEF DESCRIPTION OF THE FIGURES

[0009] Fig. 1 illustrates an example system effective to implement a subject selected augmented reality skin;

Fig. 2 illustrates the example system of Fig. 1 illustrating an example where the augmented reality skin is sent to a receptive device and to an unreceptive device;

Fig. 3 illustrates the example system of Fig. 1 illustrating an example where augmented reality skins are sent to two different devices with two different user profiles;

Fig. 4 depicts a flow diagram for example processes for implementing a subject selected augmented reality skin;

Fig. 5 illustrates computer program products effective to implement a subject selected augmented reality skin; and

Fig. 6 is a block diagram illustrating an example computing device that is arranged to implement a subject selected augmented reality skin;

all arranged in accordance with at least some embodiments described herein.

DETAILED DESCRIPTION

[0010] In the following detailed description, reference is made to the accompanying drawings, which form a part hereof. In the drawings, similar symbols typically identify similar components, unless context dictates otherwise. The illustrative embodiments described in the detailed description, drawings, and claims are not meant to be limiting. Other embodiments may be utilized, and other changes may be made, without departing from the spirit or scope of the subject matter presented herein. It will be readily understood that the aspects of the present disclosure, as generally described herein, and illustrated in the Figures, can be arranged, substituted, combined, separated,

and designed in a wide variety of different configurations, all of which are explicitly contemplated herein.

[0011] This disclosure is generally drawn, *inter alia*, to methods, apparatus, systems, devices, and computer program products related to implementation of a subject selected augmented reality skin.

[0012] Briefly stated, technologies are generally described for systems, devices and methods effective to generate augmented image data. In some examples, a first device may receive first data from a second device. The first data may include data related to an image associated with the first device, such as an image of a user using the first device. The first device may apply an augmented reality skin to the first data to generate second data. The second data may relate to an augmented image associated with the first device. The first device may send the second data to the second device. The second device may then display the second data.

[0013] As described in more detail below, in an example, a first and second user may be using first and second augmented reality (AR) devices, respectively. The first AR device may transmit a signal to indicate a request by the first user to add an AR skin to images related to the first user. The second AR device may receive the signal and send data relating to images captured by the second AR device to the first AR device. The first AR device may apply an AR skin to the image data sent from the second AR device to produce augmented image data. The first AR device may send the augmented image data to the second AR device. The second AR device may display an image based on the received augmented image data.

[0014] Fig. 1 illustrates an example system 100 effective to implement a subject determined augmented reality skin, arranged in accordance with at least some embodiments described herein. As discussed in more detail below, in some examples, system 100 may include augmented reality (AR) devices 120 and 130 that may be used by users 102 and 104. In some examples, AR devices 120 and 130 may be augmented reality glasses like a mobile phone, portable computer, wearable device, GOOGLE GLASS. Devices 120 and 130 may be configured to be in communication over a network 116. In some examples, network 116 may be, or include, a local area network and/or a wide area network, a Wi-Fi network and/or a BLUETOOTH network, etc.

[0015] To improve clarity of the discussion, in the figures, references to data are accompanied by a representation in the figure of an image produced if the corresponding data were rendered on a display. AR device 120 may include a camera 122, a speaker 123, a processor 124, a microphone 125, a memory 126, and/or a display 127. Camera 122 may produce image data 162. Display 127 may be a see-through display. Memory 126 may include instructions 128 and AR instructions 129. AR instructions 129 may include one or more AR skins 156 explained in more detail below. AR device 130 may include a camera 132, a speaker 133, a processor 134, a microphone 135, a memory 136, and/or a display 137. Camera 132 may produce image data 132. Display 137 may be a see-through display. Memory 136 may include instructions 138.

[0016] As discussed in more detail below, user 102 may desire to use AR device 120 to instruct AR device 130 to display augmented image data generated by AR device 120. As one example, the augmented image data generated by AR device 120 may correspond to an image of user 102. User 102 may, by processor 124 executing instructions 128, control AR device 120 to broadcast a signal 150 over network 116. In some examples, the broadcast may be a direct communication between AR device 120 and AR device 130. Signal 150 may indicate that AR device 120 wants to apply an AR skin to image data relating to user 102. Signal 150 may include information about AR device 120 and user 102.

[0017] AR device 130, including processor 134, may receive signal 150 over network 116. In an example, AR device 130 may generate a notification of signal 150. The notification may be an output that indicates that a request has been received for an AR skin to be applied to image data relating to user 102. The notification may include text on display 127 or an audit alert through speaker 123.

[0018] In an example, user 104 may authorize AR device 130 to receive an AR skin applied to image data relating to user 102. User 104 may instruct AR device 130 to respond to signal 150. In another example, user 104 may have preset settings in AR device 130 to always receive an AR skin applied to image data relating to user 102.

[0019] In responding to signal 150, processor 134, by executing instructions 138, may send image data 152 to AR device 120. Image data 152 may include data from camera 132 relating to images captured by camera 132 of user 102 which could be

displayed on display 137. AR device 130 may also send profile data 153 to AR device 120. Profile data 153 may include information about AR device 130 and user 104 including a profile of user 104.

[0020] AR device 120, including processor 124, may receive image data 152 and profile data 153 from AR device 130. Processor 124, by executing instructions 128, may analyze profile data 153 to select AR skin data 156 to apply to image data 152. Processor 124 may select a particular AR skin 156 from among one or more AR skins, to apply to image data 152 based on information in profile data 153. For example, processor 124 may analyze profile data 153 and determine that a profile of user 104 indicates that user 104 is a friend of user 102. In this example, processor 124 may apply a different AR skin 156 than when the profile of user 104 indicates that user 104 is not a friend of user 102.

[0021] In some examples, AR device 130 may not send profile data 153 to AR device 120. In these examples, image data 152 may include data sufficient to calculate a location of AR device 130. AR device 120, may analyze image data 152 to determine the location of AR device 130 and user 104. Processor 124 may determine the location of AR device 130 by analyzing image data 152 to identify data related to user 102.

Processor 124 may determine the location of AR device 130 based on a perspective of an image of user 102 if image data 153 was displayed on a display. In another example, processor 124 may triangulate the location of AR device 130 and user 104 by analyzing image data 152 from camera 132 and image data 162 produced by camera 122. Processor 124 may compare perspectives of the same objects depicted in image data 152 and image data 162.

[0022] To further identify user 104, upon locating AR device 130 and user 104, processor 124 may analyze image data 162 for information related to user 104. Processor 124 may thereafter select AR skin 156 to apply to image data 152 based on the analysis. Processor 124 may execute facial recognition software in memory 126 on image data 162 related to user 104 to select AR skin 156 to apply to image data 152. For example, processor 124 may determine, by executing facial recognition software, that user 104 is the husband of user 102 and a different AR skin 156 may be applied to image data 152 than if processor 124 determined that user 104 is the mother of user 102. Facial recognition software may not identify individuals that are not known to user 102, but may

still provide processor 124 with information to select an AR skin 156 to apply to image 152. For example, a different AR skin 156 may be applied to image data 152 if user 104 is determined to be male than when user 104 is determined to be female. A default setting to select an AR skin 156 to apply to image data 152.

[0023] Upon selecting AR skin 156 to apply to image data 152, processor 124 may apply the AR skin 156 to image data 152. Each AR skin 156 in AR instructions 129 may include instructions and data specific to AR skin 156. Processor 124 may execute AR instructions 129 to apply AR skin 156 to image data 152. Processor 124, by executing AR instructions 129, may look for a feature in image data 152 such as a nose, head, ear, etc. Execution of AR instructions 129 may cause processor 124 to register the feature in image data 152 and change pixels in image data 152 based on AR instructions 129 to produce augmented image data 157. Augmented image data 157 may be data related to the application of AR skin 156 to image data 152 and may, when displayed along with image data 152 on display 137, create a composite image 154. In another example, augmented image data 157 may be displayed on see-through display 137 and create composite image 154 over user 102, when seen through see-through display 137. AR skin 156 may relate to an image of user 102. In other examples, AR skin 156 may relate to objects associated with user 102 such as a car, clothes, etc.

[0024] AR device 120 may transmit augmented image data 157 to AR device 130 over network 116. AR device 130 may receive augmented image data 157. Processor 134 in AR device 130 may render augmented image data 157 on display 137 to create composite image 154. AR device 130 may continually transmit image data 152 to AR device 120. AR device 120 may continually apply AR skin 156 to image data 152 and may continually transmit augmented image data 157 to AR device 130. AR device 130 may continually render augmented image data 157 on display 137 to continuously produce an augmented image 104. User 104 may continuously view composite image 154 on display 137.

[0025] Fig. 2 illustrates example system 100 of Fig. 1 illustrating an example where the augmented reality skin is sent to a receptive device and an unreceptive device, arranged in accordance with at least some embodiments described herein. Fig. 2 is substantially similar to Fig. 1, with additional details. Those components in Fig. 2 that

are labeled identically to components of Fig. 1 will not be described again for the purposes of clarity.

[0026] System 100 may also include an AR device 240 used by a user 206. AR device 240 may include a camera 242, a speaker 243, a processor 244, a microphone 245, a memory 246, and/or a display 247. Display 247 may be a see-through display. Memory 246 may include instructions 248.

[0027] User 102 may desire to use AR device 120 to instruct AR device 130 and AR device 240 to display augmented image data generated by AR device 120. The augmented image data generated by AR device 120 may correspond to an image of user 102. User 102 may, by processor 124 executing instructions 128, control AR device 120 to transmit signal 150 over network 116.

[0028] AR device 130, including processor 134, and AR device 240, including processor 234, may receive signal 150 over network 116. User 104 may authorize AR device 130 to receive an AR skin applied to data relating to user 102. User 104 may instruct AR device 130 to respond to signal 150. User 206 may not be receptive to receiving an AR skin applied to data relating to user 102. User 206 may instruct AR device 240 not to respond to AR device 120 in response to signal 150.

[0029] As discussed above, AR device 130 may send image data 152 to AR device 120. AR device 120 may select an AR skin 156 to apply to image data 152. Processor 124, in AR device 120, may register a feature in image data 152 and change pixels in image data 152 based on AR instructions 129 to produce augmented image data 157. AR device 120 may transmit augmented image data 157 to AR device 130 over network 116. AR device 130 may render augmented image data 157 on display 137. User 104 may view composite image 154 on display 137.

[0030] AR device 240, having not responded to signal 150, may not send data to AR device 120 and may not receive data from AR device 120. An empty dotted line oval in Fig. 2 is used to illustrate no response to signal 150 is sent from AR device 240. A second empty dotted line oval in Fig. 2 is used to illustrate no augmented image data sent from AR device 120 to AR device 240. User 206 may see user 102 without any composite image.

[0031] Fig. 3 illustrates example system 100 illustrating an example where augmented reality skins are sent to two different devices with two different user profiles, arranged in accordance with at least some embodiments described herein. Fig. 3 is substantially similar to Figs. 1 and 2, with additional details. Those components in Fig. 3 that are labeled identically to components of Fig. 1-2 will not be described again for the purposes of clarity.

[0032] In the example, user 104 and user 206 may both authorize receipt of an AR skin applied to data relating to an image of user 102. User 104 may instruct AR device 130 to respond to signal 150. User 206 may instruct AR device 240 to respond to signal 150. AR device 130 may send image data 152 and profile data 153 to AR device 120. AR device 240 may send image data 352 and profile data 353 to AR device 120. Profile data 353 may include information about AR device 240 and user.

[0033] AR device 120 may select AR data 156 to apply to image data 152 by analyzing profile data 153. AR device 120 may select AR data 156 to apply to image data 352 by analyzing profile data 353. AR device 120 may select a different AR skin to apply to image data 152 than to apply to image data 352. For example, profile data 153 and profile data 353 may have different user profiles for user 104 and user 206 respectively. The user profile for user 104 may be friend and the user profile for user 206 may be parent. User 102 may want different AR skins applied to an image of user 102 for the different profiles. For example, as illustrated in Fig. 3, because profile data 153 indicates user 104 is a friend, processor 124 may select AR skin 156. AR skin 156 may augment image data 152 with long hair, large earrings, glasses removal, and eye, lip and face make-up. Because profile data 353 indicates user 206 as a parent, processor 124 may select AR skin 356. Applying AR skin 356 may augment image data 352 with medium length hair, small earrings, and glasses removal.

[0034] AR device 120 may transmit augmented image data 157 to AR device 130, and augmented image data 357 to AR device 240 over network 116. AR device 130 may receive augmented image data 157 and render augmented image data 157 on display 137. AR device 240 may receive augmented image data 357 and render augmented image data 357 on display 247. User 104 may view composite image 154 through display 137. User 206 may view a composite image 354 through display 247.

[0035] Among other potential benefits, a system in accordance with the disclosure may be able to allow a subject to select an AR skin to be applied to data relating to an image of the user for viewing by other users of AR devices. A user may further be able to select different AR skins to be applied for viewing by different AR device users. In an example, a user can send augmented make-up data to the AR device of a friend and augmented earring data to the AR device of a parent. A system in accordance with the disclosure may protect privacy as the augmented reality data communications are device to device and not broadcast communication. Security may be maintained because the receiving device may receive data to be output and not a skin to be executed.

[0036] Fig. 4 depicts a flow diagram for example processes 400 for implementing a subject selected augmented reality skin, arranged in accordance with at least some embodiments described herein. The process in Fig. 4 could be implemented using, for example, system 100 discussed above. An example method for implementing a subject determined augmented reality skin may include one or more operations, actions, or functions as illustrated by one or more of blocks S2, S4, and/or S6. Although illustrated as discrete blocks, various blocks may be divided into additional blocks, combined into fewer blocks, or eliminated, depending on the desired implementation. Processing may begin at block S2.

[0037] At block S2, "Receive, by a first device, first data from a second device, wherein the first data includes data related to an image associated with the first device." The first device may receive first data from a second device. The first data may include data related to an image associated with the first device. The image may be of a user of the first device. The data may be sent to the first device from the second device in response to a request from the first device.

[0038] Processing may continue from block S2 to block S4, "Apply, by the first device, an augmented reality skin to the first data to generate second data, wherein the second data relates to an augmented image associated with the first device." The first device may apply an augmented reality skin to the first data to generate second data. The second data may relate to an augmented image associated with the first device. For

example, first data may relate to an image of a user of the first device. Second data may relate to an image of the user of the first device with augmented long black hair.

[0039] Processing may continue from block S4 to block S6, "Send, by the first device, the second data to the second device." The first device may send the second data to the second device. The second device may render an image from the second data.

[0040] Fig. 5 illustrates computer program products 500 effective to implement a subject selected augmented reality skin, arranged in accordance with at least some embodiments described herein. Program product 500 may include a signal bearing medium 502. Signal bearing medium 502 may include one or more instructions 504 that, when executed by, for example, a processor, may provide the functionality described above with respect to Figs. 1-4.

[0041] In some implementations, signal bearing medium 502 may encompass a computer-readable medium 506, such as, but not limited to, a hard disk drive, a Compact Disc (CD), a Digital Video Disk (DVD), a digital tape, memory, etc. In some implementations, signal bearing medium 502 may encompass a recordable medium 508, such as, but not limited to, memory, read/write (R/W) CDs, R/W DVDs, etc. In some implementations, signal bearing medium 502 may encompass a communications medium 510, such as, but not limited to, a digital and/or an analog communication medium (e.g., a fiber optic cable, a waveguide, a wired communications link, a wireless communication link, etc.). Thus, for example, program product 500 may be conveyed to one or more modules of the system 100 by an RF signal bearing medium 502, where the signal bearing medium 502 is conveyed by a wireless communications medium 510 (e.g., a wireless communications medium conforming with the IEEE 802.11 standard).

[0042] Fig. 6 is a block diagram illustrating an example computing device 600 that is arranged to implement a subject determined augmented reality skin arranged in accordance with at least some embodiments presented herein. In a very basic configuration 602, computing device 600 typically includes one or more processors 604 and a system memory 606. A memory bus 608 may be used for communicating between processor 604 and system memory 606.

[0043] Depending on the desired configuration, processor 604 may be of any type including but not limited to a microprocessor (μ P), a microcontroller (μ C), a digital

signal processor (DSP), or any combination thereof. Processor 604 may include one more levels of caching, such as a level one cache 610 and a level two cache 612, a processor core 614, and registers 616. An example processor core 614 may include an arithmetic logic unit (ALU), a floating point unit (FPU), a digital signal processing core (DSP Core), or any combination thereof. An example memory controller 618 may also be used with processor 604, or in some implementations memory controller 618 may be an internal part of processor 604.

[0044] Depending on the desired configuration, system memory 606 may be of any type including but not limited to volatile memory (such as RAM), non-volatile memory (such as ROM, flash memory, etc.) or any combination thereof. System memory 606 may include an operating system 620, one or more applications 622, and program data 624.

[0045] Application 622 may include a subject selected augmented reality skin algorithm 626 that is arranged to perform the functions as described herein including those described previously with respect to Figs. 1-5. Program data 624 may include subject selected augmented reality skin data 628 that may be useful for subject selected augmented reality skin as is described herein. In some embodiments, application 622 may be arranged to operate with program data 624 on operating system 620 such that subject selected augmented reality skins may be provided. This described basic configuration 602 is illustrated in Fig. 6 by those components within the inner dashed line.

[0046] Computing device 600 may have additional features or functionality, and additional interfaces to facilitate communications between basic configuration 602 and any required devices and interfaces. For example, a bus/interface controller 630 may be used to facilitate communications between basic configuration 602 and one or more data storage devices 632 via a storage interface bus 634. Data storage devices 632 may be removable storage devices 636, non-removable storage devices 638, or a combination thereof. Examples of removable storage and non-removable storage devices include magnetic disk devices such as flexible disk drives and hard-disk drives (HDDs), optical disk drives such as compact disk (CDs) drives or digital versatile disk (DVDs) drives, solid state drives (SSDs), and tape drives to name a few. Example computer storage

media may include volatile and nonvolatile, 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.

[0047] System memory 606, removable storage devices 636 and non-removable storage devices 638 are examples of computer storage media. Computer storage media includes, but is not limited to, 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 may be used to store the desired information and which may be accessed by computing device 600. Any such computer storage media may be part of computing device 600.

[0048] Computing device 600 may also include an interface bus 640 for facilitating communication from various interface devices (e.g., output devices 642, peripheral interfaces 644, and communication devices 646) to basic configuration 602 via bus/interface controller 630. Example output devices 642 include a graphics processing unit 648 and an audio processing unit 650, which may be configured to communicate to various external devices such as a display or speakers via one or more A/V ports 652. Example peripheral interfaces 644 include a serial interface controller 654 or a parallel interface controller 656, which may be configured to communicate with external devices such as input devices (e.g., keyboard, mouse, pen, voice input device, touch input device, etc.) or other peripheral devices (e.g., printer, scanner, etc.) via one or more I/O ports 658. An example communication device 646 includes a network controller 660, which may be arranged to facilitate communications with one or more other computing devices 662 over a network communication link via one or more communication ports 664.

[0049] The network communication link may be one example of a communication media. Communication media may typically be embodied by computer readable instructions, data structures, program modules, or other data in a modulated data signal, such as a carrier wave or other transport mechanism, and may include any information delivery media. A “modulated data signal” may be a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal. By way of example, and not limitation, communication media may include

wired media such as a wired network or direct-wired connection, and wireless media such as acoustic, radio frequency (RF), microwave, infrared (IR) and other wireless media.

The term computer readable media as used herein may include both storage media and communication media.

[0050] Computing device 600 may be implemented as a portion of a small-form factor portable (or mobile) electronic device such as a cell phone, a personal data assistant (PDA), a personal media player device, a wireless web-watch device, a personal headset device, an application specific device, or a hybrid device that include any of the above functions. Computing device 600 may also be implemented as a personal computer including both laptop computer and non-laptop computer configurations.

[0051] The present disclosure is not to be limited in terms of the particular embodiments described in this application, which are intended as illustrations of various aspects. Many modifications and variations can be made without departing from its spirit and scope, as will be apparent to those skilled in the art. Functionally equivalent methods and apparatuses within the scope of the disclosure, in addition to those enumerated herein, will be apparent to those skilled in the art from the foregoing descriptions. Such modifications and variations are intended to fall within the scope of the appended claims. The present disclosure is to be limited only by the terms of the appended claims, along with the full scope of equivalents to which such claims are entitled. It is to be understood that this disclosure is not limited to particular methods, reagents, compounds compositions or biological systems, which can, of course, vary. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting.

[0052] With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

[0053] It will be understood by those within the art that, in general, terms used herein, and especially in the appended claims (*e.g.*, bodies of the appended claims) are generally intended as “open” terms (*e.g.*, the term “including” should be interpreted as “including but not limited to,” the term “having” should be interpreted as “having at

least,” the term “includes” should be interpreted as “includes but is not limited to,” etc.). It will be further understood by those within the art that if a specific number of an introduced claim recitation is intended, such an intent will be explicitly recited in the claim, and in the absence of such recitation no such intent is present. For example, as an aid to understanding, the following appended claims may contain usage of the introductory phrases “at least one” and “one or more” to introduce claim recitations. However, the use of such phrases should not be construed to imply that the introduction of a claim recitation by the indefinite articles “a” or “an” limits any particular claim containing such introduced claim recitation to embodiments containing only one such recitation, even when the same claim includes the introductory phrases “one or more” or “at least one” and indefinite articles such as “a” or “an” (*e.g.*, “a” and/or “an” should be interpreted to mean “at least one” or “one or more”); the same holds true for the use of definite articles used to introduce claim recitations. In addition, even if a specific number of an introduced claim recitation is explicitly recited, those skilled in the art will recognize that such recitation should be interpreted to mean at least the recited number (*e.g.*, the bare recitation of “two recitations,” without other modifiers, means at least two recitations, or two or more recitations). Furthermore, in those instances where a convention analogous to “at least one of A, B, and C, etc.” is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (*e.g.*, “a system having at least one of A, B, and C” would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). In those instances where a convention analogous to “at least one of A, B, or C, etc.” is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (*e.g.*, “a system having at least one of A, B, or C” would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). It will be further understood by those within the art that virtually any disjunctive word and/or phrase presenting two or more alternative terms, whether in the description, claims, or drawings, should be understood to contemplate the possibilities of including one of the terms, either

of the terms, or both terms. For example, the phrase “A or B” will be understood to include the possibilities of “A” or “B” or “A and B.”

[0054] As will be understood by one skilled in the art, for any and all purposes, such as in terms of providing a written description, all ranges disclosed herein also encompass any and all possible subranges and combinations of subranges thereof. Any listed range can be easily recognized as sufficiently describing and enabling the same range being broken down into at least equal halves, thirds, quarters, fifths, tenths, etc. As a non-limiting example, each range discussed herein can be readily broken down into a lower third, middle third and upper third, etc. As will also be understood by one skilled in the art all language such as “up to,” “at least,” “greater than,” “less than,” and the like include the number recited and refer to ranges which can be subsequently broken down into subranges as discussed above. Finally, as will be understood by one skilled in the art, a range includes each individual member. Thus, for example, a group having 1-3 cells refers to groups having 1, 2, or 3 cells. Similarly, a group having 1-5 cells refers to groups having 1, 2, 3, 4, or 5 cells, and so forth.

[0055] While various aspects and embodiments have been disclosed herein, other aspects and embodiments will be apparent to those skilled in the art. The various aspects and embodiments disclosed herein are for purposes of illustration and are not intended to be limiting, with the true scope and spirit being indicated by the following claims.

CLAIMS

What is claimed is:

1. A method for generating augmented image data, the method comprising:
receiving, by a first device, first data from a second device, wherein the first data includes data related to an image associated with the first device;
applying, by the first device, an augmented reality skin to the first data to generate second data, wherein the second data relates to an augmented image associated with the first device; and
sending, by the first device, the second data to the second device.
2. The method of claim 1, further comprising:
receiving by the second device the second data; and
displaying the augmented image on the second device.
3. The method of claim 1, further comprising, prior to receiving the first data, broadcasting, by the first device, a signal wherein the signal includes a request to receive the first data.
4. The method of claim 1, further comprising, prior to applying the augmented reality skin, selecting, by the first device, the augmented reality skin based on the first data.
5. The method of claim 4, wherein the first data further includes data sufficient to calculate a location of the second device, and selecting is based on the location of the second device.
6. The method of claim 4, wherein selecting is based on a profile of the second device.

7. The method of claim 4, wherein the augmented reality skin is a first augmented reality skin, the image is a first image, and the augmented image is a first augmented image, the method further comprising:

receiving by the first device, third data from a third device, wherein the third data includes data related to a second image associated with the first device, and the third data is different from the first data;

selecting, by the first device, a second augmented reality skin to apply to the third data based on the third data;

applying, by the first device, the second augmented reality skin to the third data to generate fourth data, wherein the fourth data relates to a second augmented image associated with the first device; and

sending, by the first device, the fourth data to the third device.

8. The method of claim 7, wherein the first augmented reality skin is the same as the second augmented reality skin.

9. The method of claim 7, wherein the first augmented reality skin is different from the second augmented reality skin.

10. A first device effective to generate augmented image data from image data received from a second device, the first device comprising:

a memory that includes at least one augmented reality skin;

a processor configured to be in communication with the memory, the processor configured to:

receive first data from the second device, wherein the first data includes data related to an image associated with the first device;

apply the augmented reality skin to the first data to generate second data, wherein the second data relates to an augmented image associated with the first device; and

send the second data to the second device.

11. The device of claim 10, wherein, prior to receipt of the first data, the processor is configured to broadcast a signal, wherein the signal includes a request to receive the first data.

12. The device of claim 10, wherein prior to application of the augmented reality skin, the processor is configured to select the augmented reality skin based on the first data.

13. The device of claim 12, wherein, the augmented reality skin is a first augmented reality skin, the image is a first image, and the augmented image is a first augmented image, the processor being further configured to:

receive third data from a third device, wherein the third data includes data related to a second image associated with the first device, and the third data is different from the first data;

select a second augmented reality skin to apply to the third data based on the third data;

apply the second augmented reality skin to the third data to generate fourth data, wherein the fourth data relates to a second augmented image associated with the first device; and

send the fourth data to the third device.

14. The device of claim 13, wherein the first augmented reality skin is the same as the second augmented reality skin.

15. The device of claim 13, wherein the first augmented reality skin is different from the second augmented reality skin.

16. A system comprising:

a first device;

a network;

a second device configured to be in communication with the first device over the network;

the first device comprising:

a first memory that includes at least one augmented reality skin;

a first processor configured to be in communication with the first memory, the first processor configured to:

receive first data from the second device, wherein the first data includes data related to an image associated with the first device;

apply the augmented reality skin to the first data to generate second data, wherein the second data relates to an augmented image associated with the first device;

the second device comprising:

a second memory; and

a second processor configured to be in communication with the second memory; the second processor configured to:

send the first data to the first device;

receive the second data from the first device; and

display the augmented image.

17. The system of claim 16, wherein the augmented reality skin is a first augmented reality skin, the image is a first image, and the augmented image is a first augmented image, the system further comprising;

a third device configured to be in communication with the first device over the network;

the third device comprising:

a third memory; and

a third processor configured to be in communication with the third memory, the third processor configured to send third data to the first device;

the first processor further configured to:

receive the third data from the third device, wherein the third data includes data related to a second image associated with the first device, and the third data is different from the first data;

select a second augmented reality skin to apply to the third data based on the third data;

apply the second augmented reality skin to the third data to generate fourth data, wherein the fourth data relates to a second augmented image associated with the first device;

send the fourth data to the third device;

the third device further configured to:

receive the fourth data from the first device; and

display the second augmented image based on the fourth data.

18. The system of claim 17, wherein the first augmented reality skin is different from the second augmented reality skin.

19. A method for displaying augmented image data, the method comprising:
sending by a first device, first data to a second device, wherein the first data includes data related to an image associated with the second device;
receiving, by the first device, second data from the second device, wherein the second data relates to an augmented image associated with the second device; and
displaying, by the first device, the augmented image.

20. The method of claim 19, further comprising, prior to sending the first data, receiving, by the first device, a request to send the first data from the second device.

Fig. 1

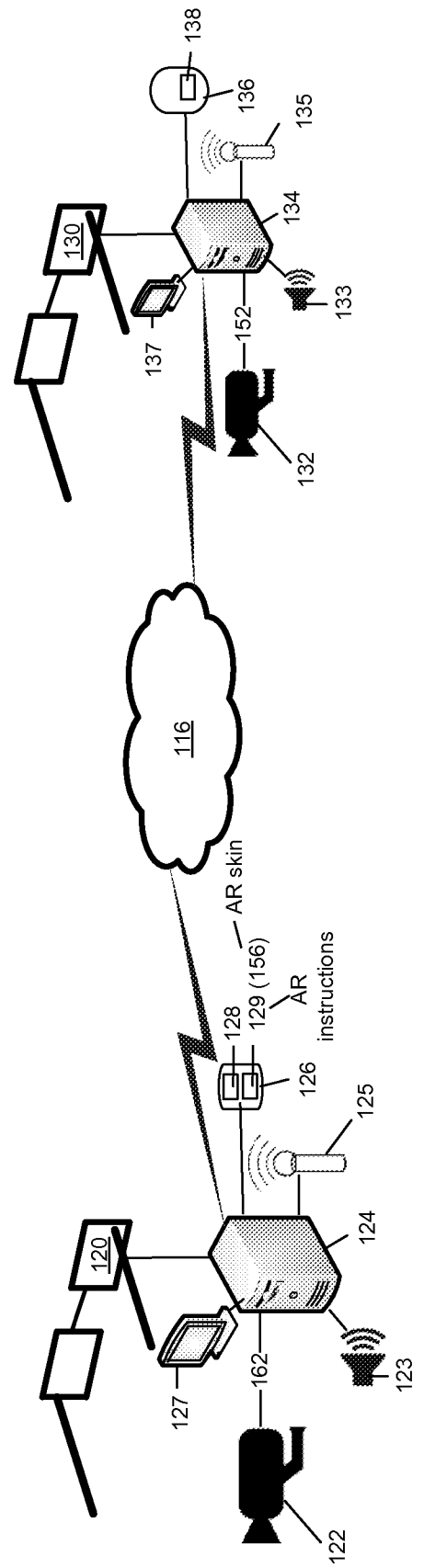
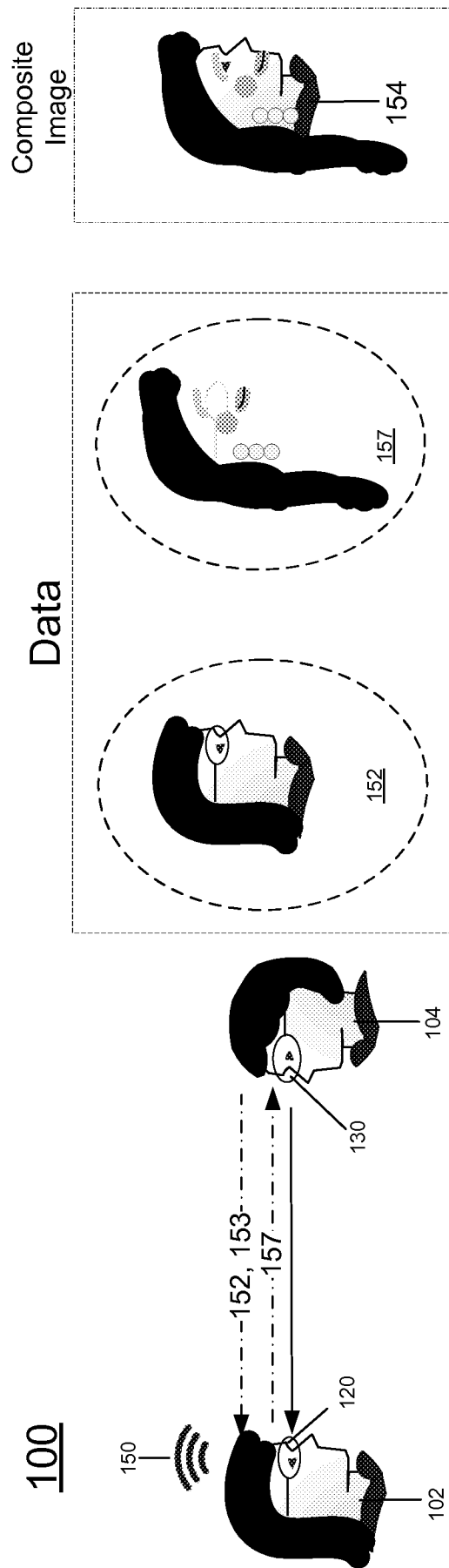
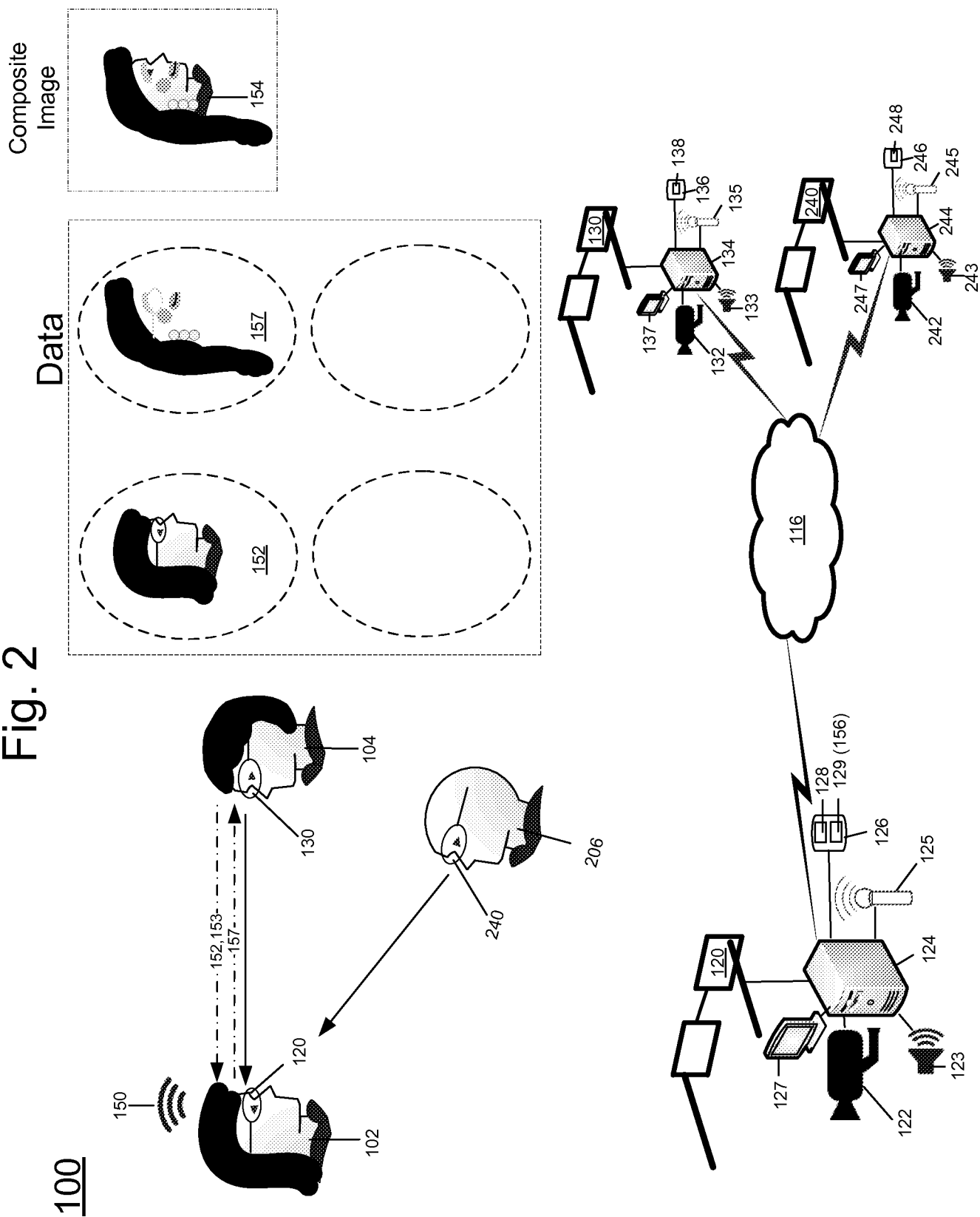
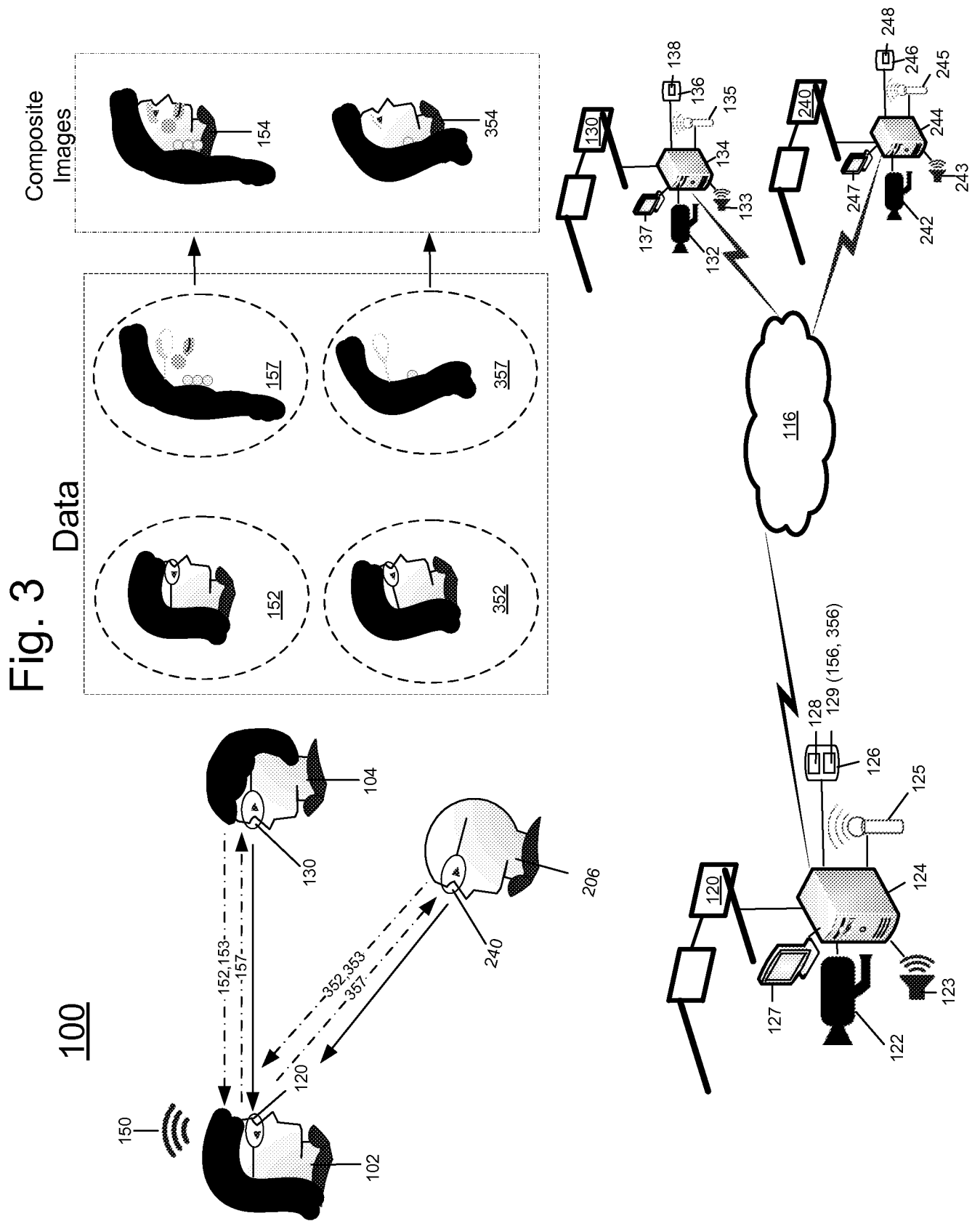


Fig. 2





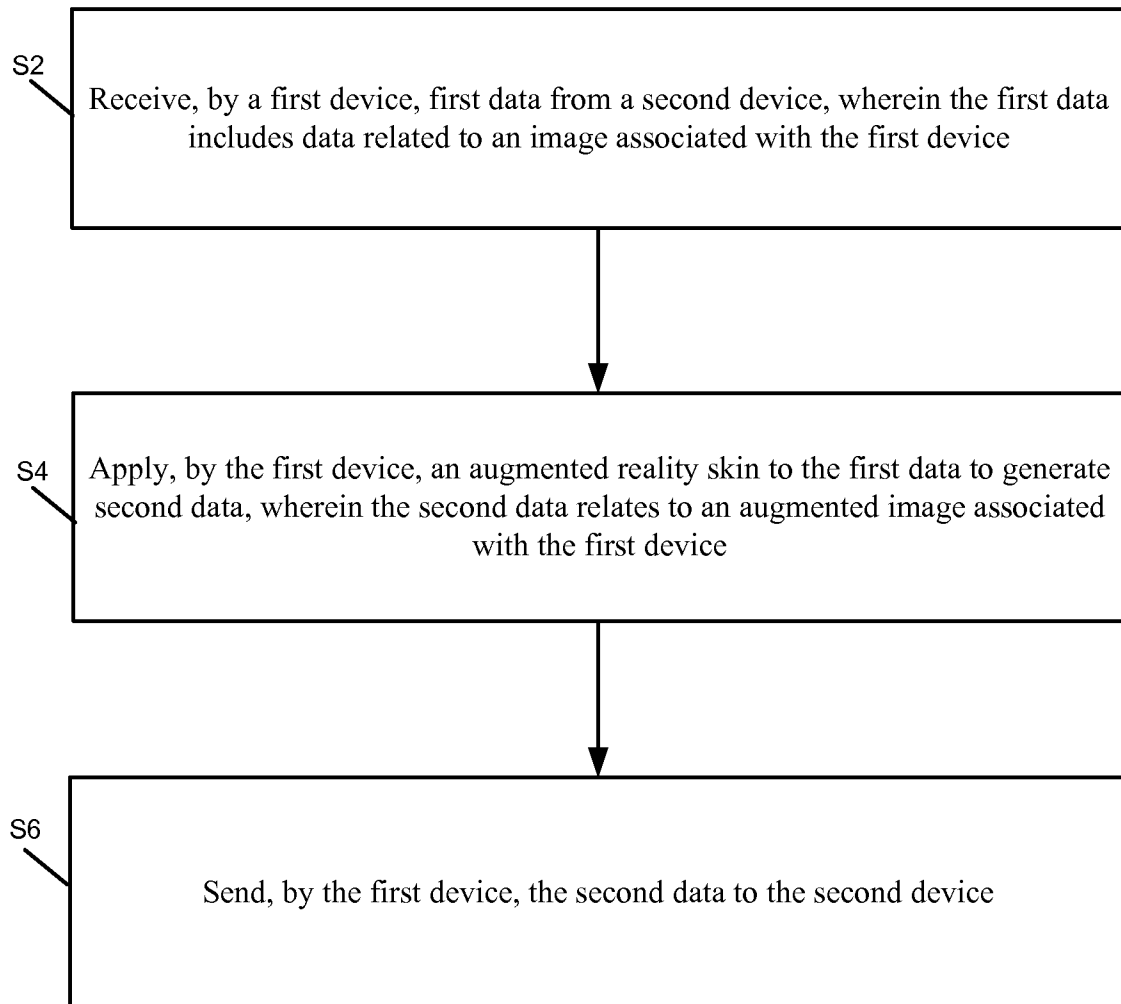
400

Fig. 4

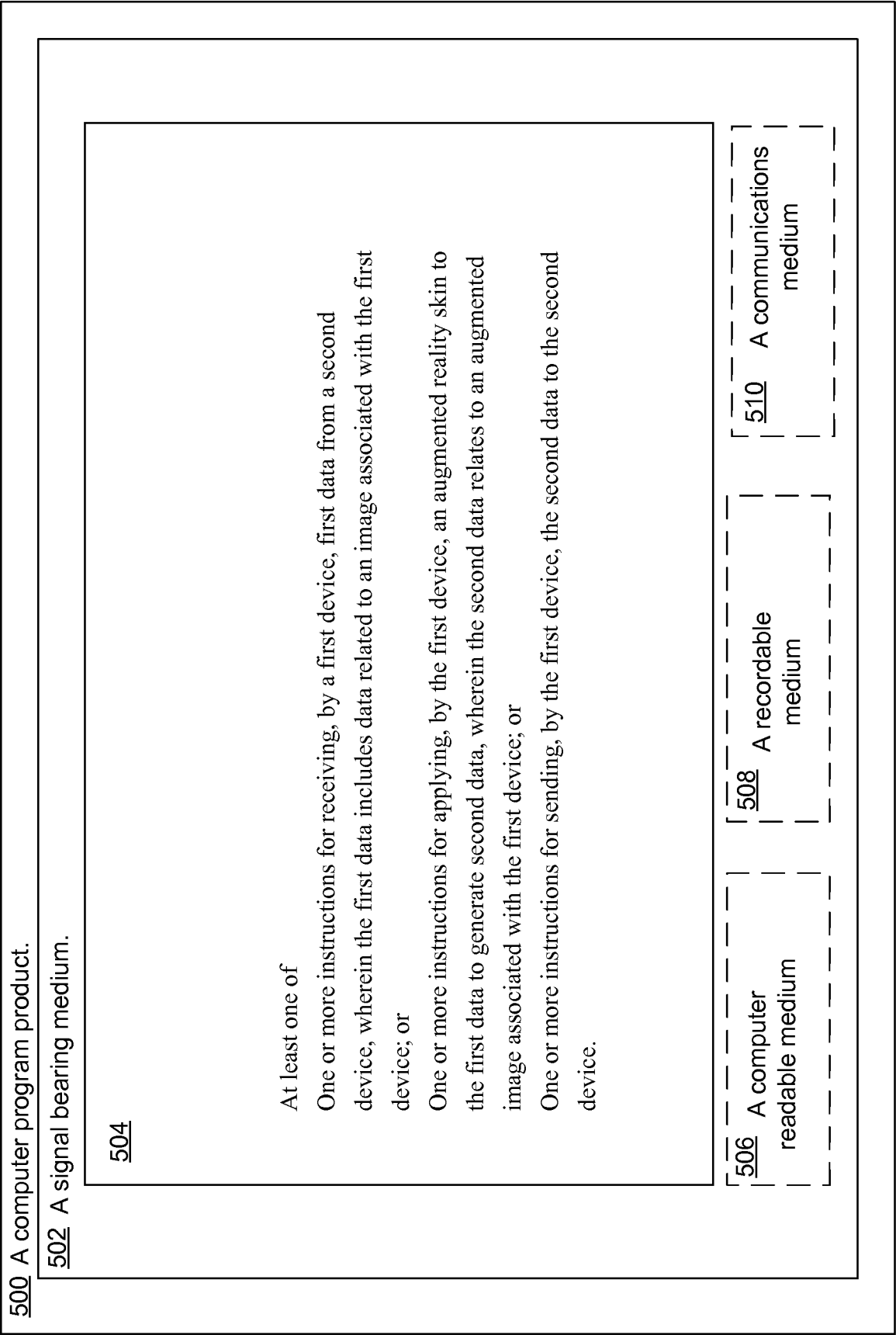


Fig. 5

FIG. 6

