A

TITLE OF THE INVENTION

System and Method for Communication using Mobile Communication Devices

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] [Not Applicable]

- Need to write more explicit examples
  - We will use the broad language of the claims, but we also include some specific examples
- a little functional problem w/ groups - see comments
  - no "matchy", no "slogan"
- Overall, pretty good!
- Nice job w/ interfaces & road diagrams
- Your claims are the weakest part

DETAILED DESCRIPTION OF THE INVENTION

[0010] Figure 1 illustrates a communication system 100 according to an embodiment of the invention. The communication system 100 includes a first communication device 110, a second communication device 120, a global positioning system (GPS) satellite 130, a communication network 140, and a server 160. In the present embodiment, the first communication device 110 is a smartphone. The first communication device 110 includes a user interface 112 and a global positioning system (GPS) 114. In the present embodiment, the second communication device 120 is a smartphone. The second communication device 120 includes a user interface 122 and a GPS 124. The communication network 140 includes a network transceiver 142, a first wireless connection 144, a second wireless connection 146, and an internet connection 148. In the present embodiment, the network transceiver 142 is a cell tower. The server 160 includes a data storage unit 170, a data processor unit 180, and a transceiver 190.

[0011] In the communication system 100, the first communication device 110 and the second communication device 120 are in wireless connection with a GPS satellite 130. The GPS 114 is electrically connected to the first communication device 110, and the GPS 124 is electrically connected to the second communication device 120. The first communication device 110 transmits data to and receives data from the network transceiver 142 through the first wireless connection 144. The network transceiver 142 transmits data to and receives data from the server 160 through the internet connection 148. More particularly, the network transceiver 142 transmits data to and receives data from the transceiver 190 of the server 160. The second communication device 120 transmits data to and receives data from the network transceiver 142 through the second

wireless connection 146. The network transceiver 142 transmits data to and receives data from the server 160 through the internet connection 148. More particularly, the network transceiver 142 transmits data to and receives data from the transceiver 190 of the server 160. The server 160 is electrically connected to the data storage unit 170, the data processor unit 180, and the transceiver 190.

[0012] In operation, the communication system 100 involves four main components: the first communication device 110, the second communication device 120, the communication network 140, and the server 160. Upon selection of a communication mode from the user interface 112 (see discussion of Figure 2), input data indicative of a selection from the user interface is sent from the first communication device 110 to a network transceiver 142 through a first wireless connection 144. The input data indicative of the selection is then relayed from the network transceiver 142 to the transceiver 190 of the server 160 through an internet connection 148. Upon the input data indicative of the selection being received at the transceiver 190, the input data is associated with a logical group including a communication mode corresponding to the input data received. Further, a device identifier of the first communication device 110 is associated with the logical group including the communication mode at the data storage unit 170. The logical group further includes pre-configured parameters of operation for the communication mode, which govern the process by which data transmitted to and received from the first communication device 110 will be processed and stored.

[0013] Upon selection of an operation mode from the user interface 122 (see discussion of Figure 2), input data indicative of a selection is sent from the second communication device 120 to a network transceiver 142 through a second wireless

[0020] In an alternative embodiment, the internet connection may be, but is not limited to, a wireless internet connection, a wired internet connection, such as local area network (LAN), cable-broadband internet connection, a DSL connection, a integrated services digital network (ISDN), a broadband ISDN, a dial-up internet access connection, or a satellite connection.

[0021] In an alternative embodiment, a server may be, but is not limited to, another storage terminal, memory unit, or other potential computer device.

[0022] Figure 2 illustrates a user interface 200 of a communication device according to an embodiment of the present invention. The user interface 200 includes a Geo button 210, a Private button 220, a Mutual button 230, and a ShoutOut! button 240.

[0023] The user interface 200 is a touch-sensitive display for selecting a communication mode. A communication mode is a method of associating data representing a device identifier with one logical group having pre-configured parameters of operation stored at the data storage unit of the server. The pre-configured parameters of operation facilitate the process of associating communication device identifiers in a logical group in order to transmit to and receive from data representing analog voice signals the communication devices associated with the respective communication device identifiers. In another embodiment, the device identifier may be associated with more than one logical group.

[0024] Each button 210–240 represents a communication mode. The communication mode Geo facilitates the association of a communication device identifier with a logical group if data representing a location of the communication device is within the logical group's geographic parameters. The geographic parameters in one

embodiment include location data representing a prescribed, circular area. In another embodiment, the geographic parameters include location data representing an area prescribed by another shape. In operation, upon selection of the Geo button 210, a communication device transmits input data indicative of the selection from the user interface 200 to a server through a communication network, and the process proceeds to step 305 of flowchart 300 (see Figure 3A).

[0025] The communication mode Private facilitates the association of a communication device identifier with a logical group if a data representing a location of the communication device is within the logical group's geographic parameters. The geographic parameters in one embodiment include location data representing an area prescribed by a circle. In operation, upon selection of the Private button 220, a communication device transmits input data indicative of the selection from the user interface 200 to a server through a communication network, and the process proceeds to step 602 or alternatively to step 614 of flowchart 600 (see Figure 6A).

[0026] In an alternative embodiment, the communication mode Private also facilitates the association of a communication device identifier with a logical group if the communication device identifier is further associated with an email account, a social media user account, a cell phone number, or other identifier that is has a different identification from the device identifier. In operation, upon selecting a hyperlink or other reference to data on a user interface of a communication device received in a text, email, or other electronic message, the communication device identifier is associated with the logical group at the server.

[0027] The communication mode Mutual facilitates the association of data representing a communication device with a logical group if data representing a location and directional heading of the communication device matches the logical group's geographic parameters, which includes a location corresponding to a known roadway and a directional heading along the known roadway. In operation, upon selection of the Mutual button 230, a communication device transmits input data indicative of the selection from the user interface 200 to a server through a communication network, and the process proceeds to step 905 of flowchart 900 (see Figure 9A).

[0028] The communication mode ShoutOut facilitates the association of data representing a communication device with a logical group if 1) a first communication device identifier and a second communication device identifier are each associated with data representing a location of a known roadway and data representing a directional heading on the known roadway and 2) the second communication device identifier is further associated with a set of data representing observable characteristics of a motor vehicle matching input data indicative of a set of data observable characteristics of a motor vehicle received at a server from the first communication device. In operation, upon selection of the ShoutOut button 240, a first communication device transmits input data indicative of a selection from the user interface 200 to a server through a communication network, and the process proceeds to step 1102 of flowchart 1100 (see Figures 11A).

[0029] In another embodiment, each button 210-240 at the user interface 200 may be represented in numbers, letters, images, symbols, equations, colors, shapes, or other figures and characters.

[0030] Figures 3A–3C are a flowchart 300 illustrating an embodiment of a process for facilitating data communication to and from communication devices executed by the system 100. At a first step 305, the server receives input data indicative of a selection from a user interface of a first communication device. In the present embodiment, the selection from the user interface is the Geo button 210 (see Figure 2). A data processor unit of the server queries a data storage unit for a matching logical group including a communication mode corresponding to the input data at step 310. The matching logical group also includes a corresponding set of pre-configured parameters of operations for the communication mode. Proceeding to step 315, the server retrieves the pre-configured parameters of operations for the communication mode in order to subsequently associate a first communication device identifier with a logical group in steps 335–355 and to associate data received from and transmitted to the first communication device in steps 320–330 and 365–375.

[0031] At step 320, the first communication device transmits data representing a location of the first communication device to the server. Then at step 325, the server receives the data representing the location of the first communication device. The data representing location of the first communication device includes position, heading, and speed. In step 330, the server associates the data representing the location of the first communication device with the first communication device identifier at the data storage unit. The steps of 320-330 are repeated at a pre-determined interval of time to track the location of the first communication device. In an alternative embodiment, the steps of 320-330 are not repeated.

[0032] In step 335, using the data representing the location of the first communication device, the server queries the data storage unit for a pre-existing logical group including location data representing a pre-determined geographic area to find a match using pre-configured parameters of operation for the communication mode. A match exists if the data representing the location of the first communication device is within the parameters of the location data representing a pre-determined geographic area (see discussion of Figure 4).

[0033] If a match exists, the process proceeds to step 340, in which the server transmits data representing a matching group or groups to the first communication device. In step 345, the first communication device displays a representation of the data representing the matching group or groups at the user interface (see discussion of Figure 5). Then, in step 350, the first communication device transmits data indicative of a selection of one matching group. The server receives the data indicative of the selection and associates the first communication device identifier with the pre-existing logical group selected at step 355.

[0034] If a match does not exist, the process proceeds to step 360. In step 360, the server creates a new logical group and further associates the first communication device identifier with the new logical group. The new logical group is subsequently stored at the server. The process will proceed from step 360 to step 365 when a second communication device identifier is associated with the new logical group. In that instance, steps 305–355 have been completed with respect to a second communication device and the server, and the new logical group is treated as a pre-existing group.

[0035] Next, at step 365, the first communication device transmits data representing analog voice signals using VoIP to the server, and the server receives the data representing analog voice signals at step 370. Then, at step 375, the server compresses and combines the data representing analog voice signals into a combined data packet representing the analog voice signals. The combined data packet representing the analog voice signals is then transmitted to all the communication devices associated with device identifiers associated with the pre-existing group at step 380. In another embodiment, the second communication device transmits data representing analog voice signals. In another embodiment, any communication device associated with a device identifier which is further associated with the pre-existing logical group transmits data representing analog voice signals. Steps 365 to 380 are repeated when any communication device associated with the pre-existing logical group transmits new data representing analog voice signals.

[0036] In an additional embodiment, at step 345, the first communication device displays a representation of the data representing an option to form a new logical group at the user interface. Upon selection of the option to form the new logical group, the first communication device transmits input data indicative of a command for the process of flowchart 300 to proceed from step 335 to 360. The server receives the input data and creates and a new logical group and associates the first communication device identifier with the new logical group. The new logical group is subsequently stored at the data storage unit.

[0037] In another embodiment, an unrestricted number of communication device identifiers are associated with a pre-existing logical group or a new logical group.

[0038] In another embodiment, the pre-configured parameters of the communication mode may be adjusted. Pre-configured parameters of operation of a communication mode that may be adjusted include, but are not limited to, the number of communication identifiers that may be associated with a pre-existing logical group or a new logical group, the device identifiers that may be associated with a logical group, the device identifiers that may not be associated with a logical group, and the parameters of the location data representing a pre-determined geographic area by adjusting the radius used to calculate the geographic area.

[0039] In another embodiment, the method illustrated in flowchart 300 includes a step at which a communication device identifier is disassociated from a logical group. The communication device identifier may be disassociated if the data representing the location of the communication device changes such that it is no longer within the parameters of the location data representing a pre-determined geographic area. Alternatively, the communication device may not be disassociated from the logical group if the data representing the location of the communication device changes such that it is no longer within the parameters of the location data representing a pre-determined geographic area. The communication device identifier may be disassociated if one or more of pre-configured parameters of operation of a communication mode are adjusted above.

[0040] In an additional embodiment, the step 305 may be performed at any time during the steps of a process as illustrated in flowchart 600, 900, and 1100.

[0041] Figure 4 is a map illustration 400 of steps 335-360 illustrated in flowchart 300 according to one embodiment of the present invention. The map illustration 400

includes a first initiating communication device 410, a first adjustable radius 412, a first circular geographic area 415, a second initiating communication device 420, a second adjustable radius 422, a second circular geographic area 425, a third communication device 430, and a fourth communication device 440.

[0042] In operation, the location of the first initiating communication device 410 is used as a center point about which the first circular geographic area 415 is prescribed. The extent of the first circular geographic area 415 may be calculated based on the first adjustable radius 412. Data representing the geographic extent of the circular geographic area 415 is stored at the data storage unit of the server as a pre-existing logical group including location data representing a pre-determined geographic area prior to step 335.

[0043] The location of the second initiating communication device 420 is used as a center point about which the second circular geographic area 425 is prescribed. The extent of the second circular geographic area 425 may be calculated based on the second adjustable radius 422. Data representing the geographic extent of the circular geographic area 425 is stored at the data storage unit of the server as a pre-existing logical group including location data representing a pre-determined geographic area at some time prior to step 335.

[0044] For exemplary purposes, the third communication device 430 has completed steps 305–330. Given that the third communication device 430 has a location within the location data representing a pre-determined geographic area , the process of flowchart 300 would proceed through at least additional steps 335–355. For further exemplary purposes, the fourth communication device 440 has completed steps 305–330. Given that the fourth communication device 440 has a location not within the location

data representing a pre-determined geographic area, the process of flowchart 300 would proceed through at least additional step 360.

[0045] In another embodiment, the map illustration 400 is presented at a user interface of a communication device. The map illustration 400 may include, but is not limited to including, representations of the geographic areas associated with pre-existing logical groups, a symbol representing a communication device, the symbol representing the communication device further indicating the communication mode or modes that a device identifier of the communication device is associated with. Alternatively, the symbol may be represented in numbers, letter, images, equations, colors, shapes, or other figures and characters.

[0046] In an additional embodiment, the map illustration 400 is interactive.

[0047] In an additional embodiment, the map illustration 400 is combined with data as illustrated by map illustration 700, 1000, and 1300, alone or in combination with one another.

[0048] Figure 5 illustrates a user interface 500 displayed on a first communication device at step 340 illustrated in flowchart 300 according to an embodiment of the present invention. The user interface 500 includes a Group 1 button 510, a Group 2 button 520, and a Create Your Own Group button 530. The Group 1 button 510 is a visual representation of data representing a first, matching logical group as identified in step 335 and as transmitted in step 340 of flowchart 300. In operation, upon selection of the Group 1 button 510, the first communication device transmits input data indicative of a command for the process illustrated in flowchart 300 to proceed from step 350 to 355 and to associate the first communication device identifier with the first, matching logical

group identified at step 335. The Group 2 button 520 is a visual representation of data representing a second, matching logical group as identified in step 335 and as transmitted in step 340 of flowchart 300. In operation, upon selection of the Group 2 button 520, the first communication device transmits input data indicative of a command for the process illustrated in flowchart 300 to proceed from step 350 to 355 and to associate the first communication device identifier with the second, matching logical group identified at step 355. The Create Your Own Group button 530 is a visual representation of data representing an option to command a server to create a new logical group. In operation, upon selection of the Create Your Own Group button 530, the first communication device transmits input data indicative of a command for the process of flowchart 300 to proceed from step 335 to 360.

[0049] In another embodiment, each button 510–530 represented at the user interface 500 may be represented in numbers, letters, images, symbols, equations, colors, shapes, or other figures and characters.

[0050] Figure 6 is a flowchart 600 illustrating another embodiment of a process for facilitating data communication to and from communication devices executed by the system 100.

[0051] Figures 6A–6B are a flowchart 600 illustrating another embodiment of a process for facilitating data communication to and from communication devices executed by the system 100. At a first step 602, the server receives input data indicative of a selection from a user interface 200 of a first communication device. In the present embodiment, the selection from the user interface 200 is the Private button 220 (see Figure 2). A data processor unit of the server queries a data storage unit for a matching

logical group including a communication mode corresponding to the input data at step 604. The matching logical group also includes a corresponding set of pre-configured parameters of operations for the communication mode. Proceeding to step 606, the server retrieves the pre-configured parameters of operations for the communication mode in order to subsequently associate at least a first communication device identifier at step 628 and to associate data received from and transmitted to at least the first communication device in steps 636-642.

[0052] At step 608, the first communication device transmits data representing a location of the first communication device to the server. Then at step 610, the server receives the data representing the location of the first communication device. The data representing location of the first communication device includes position, heading, and speed. In step 612, the server associates the data representing the location of the first communication device with the first communication device identifier at the data storage unit.

[0053] Steps 614–624 occur concurrently with or subsequent to steps 602–612. At step 614, the server receives input data indicative of a selection from a user interface 200 of a second communication device (see Figure 2). In the present embodiment, the selection from the user interface 200 is the Private button 220. The data processor unit of the server queries the data storage unit for the matching logical group including the communication mode corresponding to the input data at step 616. The matching logical group also includes a corresponding set of pre-configured parameters of operations for the communication mode. Proceeding to step 618, the server retrieves the pre-configured parameters of operations for the communication mode in order to subsequently associate

at least a second communication device identifier a logical group at step 632 and to associate data received from and transmitted to at least the second communication device in steps 636-642.

[0054] At step 620, the second communication device transmits data representing a location of the second communication device to the server. Then at step 622, the server receives the data representing the location of the second communication device. The data representing location of the second communication device includes position, heading, and speed. In step 624, the server associates the data representing the location of the second communication device with the second communication device identifier at the data storage unit.

Pick better name - "Imitation User Interface" or something

[0055] At step 626, the server receives input data indicative of a selection from a user interface 800 of a first communication device (see Figure 8). The input data is further indicative of a command to proceed to step 628. At step 628, the server creates and stores a new logical group and associates the first communication device identifier with the new logical group. Then, at step 630, the server queries the data storage unit a communication device identifier associated with data representing the location of the communication device identifier matching a range of location data representing a pre-determined geographic area.

[0056] The process proceeds to step 634 if the data representing the location of the second communication device is within the range of data representing a calculated geographic area (see discussion of Figure 7). At step 634, the server associates the second communication device identifier with the new logical group. Alternatively, the process proceeds to step 632 if the data representing the location of the second

communication device is not within the range of data representing the calculated geographic area. At step 632, the server does not associate the second communication device with the new logical group (see discussion of Figure 7). Further at step 632, the server transmits data representing a user interface message display stating no matches were found.

[0057] Next, at step 636, the first communication device belonging to either the pre-existing or new logical group transmits data representing analog voice signals using VoIP to the server. Then, at step 638, the server receives the data representing voice signals. Then, at step 640, the server compresses and combines the data representing analog voice signals into a combined data packet representing the analog voice signals. The combined data packet representing the analog voice signals is then transmitted to all the communication devices associated with the logical group at step 642. In another embodiment, the second communication device transmits data representing analog voice signals using VoIP to the server. In another embodiment, any communication devices associated with a device identifier which is further associated with the pre-existing or new logical group transmits data representing analog voice signals. Steps 636 to 642 are repeated when the first communication device, the second communication device, or any communication device transmits new data representing analog voice signals to the server.

[0058] In another embodiment, a first communication device identifier and a second communication device identifier are associated with a logical group using a secondary identifier associated with the second communication device identifier. The secondary identifier may be, but is not limited to, an email address, a LinkedIn account, a Facebook account, a Myspace account, another social media account, a phone number, an

IP address, or other identifier. After step 606, the first communication device sends data representing an electronic message to a second communication device. The electronic message includes a hyperlink, which is a reference to data, displayed on a user interface of the second communication device. Upon selection of the hyperlink, the second communication device transmits input data indicative of the selection from the user interface to a server, and the server associates a device identifier of the second communication device with the new logical group. The device identifier of the second communication device is further associated Then, the process will proceed to step 636 of flowchart 600.

[0059] In another embodiment, the hyperlink may be represented by numbers, letters, images, symbols, equations, colors, shapes, or other figures and characters.

[0060] In another embodiment, an unrestricted number of communication device identifiers are associated with a pre-existing logical group or a new logical group.

[0061] In another embodiment, the pre-configured parameters of the communication mode may be adjusted. Pre-configured parameters of the communication mode that may be adjusted include, but are not limited to, the number of communication identifiers that may be associated with a pre-existing logical group or a new logical group, the device identifiers that may be associated with a logical group, the device identifiers that may not be associated with a logical group, and the parameters of the location data representing a pre-determined geographic area.

[0062] In an additional embodiment, the step 602 may be performed at any time during the steps of a process as illustrated in flowchart 300, 900, and 1100. In an

additional embodiment, the step 614 may also be performed at any time during the steps of a process as illustrated in flowchart 300, 900, and 1100.

[0063] Figure 7 is a map illustration 700 of steps 630–634 illustrated in flowchart 600 according to another embodiment of the invention. The map illustration 700 includes a first communication device 710, a first adjustable radius 712, a first circular geographic area 715, a second communication device 720, and a third communication device 730.

[0064] In operation, the location of the first communication device 710 is used as a center point about which the first circular geographic area 715 is prescribed. The extent of the first circular geographic area 715 may be calculated based on the first adjustable radius 712. The first adjustable radius may have a length having a measurement between the accuracy of the GPS data and 5 meters, between 1 meter and 3 meters, and preferably 2 meters. Data representing the geographic extent of the calculated geographic area 715 is queried at step 630 illustrated in flowchart 600.

[0065] For exemplary purposes, at step 630, a device identifier of the second communication device 720 would be associated with the new logical group because data representing the location of the second communication 720 is within a range of the data representing a calculated geographic area. For further exemplary purposes, at step 630, a device identifier of the third communication device 730 would not be associated with the new logical group because data representing the location of the second communication 720 is not within the range of the data representing the calculated geographic area.

[0066] In another embodiment, the map illustration 700 is presented at a user interface of a communication device. The map illustration 700 may include, but is not limited to including, representations of the geographic areas associated with pre-existing

logical groups, a symbol representing a communication device, the symbol representing the communication device further indicating the communication mode or modes that a device identifier of the communication device is associated with. Alternatively, the symbol is represented in numbers, letter, images, equations, colors, shapes, or other figures and characters.

[0067] In an additional embodiment, the map illustration 700 is interactive.

[0068] In an additional embodiment, the map illustration 700 is combined with data as illustrated by map illustration 400, 1000, and 1300, alone or in combination with one another.

[0069] Figure 8 illustrates a user interface presented to a user at step 626 illustrated in flowchart 600 in another embodiment of the invention. The user interface 800 includes a Shazam! button 810, an existing group button 820, and an invite button 830.

[0070] The Shazam! button 810 is a visual representation of data representing a command for the process illustrated in flowchart 600 to proceed to step 628. In operation, upon selection of the Shazam! button 810, the first communication device transmits input data indicative of the command for the process to proceed to step 628 at the server. The server receives the input data and proceeds to step 628, at which the server creates and stores a new logical group and associates the first communication device identifier with the new logical group.

[0071] The existing group button 820 represents a visual representation of data representing a stored logical group in an alternative embodiment. The stored logical

group is a new logical group that was previously created in steps 602 through 634 and subsequently stored at the server. In operation, upon selection of the existing group button 520, the first communication device transmits input data indicative of a command for the process illustrated in flowchart 600 to proceed from step 626 to step 636, thereby skipping the steps of 628 through 634.

[0072] The invite button 830 is a visual representation of data representing another embodiment of the method illustrated in flowchart 600. In operation, upon selection of the invite button 830, the first communication device transmits data representing an electronic message to a second communication device. Data representing the electronic message is displayed at a user interface of the second communication device. The electronic message includes a hyperlink. Upon selection of the hyperlink at the user interface of the second communication device, the second communication device transmits input data indicative of the selection to a server. Then, the server associates the device identifier of the second communication device with the new logical group formed at step 628 of the flowchart 600.

[0073] In another embodiment, each button 810–830 represented at the user interface 900 is represented in numbers, letters, images, symbols, equations, colors, shapes, or other figures and characters.

[0074] Figures 9A-9B are a flowchart 900 illustrating another embodiment of a process for facilitating data communication to and from communication devices executed by the system 100. At a first step 905, the server receives input data indicative of a selection from a user interface of a first communication device. In the present embodiment, the selection from the user interface is the Mutual button 230 (see Figure

2). A data processor unit of the server queries a data storage unit for a matching logical group including a communication mode corresponding to the input data at step 910. The matching logical group also includes a corresponding set of pre-configured parameters of operations for the communication mode. Proceeding to step 915, the server retrieves the pre-configured parameters of operations for the communication mode in order to subsequently associate a first communication device identifier with a logical group in steps 940 and/or 955 and to associate data received from and transmitted to the first communication device in at least steps 920–930 and 960–975.

[0075] At step 920, the first communication device transmits location data including data representing a location of the first communication device and data representing a directional heading of the first communication device to the server. Then at step 925, the server receives the location data, and in step 930, associates the location data with the first communication device identifier at the data storage unit. The data representing location of the first communication device includes position, heading, and speed. The steps of 920–930 are repeated at a pre-determined interval of time to track the location of the first communication device.

[0076] In step 935, using the location data associated with the first communication device identifier, the server queries the data storage unit for at least one pre-existing logical group including location data corresponding to a location data range of a known roadway to find a match using the pre-configured parameters of operation for the communication mode. A match exists if the location data associated with the first communication device identifier is within the parameters of the location data representing the known roadway (see discussion of Figure 10). If at least one matching pre-existing

logical group exists, the process proceeds to step 940. At step 940, the server associates the first communication device identifier with the pre-existing logical group identified at step 935.

[0077] If a matching pre-existing logical group does not exist at step 935, the process proceeds to step 945. At step 945, the server creates and stores a new logical group and associates the first communication device identifier with the new logical group. The process will proceed from step 945 to step 960 when a second communication device identifier data associated with the second communication device identifier is associated with the new logical group, where the data associated with the second communication device identifier has previously proceeded through at least steps 905-935. In this circumstance, the new logical group would be treated as a pre-existing logical group in at least step 935.

[0078] Next, at step 960, at least one of the first communication device and the second communication device belonging to the new logical group transmits data representing analog voice signals using VoIP to the server. Then, at step 965, the server receives the data representing voice signals. Then, at step 970, the server compresses and combines the data representing analog voice signals into a combined data packet representing the analog voice signals. The combined data packet representing the analog voice signals is then transmitted to all the communication devices associated with the pre-existing logical group at step 975. In another embodiment, the second communication device transmits data representing analog voice signals. In another embodiment, any communication device associated with a device identifier which is further associated with the pre-existing logical group transmits data representing analog

voice signals. Steps 960 to 975 are repeated when at least one communication device transmits new data representing analog voice signals.

[0079] In an alternative embodiment, the process proceeds from step 935 to step 950 when a matching pre-existing logical group is identified at step 935. At step 950, the server queries the matching pre-existing logical group identified at step 935 for a pre-existing logical group that further includes location data indicative of a directional heading along the known roadway. A match exists if the data representing the directional heading associated with the first communication device identifier is the same as the data indicative of the direction heading along the known roadway of the pre-existing logical group (see discussion of Figure 10). If a match exists, the process proceeds to step 955. At step 955, the server associates the first communication device identifier with the pre-existing logical group identified at step 950. If a match does not exist, the process proceeds to step 945. At step 945, the server creates and stores a new logical group and associates the first communication device identifier with the new logical group. The process will proceed from step 945 to step 960 when data associated with a second communication device identifier is associated with the new logical group, where the data associated with the second communication device identifier has previously proceeded through at least steps 905-935. In this circumstance, the new logical group would be treated as a pre-existing logical group in step 935.

[0080] In another embodiment, an unrestricted number of communication device identifiers are associated with a pre-existing logical group or a new logical group.

[0081] In another embodiment, the pre-configured parameters of the communication mode may be adjusted. Pre-configured parameters of operation of a

communication mode that may be adjusted include, but are not limited to, the number of communication identifiers that may be associated with a pre-existing logical group or a new logical group, the device identifiers that may be associated with a logical group, the device identifiers that may not be associated with a logical group, and the parameters of the location data representing a portion of a known roadway by adjusting a linear distance from a communication device used to calculate the geographic area.

[0082] In another embodiment, the method illustrated in flowchart 900 includes a step at which a communication device identifier is disassociated from a logical group. The communication device identifier may be disassociated if the data representing the location of the communication device changes such that it is no longer within the parameters of the location data representing a portion of a known roadway or location data representing a directional heading along the known roadway. Alternatively, the communication device may not be disassociated from the logical group if the data representing the location of the communication device changes such that it is no longer within the parameters of the location data representing a portion of a known roadway. The communication device identifier may otherwise be disassociated if one or more of pre-configured parameters of operation of a communication mode are adjusted above.

[0083] In an additional embodiment, the step 905 may be performed at any time during the steps of a process as illustrated in flowchart 300, 600, and 1100, and therefore interrupts the process as illustrated flowchart 300, 600, and 1100.

[0084] Figure 10 is a map illustration 1000 of at least steps 935 and 950 illustrated in flowchart 900 according to another embodiment of the invention. The map illustration 1000 includes an area of a known roadway 1010, a first communication

Nice

device 1020, a second communication device 1030, a first directional heading 1040, and a second directional heading 1050.

[0085] In operation of one embodiment illustrated in flowchart 900, the area of the known roadway 1010 is associated with the pre-existing logical group in step 935 and is stored as data corresponding to the location data range of the known roadway. The location data range of the known roadway includes a portion of the known roadway. The portion of the known roadway included as the location data range of the known roadway is calculated the width of the known roadway multiplied by the sum of a linear distance forward from a first communication device 1020 and a linear distance back from the first communication device 1020. The linear distance is an adjustable parameter of operation. The linear distance may have a measurement in a range between a 2 m and 50 km.

[0086] For exemplary purposes, the first communication device 1020 has completed steps 905–950 of the flowchart 900. Given that the first communication device 1020 has a location stored as location data at the server within the parameters of the location data representing the known roadway 1010, the device identifier of the first communication device 1020 would be associated with the pre-existing logical group in step 940. For further exemplary purposes, the second communication device 1030 has also completed steps 905-950 of the flowchart 900. Given that the second communication device 1030 also has a location stored as location data at the server within the parameters of the location data representing the known roadway 1010, the device identifier of the second communication device 1030 would be associated with the pre-existing logical group in step 940 that also includes the device identifier of the first communication device 1020.

[0087] In operation of the alternative embodiment of flowchart 900, the first directional heading 1040 is associated with at least one pre-existing logical group in step 950 and is stored as data indicative of a directional heading along the known roadway. Given that the first communication device 1020 has a location on the known roadway having the directional heading 1040, the device identifier of the first communication device 1020 would be associated with the matching pre-existing logical group in step 950. The second directional heading 1050 is associated with at least one pre-existing logical group in step 950 and is stored as data indicative of a directional heading along the known roadway. Therefore, at step 950 given that the second communication device 1030 has a location on the known roadway having the directional heading 1050, the device identifier of the second communication device 1030 would be associated with a matching pre-existing logical group in step 950 different from the matching pre-existing logical group in step 950 to which the first communication device 1020 is associated.

[0088] In another embodiment, the map illustration 1000 is presented at a user interface of a communication device. The map illustration 1000 may include, but is not limited to including, representations of the geographic areas associated with pre-existing logical groups, a symbol representing a communication device, the symbol representing the communication device further indicating the communication mode or modes that a device identifier of the communication device is associated with. Alternatively, the symbol may be represented in numbers, letter, images, equations, colors, shapes, or other figures and characters.

[0089] In an additional embodiment, the map illustration 1000 is interactive.

[0090] In an additional embodiment, the map illustration 1000 is combined with data as illustrated by map illustration 400, 700, and 1300, alone or in combination with one another.

[0091] Figure 11 is a flowchart 1100 illustrating another embodiment of a process for facilitating data communication to and from communication devices executed by the system 100. At a first step 1102, the server receives input data indicative of a selection from a user interface 200 of a first communication device. In the present embodiment, the selection from the user interface 200 is the ShoutOut! Button 240 (see Figure 2). A data processor unit of the server queries a data storage unit for a matching logical group including a communication mode corresponding to the input data at step 1104. The matching logical group also includes a corresponding set of pre-configured parameters of operations for the communication mode. Proceeding to step 1106, the server retrieves the pre-configured parameters of operations for the communication mode in order to subsequently associate a first communication device identifier with a logical group or groups and to associate data received from and transmitted to the first communication device with the proper communication device identifiers and the proper logical group or groups in subsequent steps of the process.

[0092] At step 1108, the first communication device transmits data representing a location of the first communication device to the server. Then at step 1110, the server receives the data representing the location of the first communication device. In step 1112, the server associates the data representing the location of the first communication device with the first communication device identifier at the data storage unit. The data representing location of the first communication device includes position, heading, and

speed. The steps of 1108-1112 are repeated at a pre-determined interval of time to track the location of the first communication device.

[0093] At step 1114, the first communication device receives from the server data representing an interactive form for display on the user interface (see Figure 12). After the interactive form collects inputs at the user interface, the server receives input data representing data as entered at the user interface at step 1116. The data entered at the user interface includes observable characteristic of a first motor vehicle. Therefore, at step 1116, the server receives data representing a color of the first motor vehicle, data representing a make of the first motor vehicle, and data representing a model of the first motor vehicle. The observable characteristics data is associated with the first communication device identifier and stored at the data storage unit of the server.

[0094] Steps 1118–1132 occur concurrently with or subsequent to steps 1102–1116. At step 1118, the server receives input data indicative of a selection from a user interface 200 of a second communication device (see Figure 2). The data processor unit of the server queries the data storage unit for the matching logical group including the communication mode corresponding to the input data at step 1120. The matching logical group also includes a corresponding set of pre-configured parameters of operations for the communication mode. Proceeding to step 1122, the server retrieves the pre-configured parameters of operations for the communication mode in order to subsequently associate a second communication device identifier with a logical group or groups and to associate data received from and transmitted to the second communication device with the proper communication device identifiers and the proper logical group or groups in subsequent steps of the process.

[0095] At step 1124, the second communication device transmits data representing a location of the second communication device to the server. Then at step 1126, the server receives the data representing the location of the second communication device. In step 1128, the server associates the data representing the location of the second communication device with the second communication device identifier at the data storage unit. The data representing location of the second communication device includes position, heading, and speed. The steps of 1124-1128 are repeated at a pre-determined interval of time to track the location of the second communication device.

[0096] At step 1114, the first communication device receives from the server data representing an interactive form for display on the user interface (see Figure 12). After the interactive form collects inputs at the user interface, the server receives input data representing data as entered at the user interface at step 1116. At step 1130, the second communication device receives from the server data representing an interactive form for display on the user interface (see Figure 12). After the interactive form collects inputs at the user interface, the serer receives input data representing data as entered at the user interface at step 1132. The data entered at the user interface includes observable characteristic of a second motor vehicle. Therefore, at step 1132, the server receives data representing a color of the second motor vehicle, data representing a make of the second motor vehicle, and data representing a model of the second motor vehicle. The observable characteristics data is associated with the second communication device identifier and stored at the data storage unit of the server.

[0097] At step 1134, the server receives input data indicative of a selection from a user interface 800 of a first communication device (see Figure 2). In the present

embodiment, the input data is a command to proceed to step 1136. The input data is further a description of the observable characteristics of a motor vehicle. The description of the observable characteristics of the motor vehicle may include a color, a make, or a model, alone or in combination. The input data is further a description of a location of the motor vehicle with respect to the location of the first communication device transmitting the input data to the server.

[0098] At step 1136, the server first queries the data storage unit for the location data associated with the first communication device identifier. Then, the server uses the location data associated with the first communication device identifier to query for a second communication device identifier associated with matching location data. The location data is matching if the location data associated with the first communication device identifier and the second communication device identifier includes data representing a same portion of a known roadway and a same directional heading (see discussion of Figure 13). The server further uses the location data of the first communication device identifier and the location data of the second communication device identifier to calculate a linear distance between the first communication device and the second communication device.

[0099] At step 1138, the server uses the input data including the description of the observable characteristics of the motor vehicle to query for matching observable characteristics data associated with the second communication device identifier. If the observable characteristics data associated with the second communication device identifier match the observable characteristics included with the input data, the process proceeds to step 1140.

[00100] At step 1140, the server retrieves the second communication device identifiers associated with the matching location data and the matching observable characteristics data.

[00101] At step 1142, the server transmits data representing the second communication device identifier and other retrieved or calculated data associated with the second communication device identifier to the first communication device. In step 1144, the first communication device displays a visual representation at the user interface, which is data representing the second communication device identifier. In present embodiment, the visual representation displayed is a description of the observable characteristics previously associated with the communication device identifier at step 1132 (see Figure 14). The visual representation displayed is also a description of the calculated linear distance between the first communication device and the second communication device (also see Figure 14). In another embodiment, the visual representation may be displayed as numbers, letter, images, equations, colors, shapes, some other figures or characters, or a combination thereof.

[00102] Next, at step 1146, the server receives data indicative of a selection of a visual representation at the user interface of the first communication device. Then, at step 1148, the server associates the first communication device identifier and the selected second communication device identifier with a new logical group.

[00103] At step 1150, the first communication device associated with the new logical group transmits data representing analog voice signals using VoIP to the server. Then, at step 1152, the server receives the data representing voice signals. Then, at step 1154, the server compresses and combines the data representing analog voice signals into

a combined data packet representing the analog voice signals. The combined data packet representing the analog voice signals is then transmitted to all the communication devices associated with the pre-existing logical group at step 1156. In another embodiment, the second communication device transmits data representing analog voice signals. In another embodiment, any communication device associated with a device identifier which is further associated with the new logical group transmits data representing analog voice signals. Steps 1148–1156 are repeated when a communication device transmits new data representing analog voice signals.

[00104] At a step 1158, occurring after each of steps 1148–1156 has occurred at least once, the server disassociates the first communication device identifier and the second communication device identifier from the new logical group. Step 1158 occurs as a result of the server receiving input data indicative of a command to stop the process occurring in steps 1148–1156 from the first communication device. Alternatively, the input data indicative of the command to stop the process occurring in steps 1148-1156 is received from the second communication device.

[00105] In another embodiment, at steps 1136 and 1138, more than one communication device identifier is associated with location data and observable characteristic data matching the location data associated with the first communication device identifier and matching the observable characteristics data of the input data transmitted from the first communication device. If more than one communication device identifier is identified as a match, the server retrieves the communication device identifiers at step 1142. At step 1142, the server transmits data representing each communication device identifier and other retrieved or calculated data associated with

each communication device identifier to the first communication device. In step 1144, the first communication device displays a visual representation for each communication device identifier. At step 1146, the server receives data indicative of a selection of one of the communication device identifier. Then, at step 1148, the server associates the first communication device identifier and the selected communication device identifier with a new logical group. The process then proceeds to step 1150.

[00106] In another embodiment, the pre-configured parameters of the communication mode may be adjusted. Pre-configured parameters of operation of a communication mode that may be adjusted include, but are not limited to, the number of communication identifiers that may be associated with a pre-existing logical group or a new logical group, the device identifiers that may be associated with a logical group, the device identifiers that may not be associated with a logical group, and the parameters of the location data representing a portion of a known roadway.

[00107] In an additional embodiment, the step 1102 may be performed at any time during the steps of a process as illustrated in flowchart 300, 600, and 900, thereby interrupting a process as illustrated flowchart 300, 600, and 900.

[00108] Figure 12 illustrates a user interface 1200 presented at steps 1114 and 1130 of flowchart 1100 of another embodiment of the invention. The user interface 1200 includes a Color entry field 1210, a Make entry field 1220, a Model entry field 1230, and a saved observable characteristics data button 1240.

[00109] The user interface 1200 is a touch-sensitive display for inputting text into an entry field 1210–1230 or for selecting a saved profile. In operation, a user inputs text into each of the entry fields 1210–1230. A communication device then transmits input

data representing the data as entered at the user interface 1200. Therefore, the communication device transmits data representing a color of a motor vehicle, data representing a make of the motor vehicle, and data representing a model of the motor vehicle, or collectively observable characteristics data. The process as illustrated in flowchart 1100 then proceeds to step 1134. Alternatively, a user may select the saved observable characteristics data button 1240. In operation, upon selection of the saved observable characteristics data button 1240, the first communication device sends input data indicative of a selection of button 1240 to the server. The process as illustrated in flowchart 1100 then proceeds to step 1134.

[00110] In another embodiment, the user interface 1200 may also be display at a user interface of a communication device between steps 330 and 335 of flowchart 300, after step 612 and after step 624 of flowchart 600, and between steps 930 and 935 of flowchart 900.

[00111] Figure 13 is a map illustration 1300 that is representative of steps of flowchart 1100 of another embodiment of the invention. Map illustration 1300 includes a portion of a known roadway 1310, a directional heading 1320, a first vehicle having observable characteristics associated with a first communication device identifier 1330, a second vehicle having observable characteristics associated with a second communication device identifier 1340, and a third vehicle having observable characteristics associated with a third communication device identifier 1350.

[00112] For exemplary purposes, each of the communication device identifiers 1330–1350 is shown in map illustration 1300 such that each communication device identifier would be associated with matching location data. Thus, at step 1148 each of

the communication device identifiers 1330–1350 is associated with matching location data representing a portion of the known roadway 1310 and the directional heading 1320.

[00113] However, each of the communication device identifiers 1320 and 1330 has a different calculated linear distance from the first communication device identifier 1330. The linear distance between the first communication device identifier 1330 and the second communication device identifier 1320 and the linear distance between the first communication device identifier 1330 and the third communication device identifier 1340 is calculated at step 1136. The calculated linear distance includes both a measurable distance from the first communication device identifier 1330 and a positive or negative sign associated with the measurable distance. The measurable distance is positive if a communication device identifier is associated with location data that is ahead of location data of the first communication device identifier. The measurable distance is negative if a communication device identifier is associated with location data that is behind the location data of the first communication device identifier.

[00114] Further, the calculated linear distance is associated with a description of the calculated linear distance if the calculated linear distance has a value within a particular range. If the calculated linear distance has a positive value within a range of 2 m and up to 400 m, the description of the calculated linear distance is NearAhead. If the calculated linear distance has a positive value within a range of 400 m and up to 1600m, the description of the calculated linear distance is FarAhead. If the calculated linear distance has a negative value within a range of 2 m and up to 400 m, the description of the calculated linear distance is NearBehind. If the calculated linear distance has a positive value within a range of 400 m and up to 1600 m, the description of the calculated

linear distance is FarBehind. If the calculated linear distance has value within a range of between negative 2 m and positive 2 m, the description of the calculation linear distance is EvenWith.

[00115] In another embodiment, the history of the location of a communication device relative to the location of the first communication device is used to associate the calculated linear distance with a description of the calculated linear distance. For exemplary purposes, if the calculated linear distance is described as NearAhead and the calculated linear distance was either NearBehind or EvenWith in a range of time between 2 seconds and 30 seconds, the description of the calculated distance is PassedMe.

[00116] For exemplary purposes, the description of the calculated linear distance between the first communication device identifier 1330 and the second communication device identifier 1340 is NearAhead. The description of the calculated linear distance between the first communication device identifier 1330 and the third communication device identifier 1350 is NearBehind.

[00117] In another embodiment, the map illustration 1300 is presented at a user interface of a communication device. The map illustration 1300 may include, but is not limited to including, representations of a geographic area associated with a portion of a known roadway, a symbol representing a communication device, the symbol representing the communication device further indicating the communication mode or modes that a device identifier of the communication device is associated with. Alternatively, the symbol is represented in numbers, letter, images, equations, colors, shapes, other figures and characters, or a combination thereof.

[00118] In an additional embodiment, parameters of a range associated with a description of a calculated linear distance may be adjusted.

[00119] In an additional embodiment, the map illustration 1300 is interactive.

[00120] In an additional embodiment, the map illustration 1300 is combined with data as illustrated by map illustration 400, 700, and 1000, alone or in combination with one another.

[00121] Figure 14 illustrates a user interface 1400 of a communication device presented at step 1144 illustrated in flowchart 1100 in an additional embodiment of the invention. The user interface 1400 includes a description of the observable characteristics of a first motor vehicle 1410, includes a description of the observable characteristics of a second motor vehicle 1420, and includes a description of the observable characteristics of a third motor vehicle 1430. Each of the first, second, and third descriptions of the observable characteristics of a motor vehicle are stored at a server, respectively. In operation, upon selection of the description of the observable characteristics of a first, second, or third motor vehicle, the first communication device transmits input data indicative of a command for the server to associate the communication device identifier with a device identifier associated with the selection description of the observable characteristics.

[00122] In another embodiment, the user interface 1400 is a touch-sensitive display.

[00123] In an alternative embodiment, each of the first, second, and third descriptions of the observable characteristics of a motor vehicle is represented in

numbers, letters, images, symbols, equations, colors, shapes, other figures and characters, or a combination thereof.

[00124] Figure 15 illustrates a user interface 1500 of a communication device presented in an alternative embodiment of the flowchart 1100 of the invention. In the alternative embodiment of the flowchart 1100, the user interface 1500 is present after step 1146 and 1148. The user interface 1500 includes an Accept button 1510 and a Reject button 1520.

[00125] In operation, upon selection of the Accept button 1510, the server receives input data indicative of a command to associate the second communication device identifier with the first communication device identifier in the new logical group at step 1148. The process then proceeds to step 1150. Upon selection of the Reject button 1520, the server receives input data indicative of a command to not associate the second communication device identifier with the first communication device identifier in the new logical group at step 1148. Therefore, the process does not proceed to step 1150.

[00126] In an alternative embodiment of the flowchart 300, the flowchart 600, and the flowchart 900, a user interface similar in appearance and functionality may be presented at the user interface prior to a step in which a communication device identifier is associated with a pre-existing logical group.

[00127] In another embodiment, the user interface 1500 is a touch-sensitive display.

[00128] In an alternative embodiment, each of the buttons 1510, 1520 is represented in numbers, letters, images, symbols, equations, colors, shapes, other figures and characters, or a combination thereof.

[00129] While particular elements, embodiments, and applications of the invention have been shown and described, it is understood that the invention is not limited thereto because modifications may be made by those skilled in the art, particularly in light of the foregoing teaching. It is therefore contemplated by the appended claims to cover such modifications and incorporate those features which come within the spirit and scope of the invention.

ABSTRACT should be at end

A [method and/or system] is provided which [describe invention as claimed]

1. A system for communication, the system comprising:

a server including a data storage unit and a data processor unit,

wherein the data storage unit stores a communication device identifier, pre-configured parameters of operation, a logical group, and data representing a location of a communication device,

wherein the data processor unit associates the communication device identifier with the logical group using the pre-configured parameters of operation and the data representing the location of the communication device.

2. The system of claim 1, further comprising a communication device, wherein the communication device includes a global positioning system (GPS).

3. The system of claim 2, wherein the communication device transmits to the data storage unit data representing the location of the communication device.

4. The system of claim 1, wherein the data representing the location of the communication device includes data representing a geographic location and data representing a directional heading.

5. The system of claim 1, wherein the pre-configured parameters of operation match the data representing the location of the communication device with a range of location data representing a pre-determined circular geographic area.

6. The system of claim 1, wherein the pre-configured parameters of operation match the data representing the location of the communication device with a range of location data representing a portion of a known roadway.

7. The system of claim 6, wherein the pre-configured parameters of operation further match the data representing the location of the communication device with a range of location data representing a directional heading on the portion of the known roadway.

8. The system of claim 1, wherein the data storage unit further stores data representing observable characteristics of a motor vehicle, wherein the data representing observable characteristics of the motor vehicle includes data representing a color of the motor vehicle, data representing a make of the motor vehicle, and data representing a model of the motor vehicle.

9. The system of claim 8, wherein the data processor unit associates the data representing observable characteristics of the motor vehicle with the communication device identifier.

10. The system of claim 2, wherein the communication device is configured to transmit and receive analog voice signals using voice over internet protocol (VoIP).

11. The system of claim 1, wherein the server is operable for receiving and transmitting analog voice signals using VoIP.

12. A method for communication, the method comprising:

receiving data representing a location of a first communication device at a server, wherein the data representing the location of the first communication device is associated with a first communication device identifier;

querying a data storage unit for a logical group including data representing a range of location data representing a pre-determined geographic area;

identifying the logical group including data representing the range of location data representing the pre-determined geographic area, wherein the logical group further includes data representing the location of the first communication device; and

associating the first communication device identifier with the logical group.

13. The method of claim 12, wherein the pre-determined geographic area is a circular area calculated using an adjustable radius value.

14. The method of claim 12, further comprising associating a second communication device identifier with the logical group.

15. The method of claim 12, further comprising transmitting data representing an analog voice signal using VoIP from the first communication device to the server.

16. The method of claim 15, further comprising compressing data representing analog voice signal at the server.

17. The method of claim 16, further comprising transmitting compressed data representing analog voice signal to communication devices associated with the logical group, wherein the logical group includes the first communication device identifier and the second communication device identifier.

18. A method for communication, the method comprising:

receiving data representing a location of a first communication device at a server, wherein the data representing the location of the first communication device is associated with a first communication device identifier stored at a data storage unit;

receiving data representing observable characteristics of a motor vehicle at the server;

querying the data storage unit for a second communication device identifier associated with data representing a location of the second communication device identifier within a pre-determined linear distance from the data representing the location of the first communication device;

querying the data storage unit for the second communication device identifier associated with the received data representing observable characteristics of the motor vehicle;

identifying the second communication device identifier; and

associating the first communication device identifier and the second communication device identifier with a logical group.

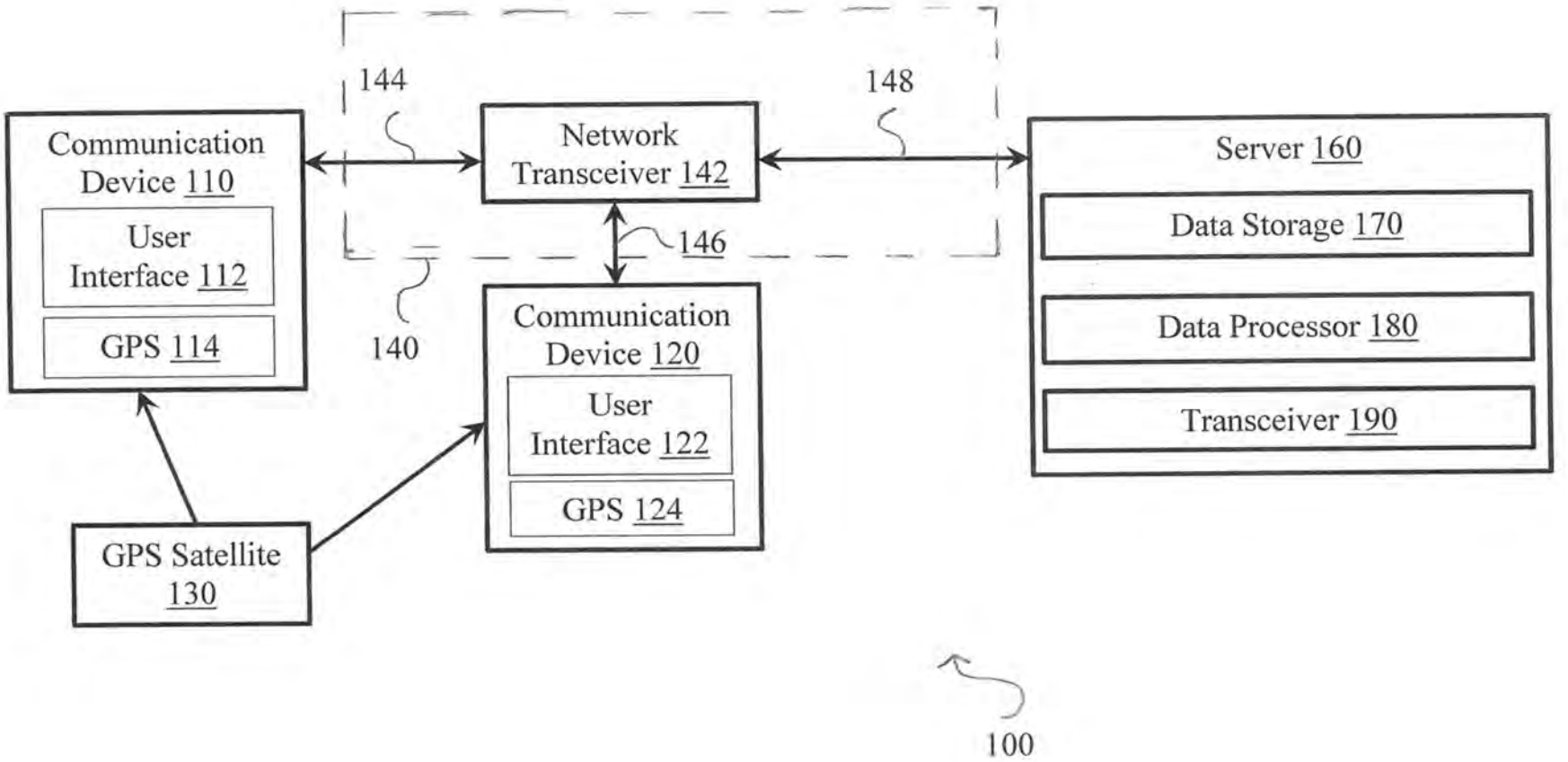
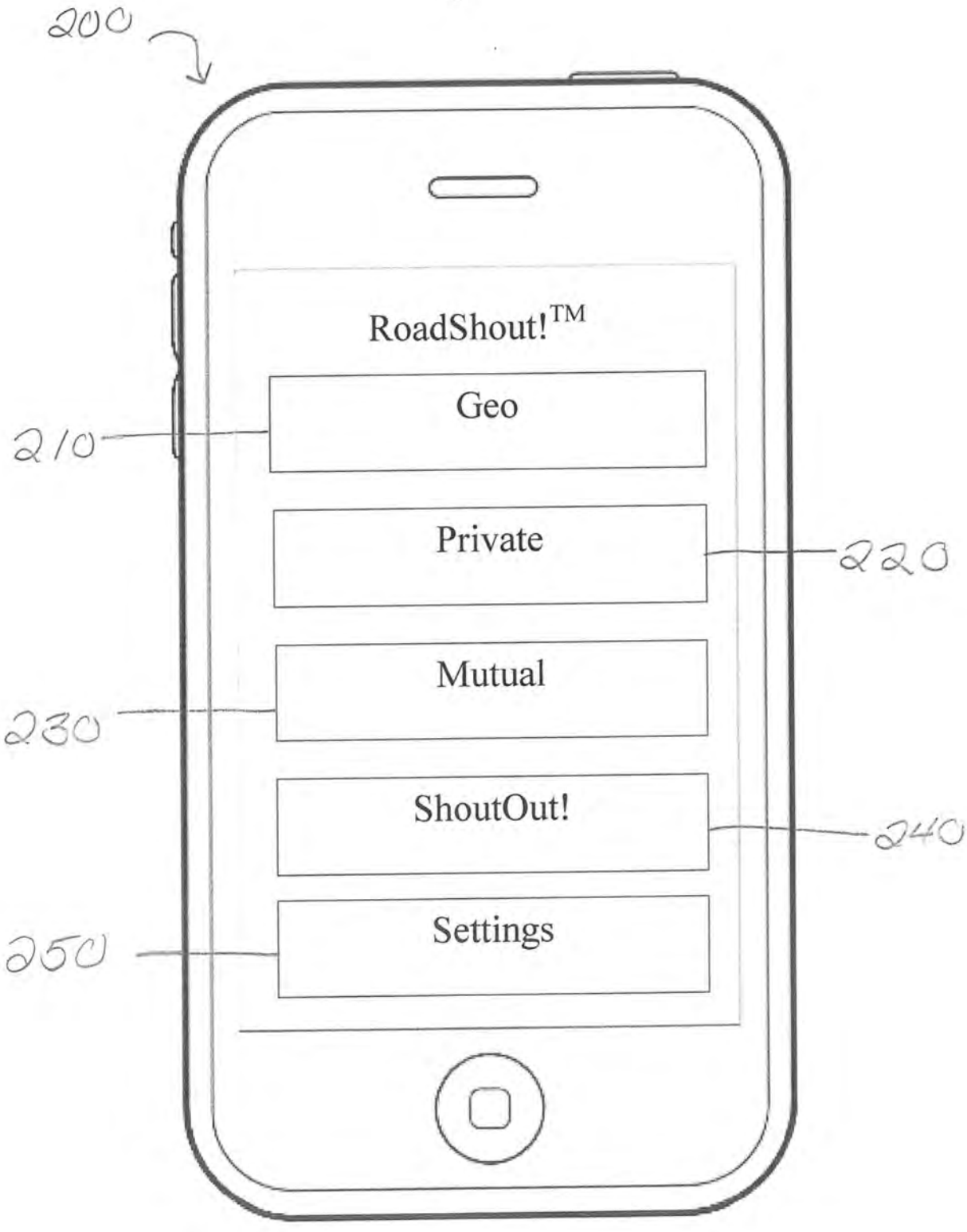

144
148
Communication Device 110
User Interface 112
GPS 114
Network Transceiver 142
146
Server 160
Data Storage 170
Data Processor 180
Transceiver 190
140
Communication Device 120
User Interface 122
GPS 124
GPS Satellite 130
100

Figure 1

Figure 2


200
RoadShout!™
Geo
210
Private
220
Mutual
230
ShoutOut!
240
Settings
250

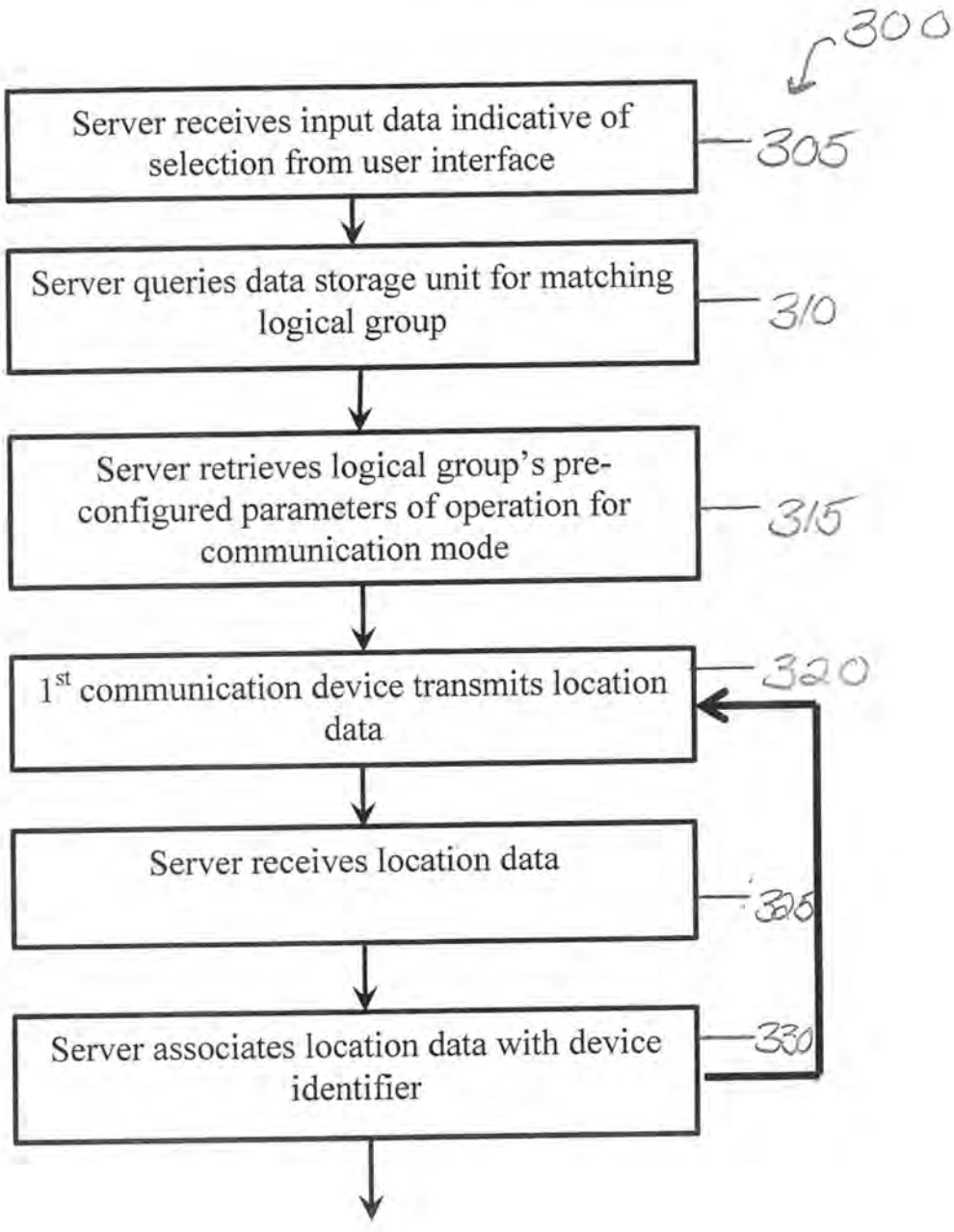

300
Server receives input data indicative of selection from user interface
305
Server queries data storage unit for matching logical group
310
Server retrieves logical group's pre-configured parameters of operation for communication mode
315
1st communication device transmits location data
320
Server receives location data
325
Server associates location data with device identifier
330

Figure 3A

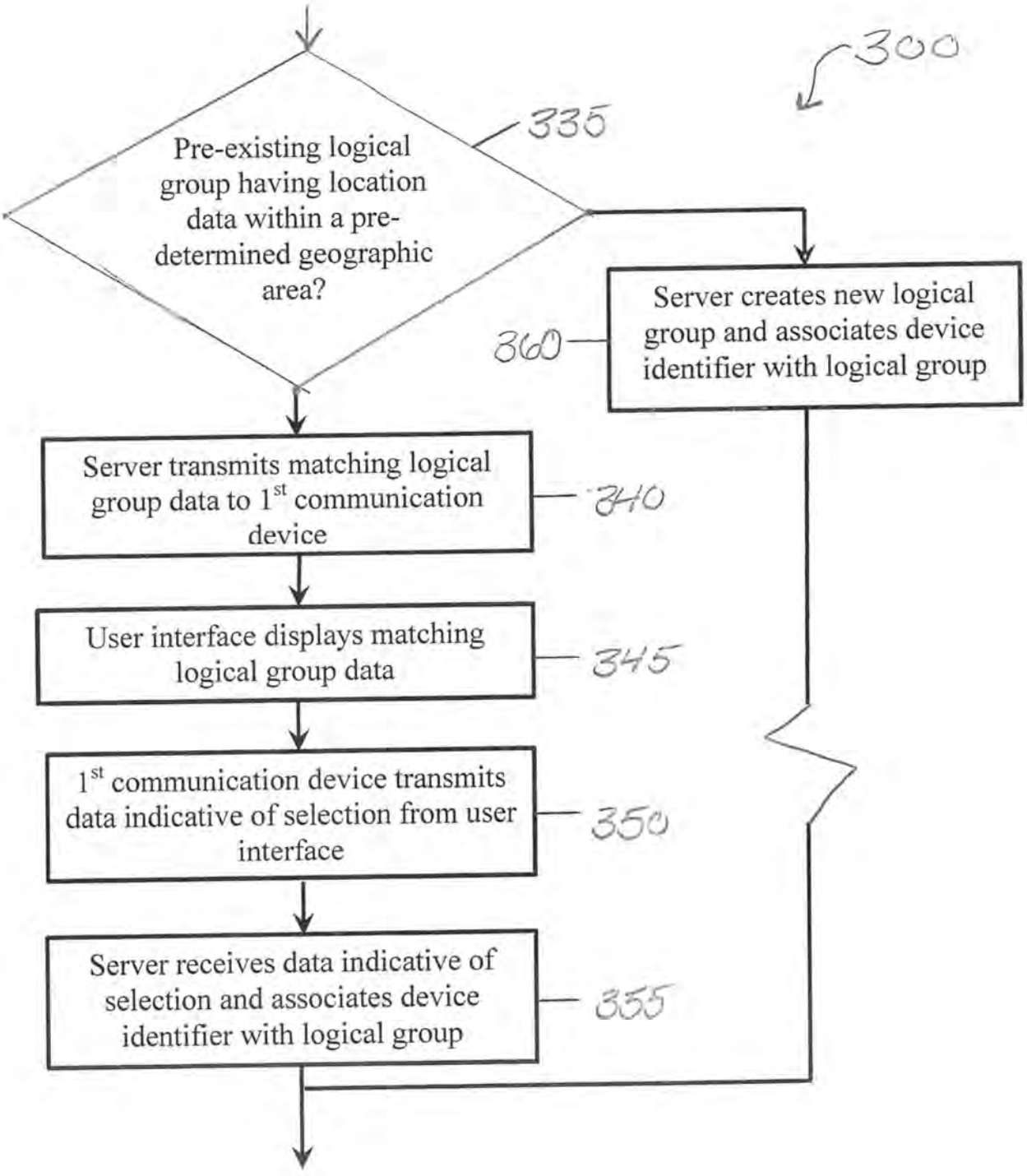

300
335
Pre-existing logical group having location data within a pre-determined geographic area?
360
Server creates new logical group and associates device identifier with logical group
Server transmits matching logical group data to 1st communication device
340
User interface displays matching logical group data
345
1st communication device transmits data indicative of selection from user interface
350
Server receives data indicative of selection and associates device identifier with logical group
355

Figure 3B

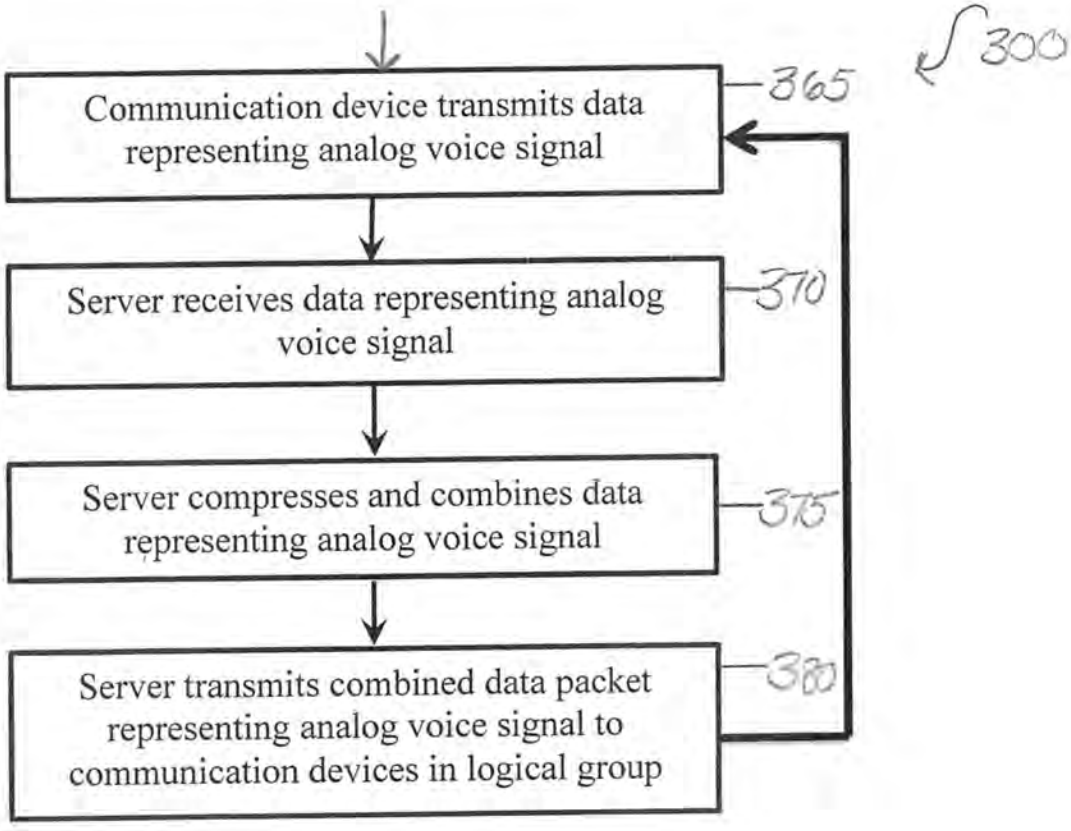

300
Communication device transmits data representing analog voice signal
365
Server receives data representing analog voice signal
370
Server compresses and combines data representing analog voice signal
375
Server transmits combined data packet representing analog voice signal to communication devices in logical group
380

Figure 3C

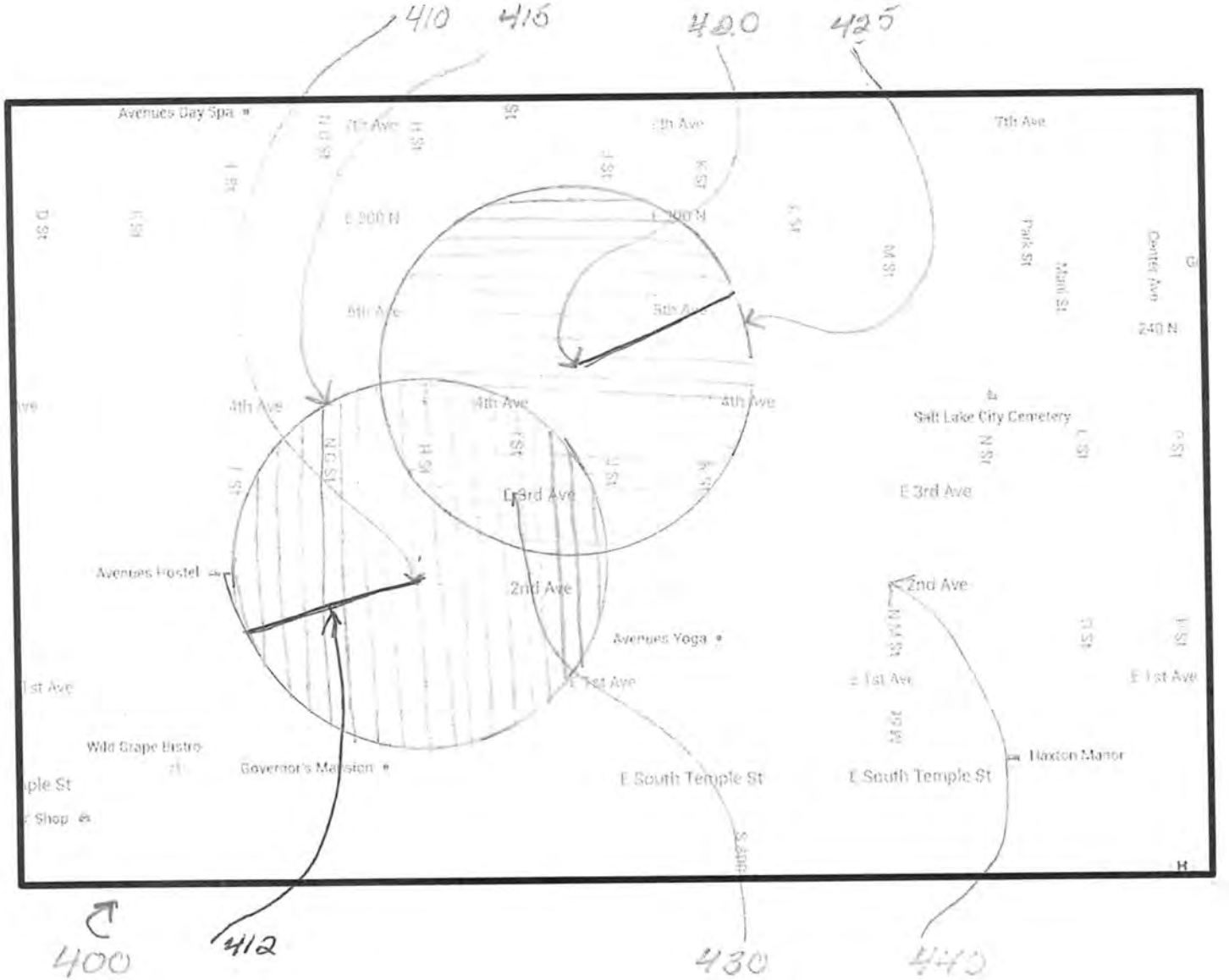

410
415
420
425
Avenues Day Spa
7th Ave
E 300 N
5th Ave
4th Ave
Salt Lake City Cemetery
E 3rd Ave
2nd Ave
Avenues Hostel
Avenues Yoga
1st Ave
Wild Grape Bistro
Governor's Mansion
E South Temple St
Haxton Manor
400
412
430
440

Figure 4

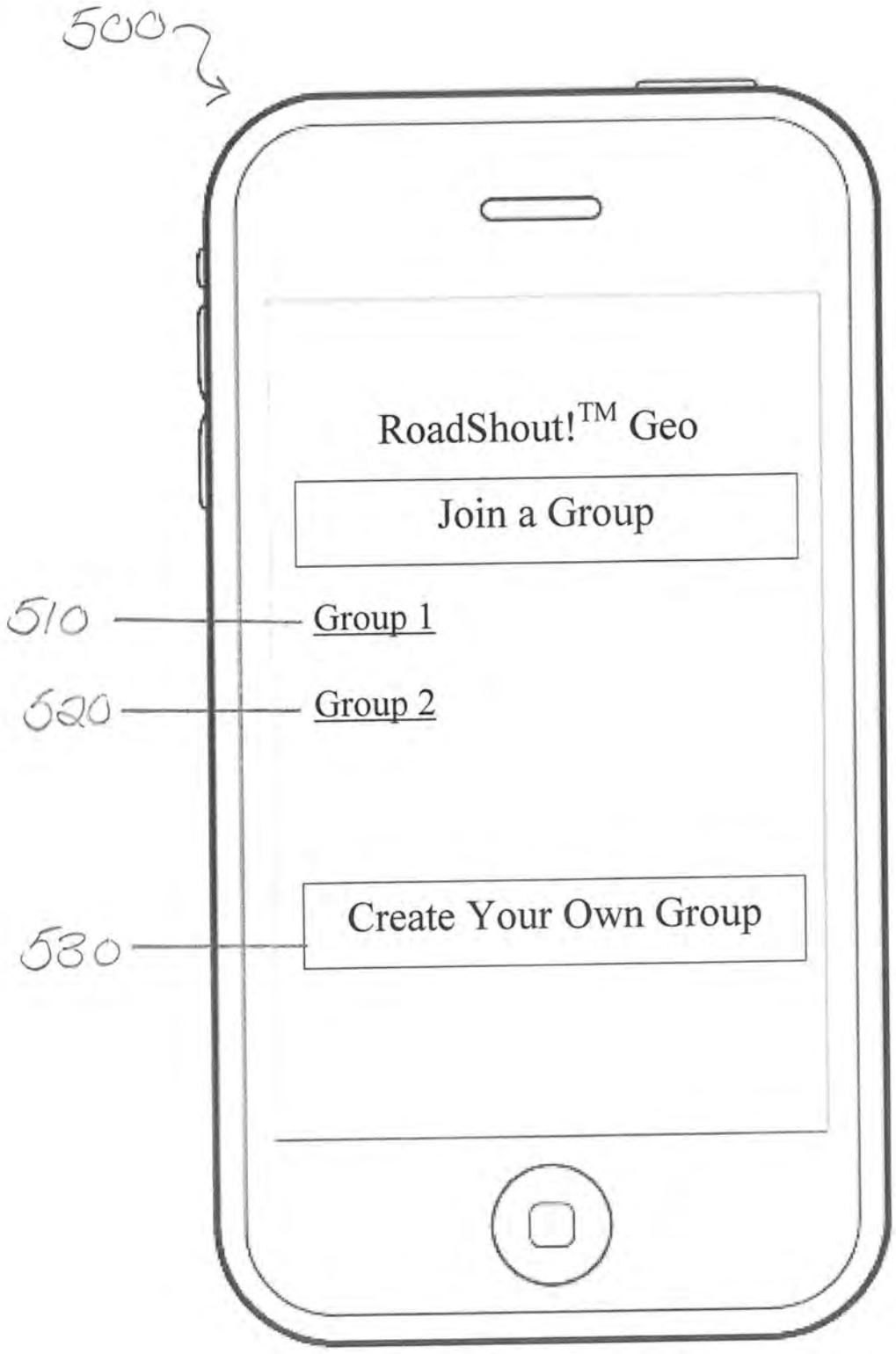

500
RoadShout!™ Geo
Join a Group
510
Group 1
520
Group 2
Create Your Own Group
530

Figure 5

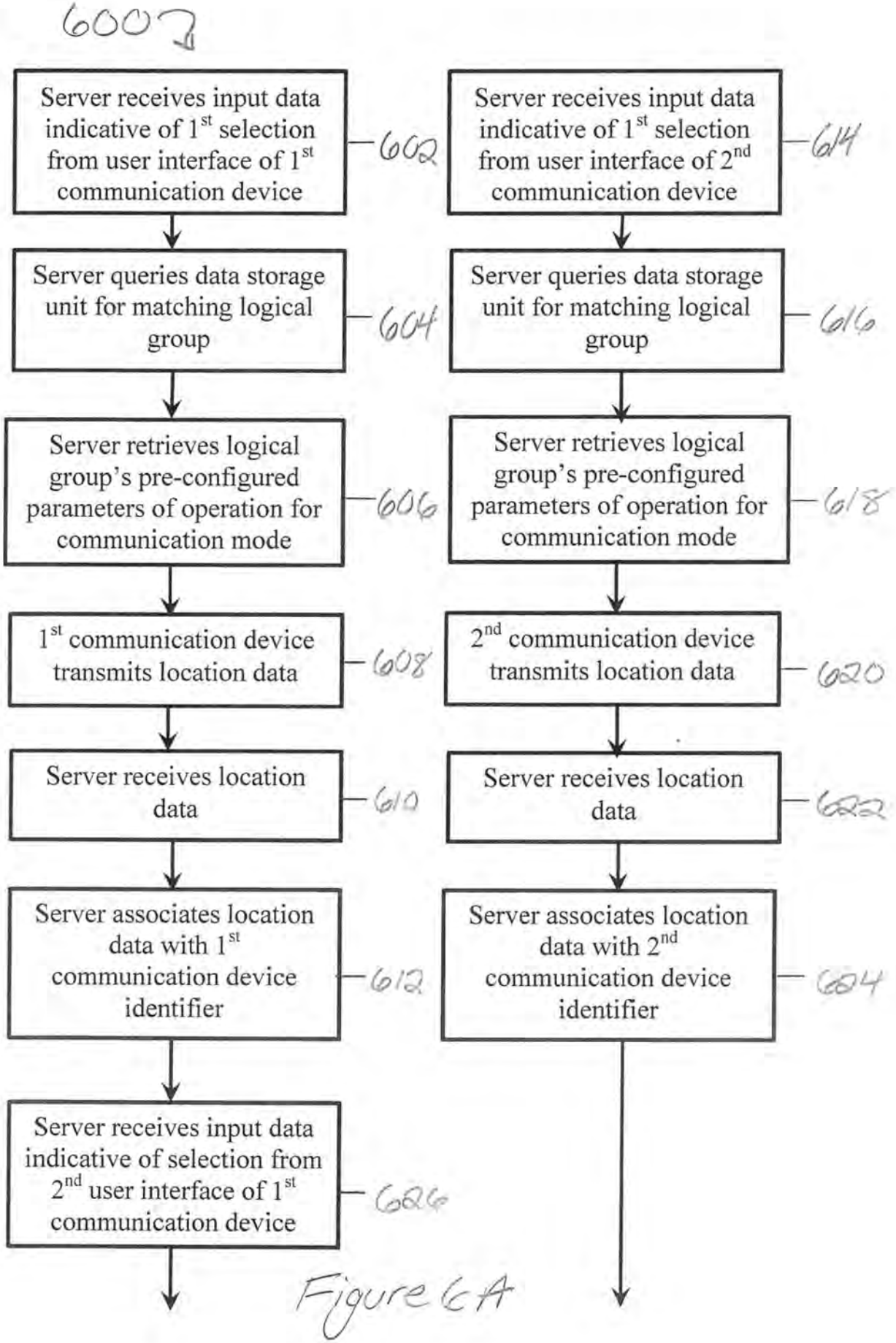

600
Server receives input data indicative of 1st selection from user interface of 1st communication device
602
Server queries data storage unit for matching logical group
604
Server retrieves logical group's pre-configured parameters of operation for communication mode
606
1st communication device transmits location data
608
Server receives location data
610
Server associates location data with 1st communication device identifier
612
Server receives input data indicative of selection from 2nd user interface of 1st communication device
626
Server receives input data indicative of 1st selection from user interface of 2nd communication device
614
Server queries data storage unit for matching logical group
616
Server retrieves logical group's pre-configured parameters of operation for communication mode
618
2nd communication device transmits location data
620
Server receives location data
622
Server associates location data with 2nd communication device identifier
624

Figure 6A

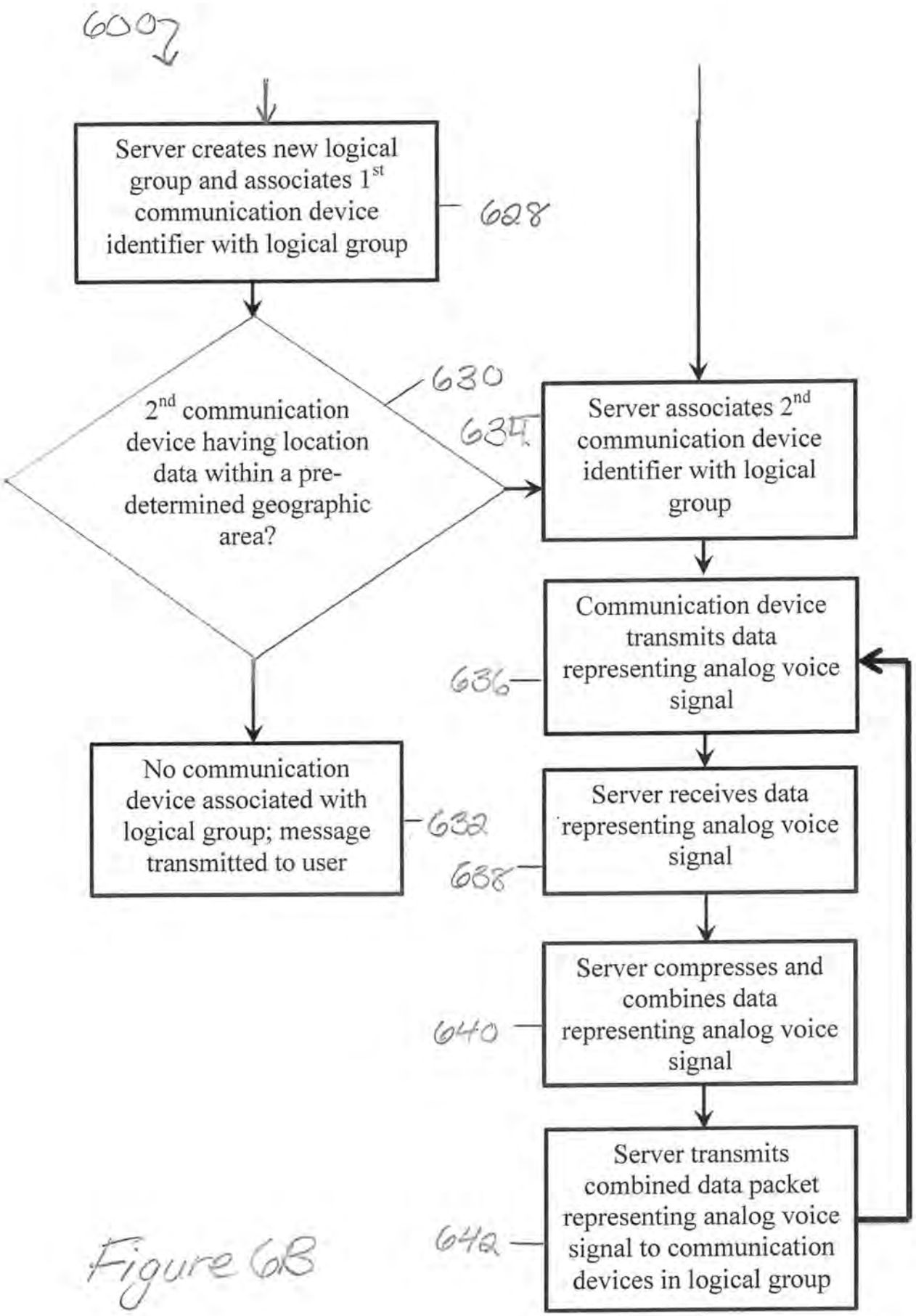

600
Server creates new logical group and associates 1st communication device identifier with logical group
628
2nd communication device having location data within a pre-determined geographic area?
630
No communication device associated with logical group; message transmitted to user
632
Server associates 2nd communication device identifier with logical group
634
Communication device transmits data representing analog voice signal
636
Server receives data representing analog voice signal
638
Server compresses and combines data representing analog voice signal
640
Server transmits combined data packet representing analog voice signal to communication devices in logical group
642

Figure 6B

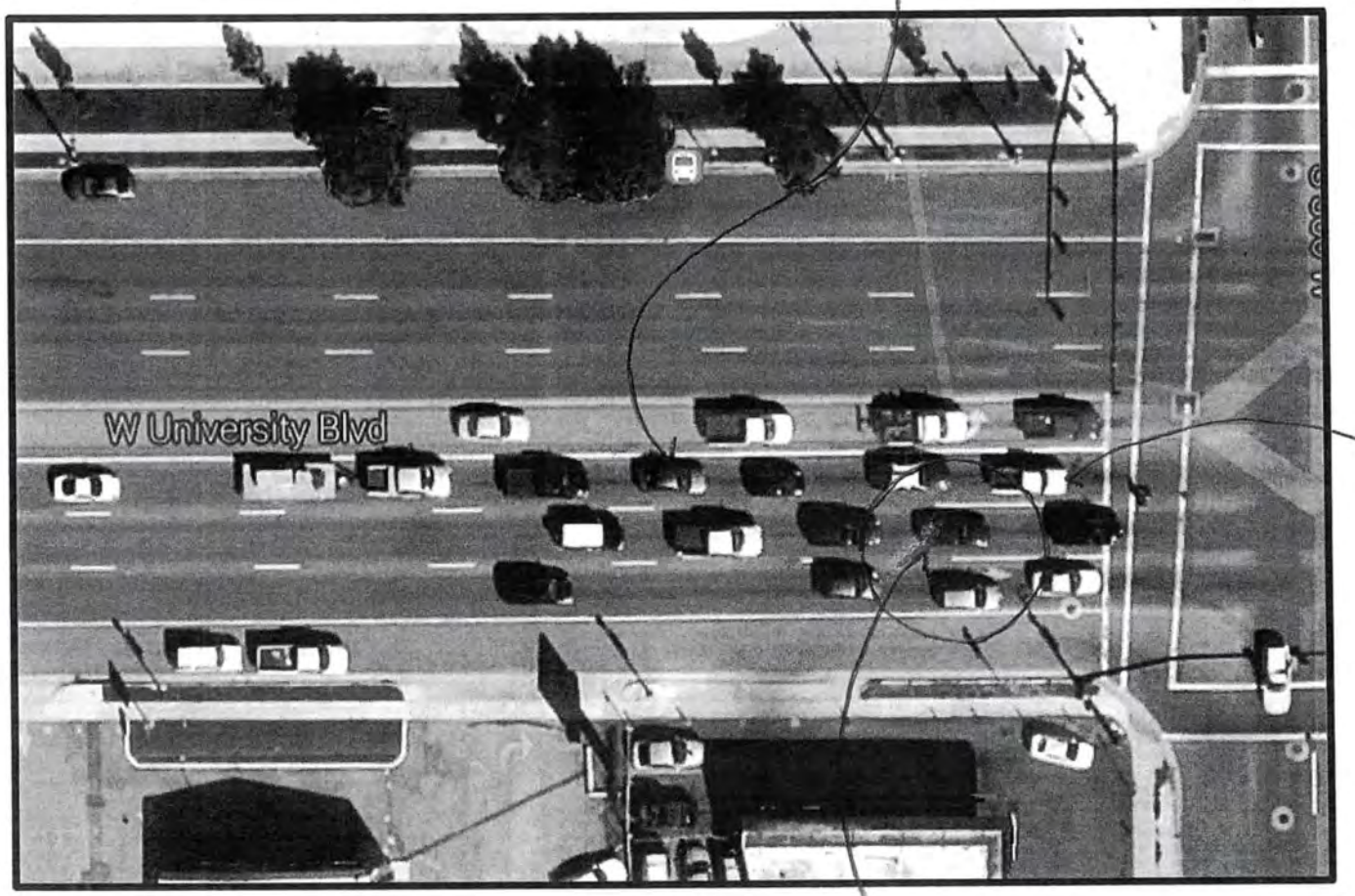


Figure 7

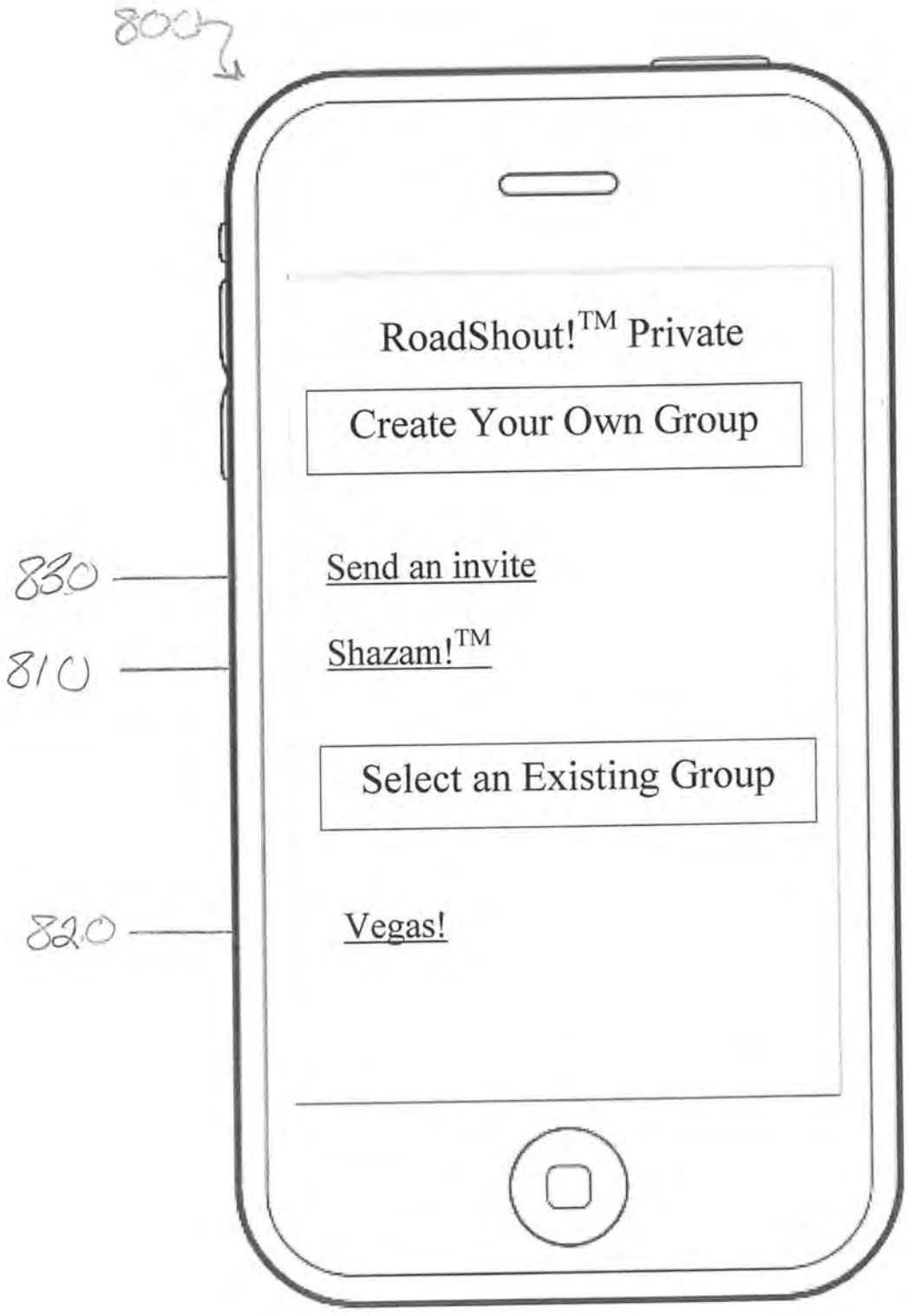

800
RoadShout!™ Private
Create Your Own Group
830
Send an invite
810
Shazam!™
Select an Existing Group
820
Vegas!

Figure 8

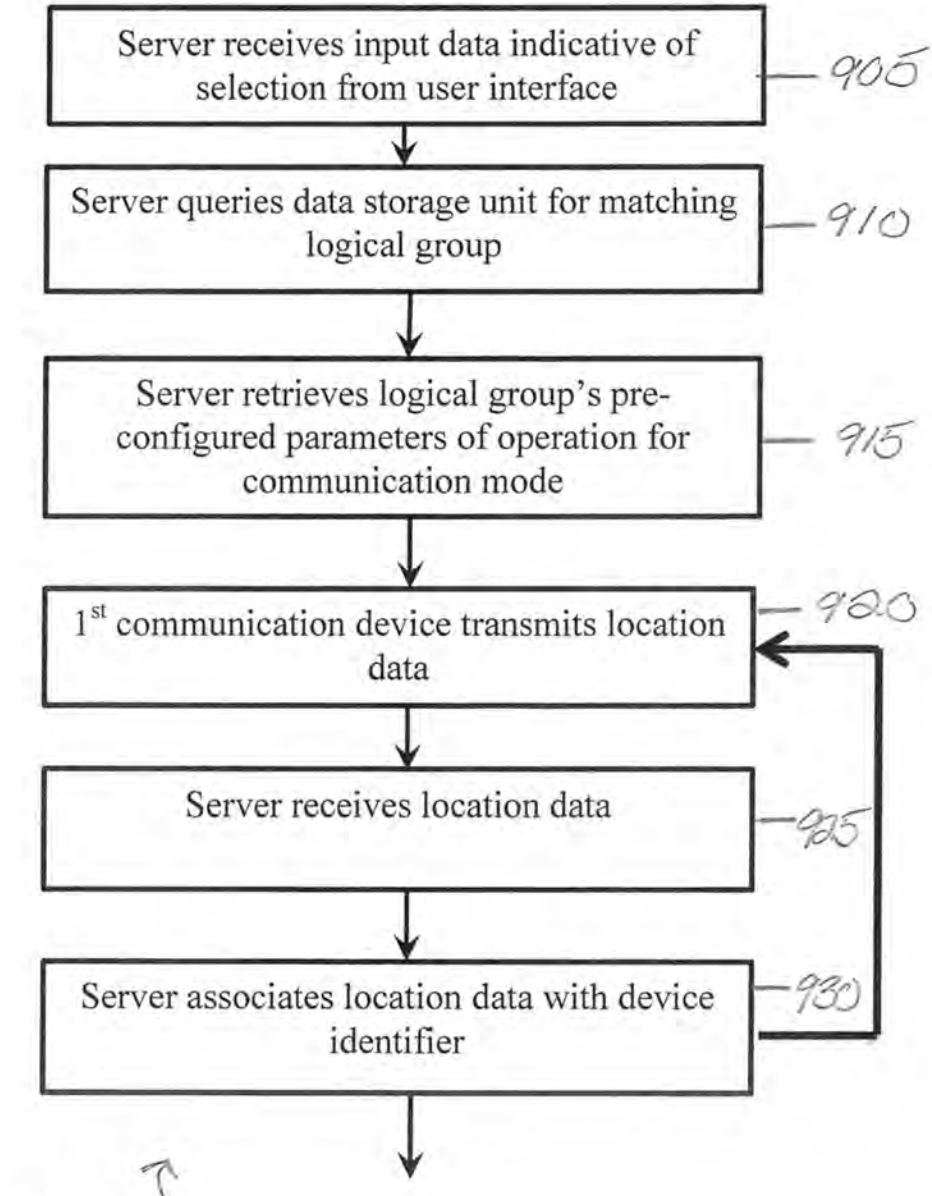

Server receives input data indicative of selection from user interface
905
Server queries data storage unit for matching logical group
910
Server retrieves logical group's pre-configured parameters of operation for communication mode
915
1st communication device transmits location data
920
Server receives location data
925
Server associates location data with device identifier
930
900

Figure 9A

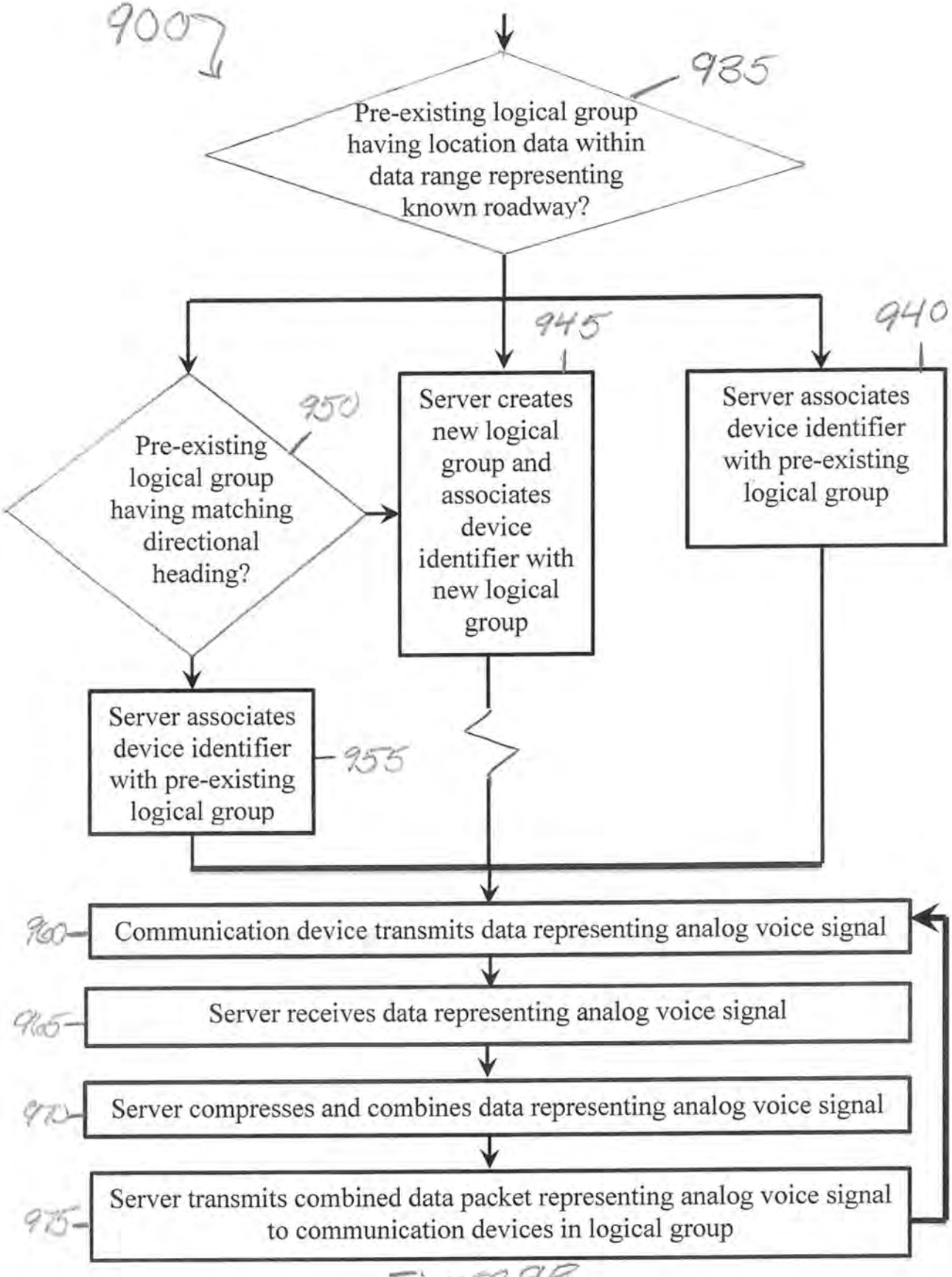

900
935
Pre-existing logical group having location data within data range representing known roadway?
945
940
950
Pre-existing logical group having matching directional heading?
Server creates new logical group and associates device identifier with new logical group
Server associates device identifier with pre-existing logical group
Server associates device identifier with pre-existing logical group
955
960
Communication device transmits data representing analog voice signal
965
Server receives data representing analog voice signal
970
Server compresses and combines data representing analog voice signal
975
Server transmits combined data packet representing analog voice signal to communication devices in logical group

Figure 9B

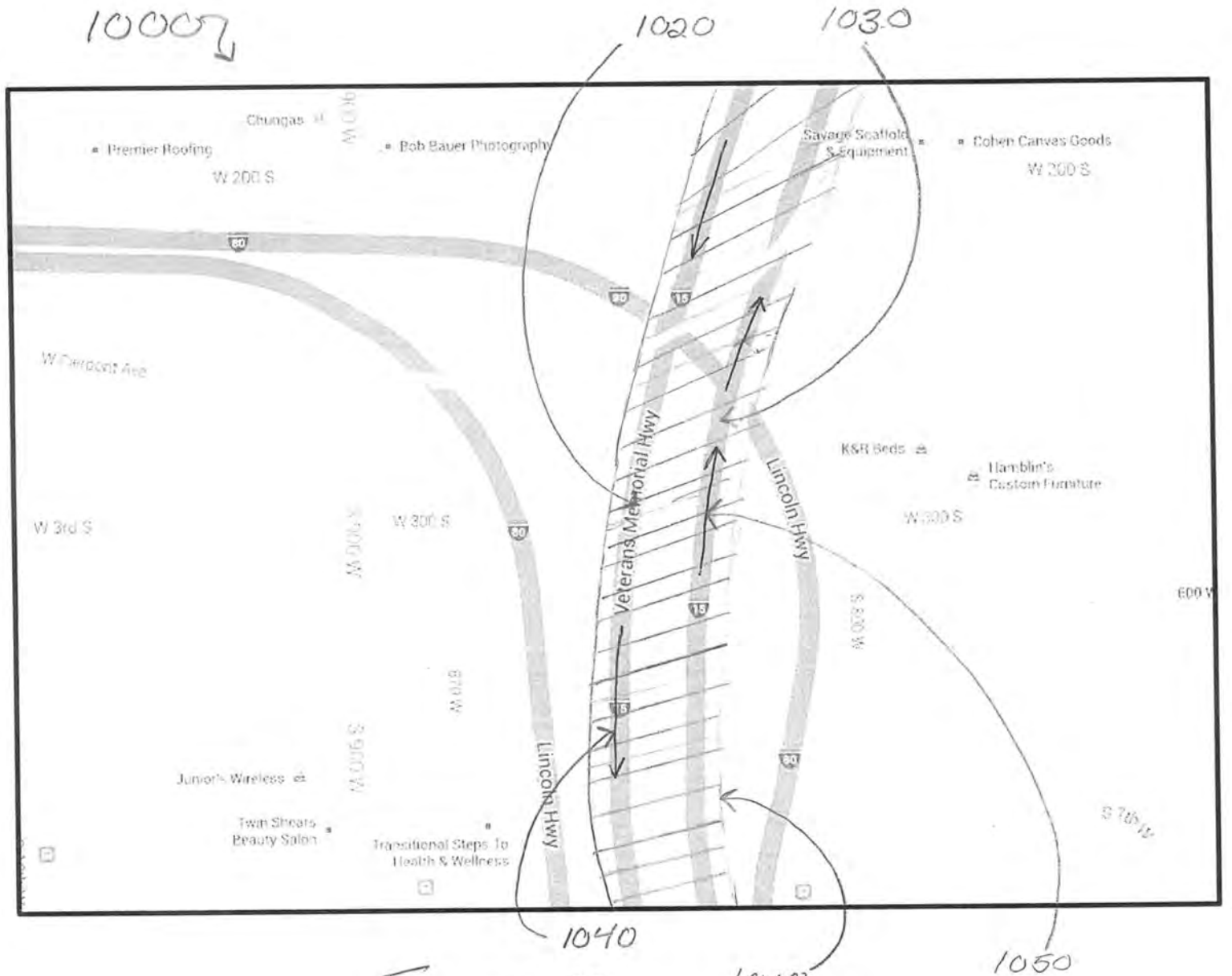

1000
1020
1030
Premier Roofing
Bob Bauer Photography
Savage Scaffold & Equipment
Cohen Canvas Goods
W 200 S
W 300 S
W 3rd S
Veterans Memorial Hwy
Lincoln Hwy
K&R Beds
Hamblin's Custom Furniture
Junon's Wireless
Twin Sheers Beauty Salon
Transitional Steps To Health & Wellness
1040
1010
1050

Figure 10

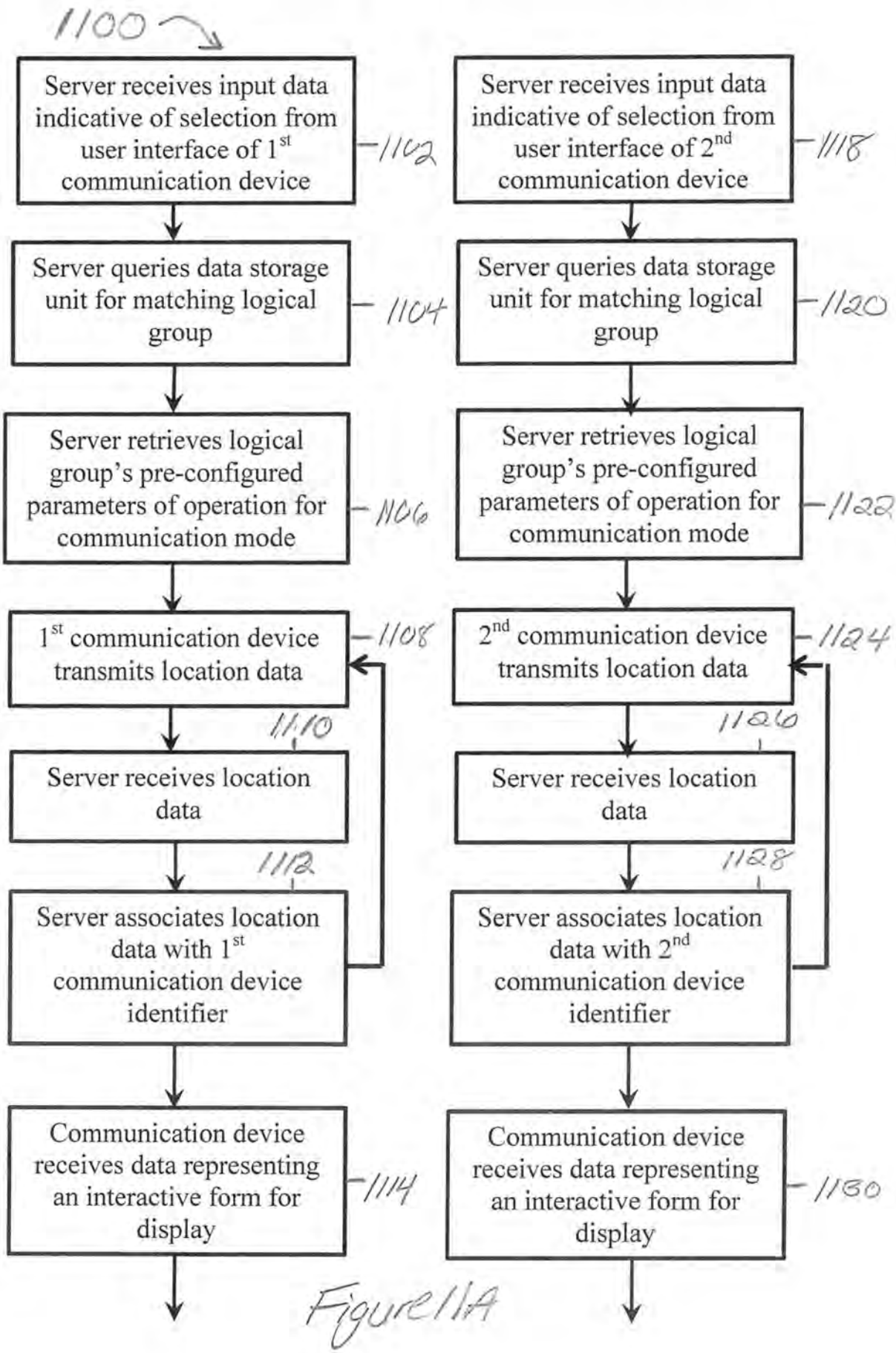

1100
Server receives input data indicative of selection from user interface of 1st communication device
1102
Server queries data storage unit for matching logical group
1104
Server retrieves logical group's pre-configured parameters of operation for communication mode
1106
1st communication device transmits location data
1108
1110
Server receives location data
1112
Server associates location data with 1st communication device identifier
Communication device receives data representing an interactive form for display
1114
Server receives input data indicative of selection from user interface of 2nd communication device
1118
Server queries data storage unit for matching logical group
1120
Server retrieves logical group's pre-configured parameters of operation for communication mode
1122
2nd communication device transmits location data
1124
1126
Server receives location data
1128
Server associates location data with 2nd communication device identifier
Communication device receives data representing an interactive form for display
1130

Figure 11A

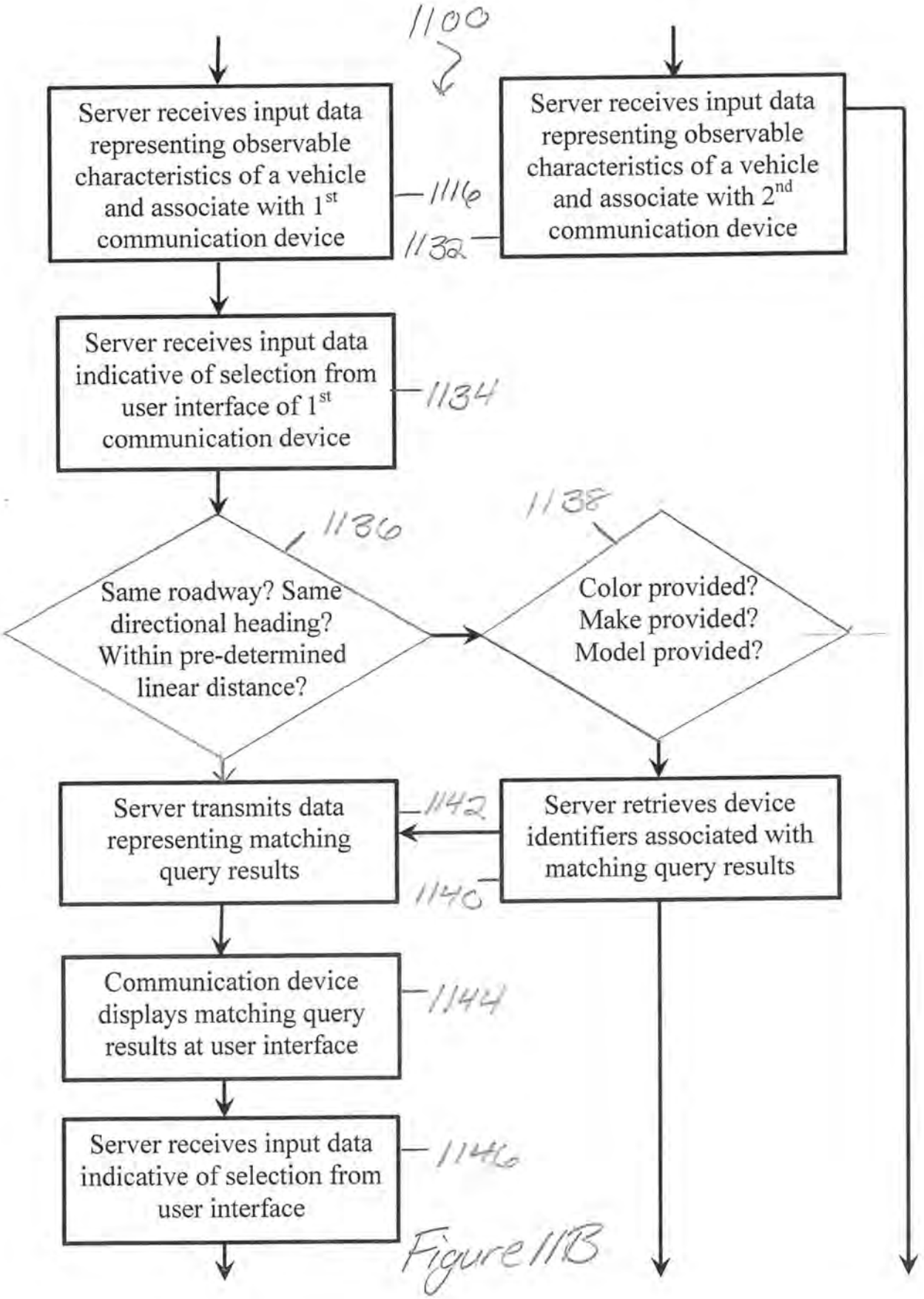

1100
Server receives input data representing observable characteristics of a vehicle and associate with 1st communication device
1116
Server receives input data representing observable characteristics of a vehicle and associate with 2nd communication device
1132
Server receives input data indicative of selection from user interface of 1st communication device
1134
1136
Same roadway? Same directional heading? Within pre-determined linear distance?
1138
Color provided? Make provided? Model provided?
Server transmits data representing matching query results
1142
Server retrieves device identifiers associated with matching query results
1140
Communication device displays matching query results at user interface
1144
Server receives input data indicative of selection from user interface
1146

Figure 11B

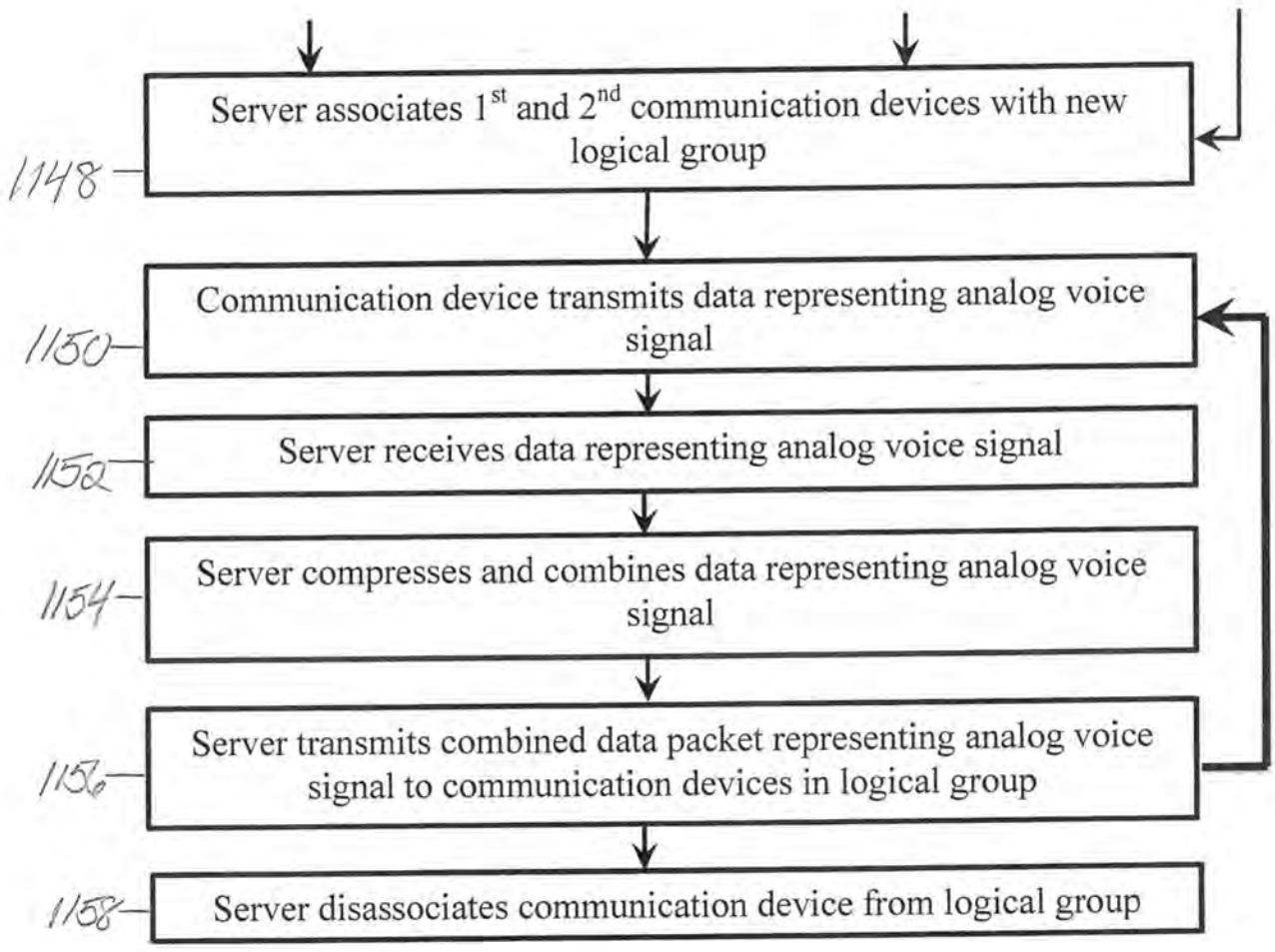

Server associates 1st and 2nd communication devices with new logical group
1148
Communication device transmits data representing analog voice signal
1150
Server receives data representing analog voice signal
1152
Server compresses and combines data representing analog voice signal
1154
Server transmits combined data packet representing analog voice signal to communication devices in logical group
1156
Server disassociates communication device from logical group
1158

Figure 11C

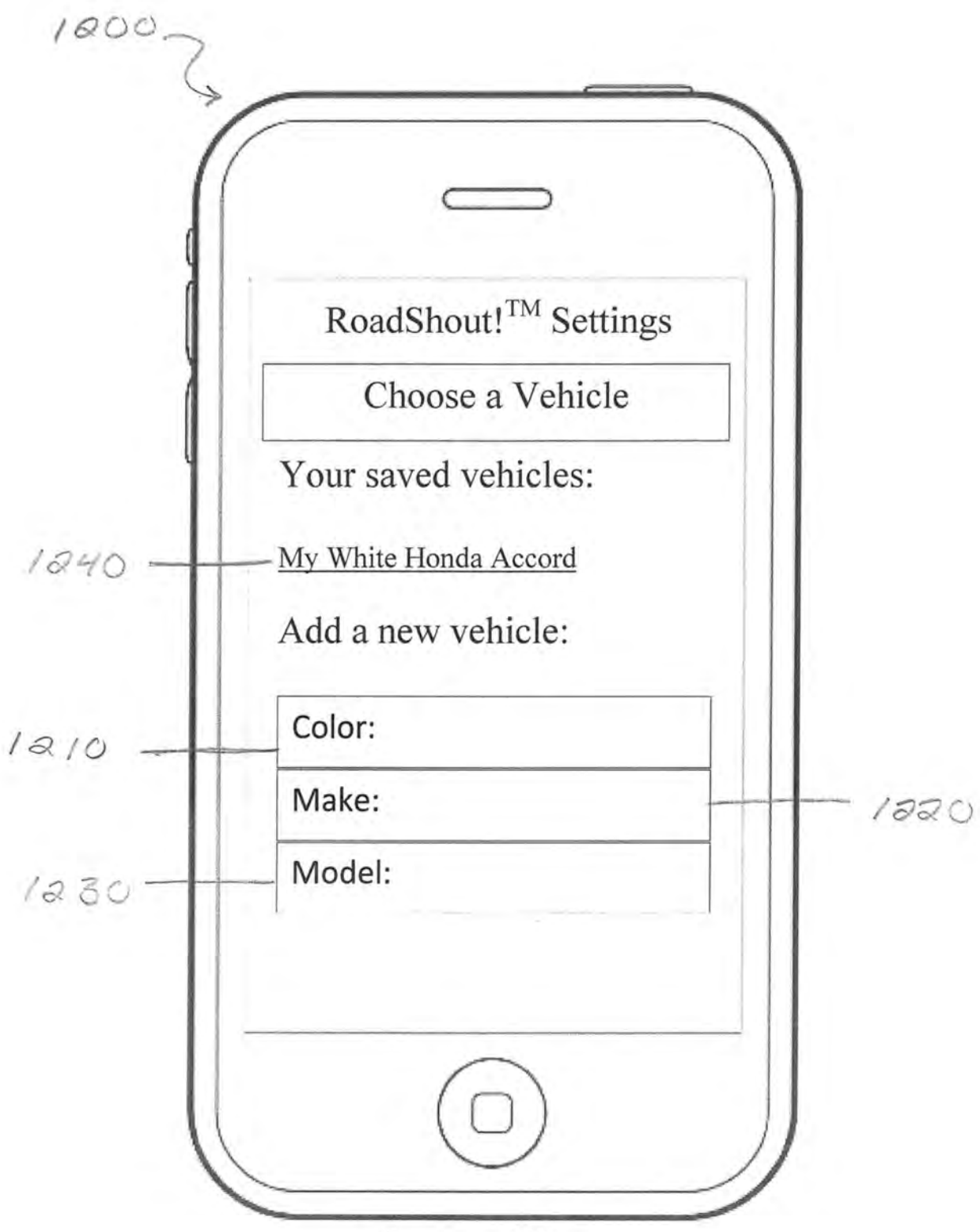

1200
RoadShout!™ Settings
Choose a Vehicle
Your saved vehicles:
1240
My White Honda Accord
Add a new vehicle:
1210
Color:
Make:
1220
1230
Model:

Figure 12

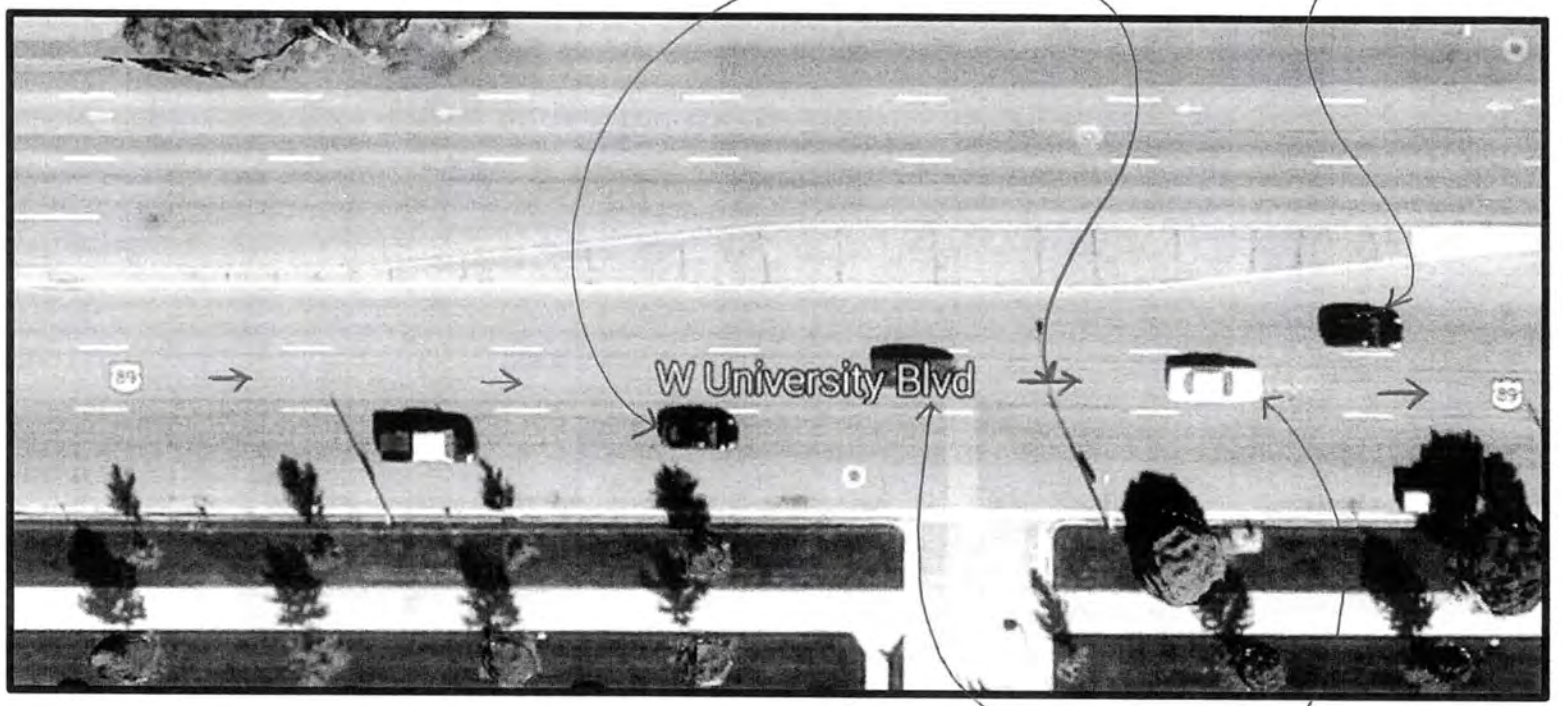


Figure 13

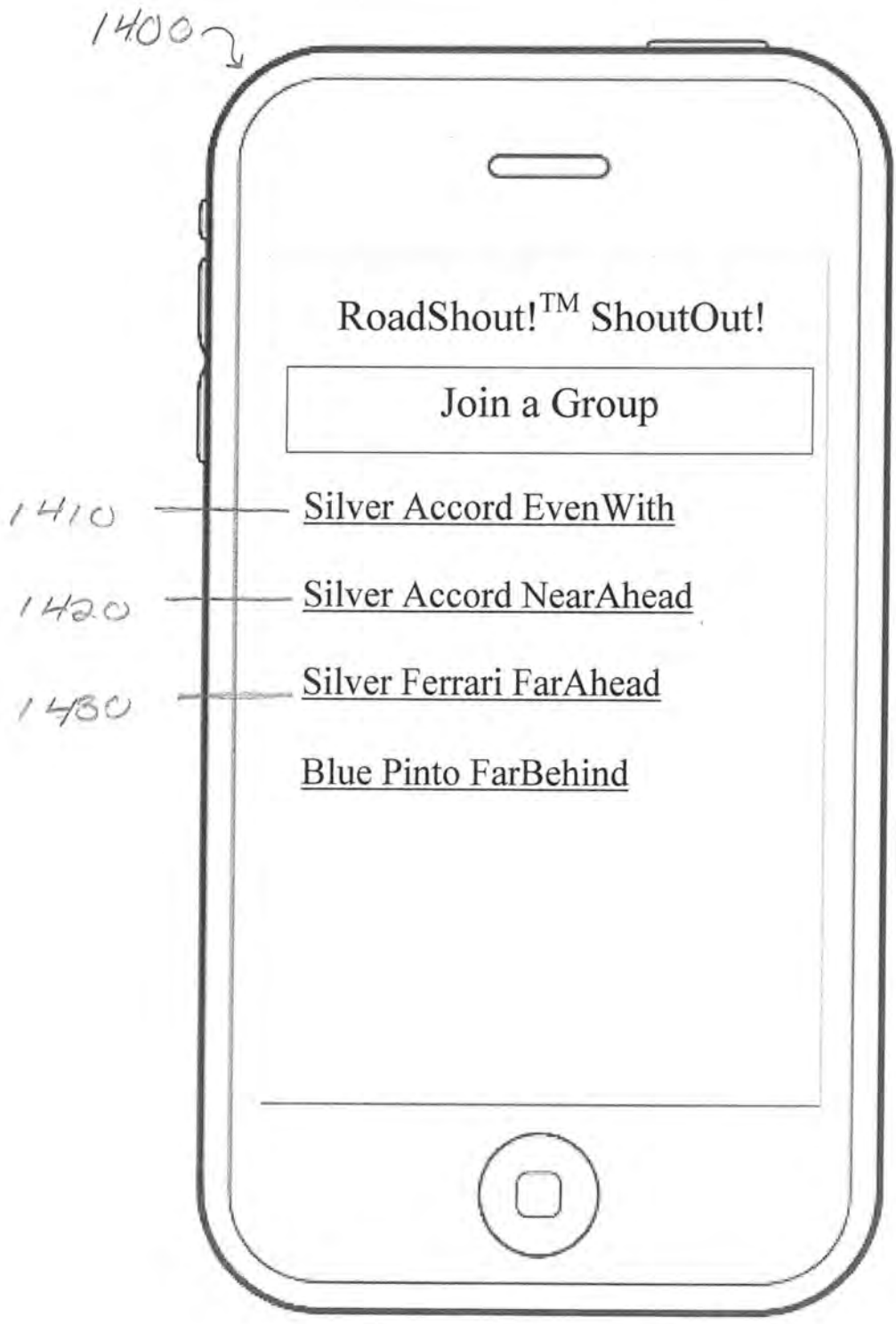

1400
RoadShout!™ ShoutOut!
Join a Group
1410
Silver Accord EvenWith
1420
Silver Accord NearAhead
1430
Silver Ferrari FarAhead
Blue Pinto FarBehind

Figure 14

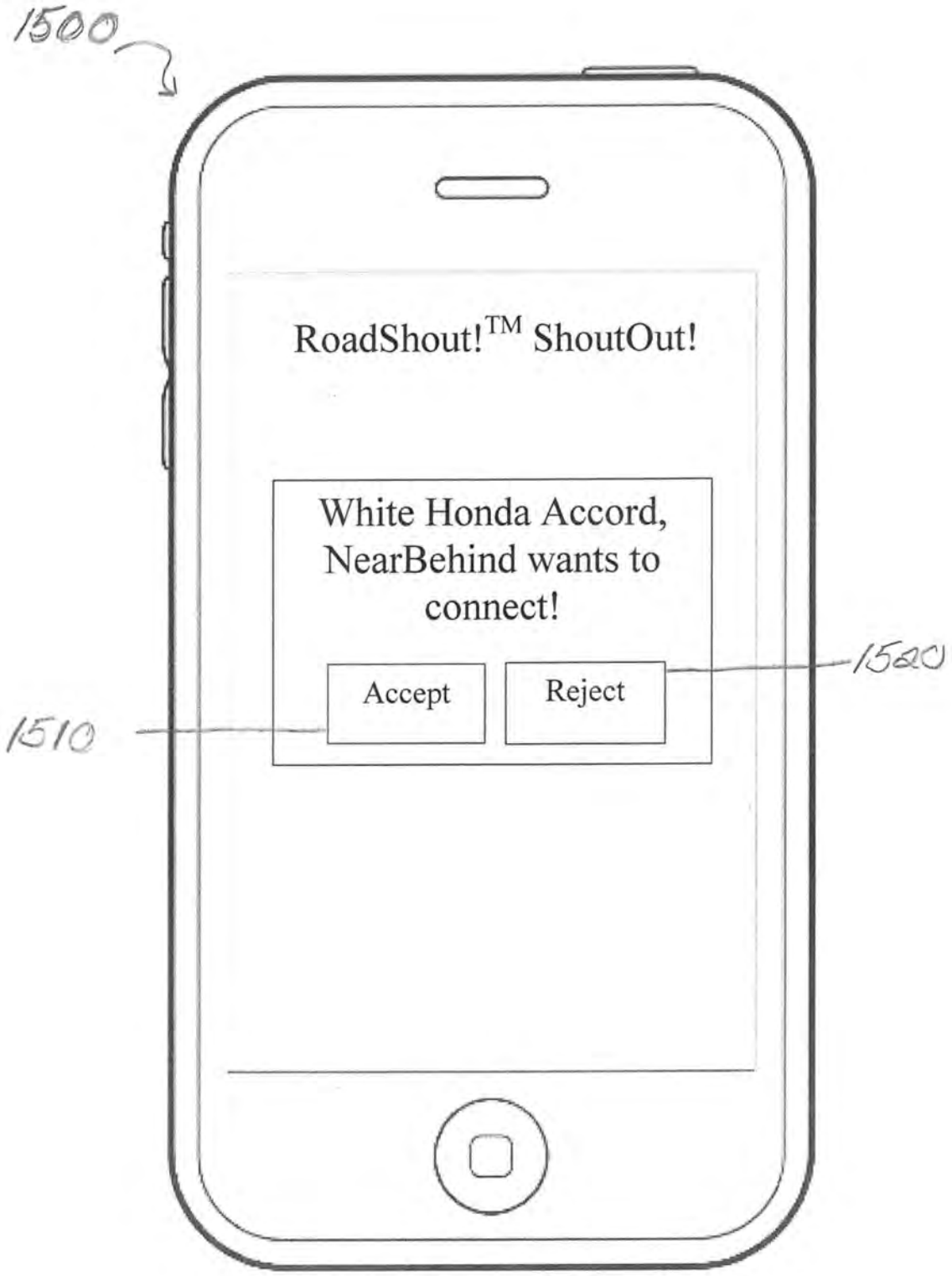

1500
RoadShout!™ ShoutOut!
White Honda Accord, NearBehind wants to connect!
Accept
Reject
1510
1520

Figure 15