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(54) **Title:** METHOD AND ELECTRONIC DEVICE FOR INDIVIDUALIZING RINGTONES

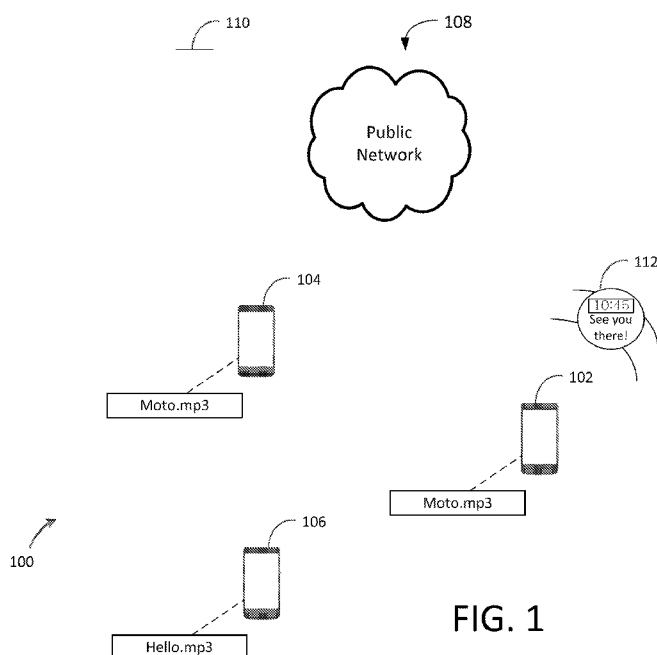


FIG. 1

(57) **Abstract:** A first electronic device ("first device") identifies a second electronic device ("second device") that is within hearing range of the first device. The first device determines whether a ringtone of the first device conflicts with a ringtone of the second device (e.g., the first and second devices have the same incoming text message ringtone). If the first device determines that there is a conflict (e.g., the active ringtones of the two devices have the same file name or the audio files of the ringtones have the same digital signature or identifier) then the first device appends an individualized alert to its ringtone, either in advance of playing the ringtone or in real time as the ringtone is being played.

METHOD AND ELECTRONIC DEVICE FOR INDIVIDUALIZING RINGTONES**TECHNICAL FIELD**

[0001] The present disclosure is related generally to wireless communication devices and, more particularly, to a method and electronic device for individualizing ringtones.

BACKGROUND

[0002] Mobile ringtones and alerts have evolved from simple alert mechanisms to individual fashion statements. Indeed, it is very common to find snippets of television shows and popular music hits being used. Although the more trendy ringtones and alerts tend to be ones that users need to download separately, mobile devices often come preloaded with dozens of them. In spite of this available variety, many users simply do not take the time to customize their devices. As a result, it is not uncommon for multiple users in any given situation to have the exact same ringtone and the exact same alert. This leads to the often-repeated scene where the default alert sounds on one person's phone and everyone in the group checks their devices for an incoming text.

DRAWINGS

[0003] While the appended claims set forth the features of the present techniques with particularity, these techniques, together with their objects and advantages, may be best understood from the following detailed description taken in conjunction with the accompanying drawings of which:

[0004] FIG. 1 block diagram of a group of wireless communication devices that are within hearing range of one another in an embodiment;

[0005] FIG. 2 is a block diagram depicting components of an electronic device according to an embodiment; and

[0006] FIGS. 3 and 4 show process flow diagrams that illustrate the operation of different embodiments.

DESCRIPTION

[0007] As used herein, the term "ringtone" includes all types of audible alerts and notifications, including incoming call alerts (the traditional "ringtone"), incoming message alerts, social media alerts, device status notifications, etc. The term "ringtone" also applies to

alerts and notifications that are spoken (e.g., “Incoming call from John Smith,” “Voicemail from John Smith,” or “Low Battery”).

[0008] This disclosure is generally directed to a method for individualizing ringtones on an electronic device (“device”). According to various embodiments, a first electronic device (“first device”) identifies a second electronic device (“second device”) that is within hearing range of the first device. The first device identifies the second device (i.e., comes to the conclusion that the second device is within hearing range) based on one or more of the following factors: (1) the distance between the first device and the second device (e.g., the distance is less than a threshold value), (2) the strength of a signal transmitted to or received from the second device (e.g., via WiFi or Bluetooth®), (3) the volume of the speaker of either or both the first and second device (e.g., the ringtone volume setting), and (4) the ambient noise. The first device determines whether a ringtone of the first device conflicts with a ringtone of the second device (e.g., the first and second devices have the same incoming text message ringtone or both devices are set to the same default ringtone). If the first device determines that there is a conflict (e.g., the active ringtones of the two devices have the same file name or the audio files of the ringtones have the same digital signature or identifier) then the first device appends an individualized alert to its ringtone, either in advance of playing the ringtone or in real time as the ringtone is being played. In some embodiments, the individualized alert is in the form of text that the first device plays as synthesized speech. For example, the text could be the user’s name along with a message, such as “Incoming text for John.” The message could be played before, during, or after the first device plays the ringtone.

[0009] Turning to FIG. 1, a group 100 of wireless communication devices includes a first device 102, a second device 104, and a third device 106. Possible implementations for each of the devices include a cell phone (such as a smart phone), a tablet computer, and a notebook computer. All of the wireless communication devices in the group 100 are within hearing range of one another. That is, they are close enough to one another that their respective ringtones can be heard by all of the users. For example, if the first device 102 emits an incoming message alert, the user of the second device 104 and the user of the third device 106 (assuming they have normal hearing) will be able to hear the alert from the first device 102. One or more of the devices of FIG. 1 may be paired with a companion device. For example, the first device 102 is shown as being paired with a smart watch 112.

[0010] The devices 102, 104, and 106 are capable of communicating over a public network 108 (e.g., a cellular network or a WiFi network) with other devices, such as a remote server 110. In some embodiments all of the devices 102, 104, and 106 are capable of communicating directly with one another, such as by forming an ad hoc peer-to-peer network.

[0011] Turning to FIG. 2, each of the devices in FIG. 1, according to an embodiment, includes a processor 202. Several components are communicatively linked to the processor 202, including first wireless networking hardware 204 (e.g., a cellular baseband chipset), second wireless networking hardware 206 (e.g., a WiFi or Bluetooth® chipset), a memory 208, a display 210 (e.g., an organic, light-emitting diode display), a microphone 212, and a speaker 214. The processor 202 sends data to and receives data from other devices using the first wireless networking hardware 204 or the second wireless networking hardware 206. The elements of FIG. 2 are communicatively linked to one another via one or more data pathways 216. Possible implementations of the data pathways 216 include wires and conductive pathways on a microchip. Possible implementations of the processor 202 include a microprocessor and a controller. The memory 208 may be volatile, non-volatile, or a combination thereof.

[0012] The processor 202 retrieves instructions from the memory 208 and operates according to those instructions to carry out various functions, including the methods described herein. Thus, when this disclosure refers to a device carrying out an action, it is, in many embodiments, the processor 202 that actually carries out the action (in coordination with other pieces of hardware of the device as necessary).

[0013] According to an embodiment, the first device 102 stores one or more properties associated with a user (e.g., the owner) of the first device 102. These one or more properties help to differentiate the user from users of other devices (e.g., the owners of the other devices of FIG. 1). Examples of differentiating properties include the user's name or the user-assigned name of the first device 102.

[0014] Turning to FIG. 3, a process carried out by the first device 102 according to an embodiment is described. At block 302, the first device 102 identifies a second device as being within hearing range of the first device 102. As noted above, possible ways the first device 102 can identify (or attempt to identify) the other devices as being within hearing

range include distance (as determined, for example, using the global positioning system coordinates reported by the other devices to the first device), speaker volume, ambient noise, and signal strength. For the sake of example, assume that the first device 102 joins an ad hoc peer-to-peer network that includes the second device 104 and the third device 106. Further assume that first device 102 determines that the second device 104 and the third device 106 are both within hearing range of the first device 102 for the following reasons: (1) The first device 102 senses the ambient noise with the microphone 212 and determines that the environment is quiet. (2) The first device 102 is a single hop from the second device 104 and the third device 106. (3) The ringtone volume of the speaker 214 of the first device 102 is at its maximum.

[0015] At block 304, the first device 102 determines whether a ringtone of a second device 104 (i.e., either the second device 104 or the third device 106) conflicts with a ringtone of the first device 102. There are many ways in which the first device 102 may make this determination. In one embodiment, the first device 102 obtains data regarding the active (i.e., those being currently used) ringtones for the second device 104 and third device 106. The first device 102 may, for example: (1) directly request the names of the active ringtones (i.e., the incoming call ringtones and the alert ringtones) from the second device 104 and the third device 106, (2) browse the active ringtone files of the second device 104 and the third device 106 via peer-to-peer networking (assuming that the second and third devices have shared those files), or (3) contact the remote server 110 (assuming that the remote server 110 centrally manages the ringtones for the devices) to request the data. The data can be in the form of, for example, file metadata (e.g., filename or .mp3 metadata) or a digital signature. Once the first device 102 obtains the data regarding the active ringtones of the other devices, the first device 102 compares the data with the equivalent data of its own ringtones.

[0016] In the example of FIG. 1, the first device 102 has a messaging alert ringtone with the filename "Moto.mp3," the second device 104 has a messaging alert ringtone with the filename "Moto.mp3," and the third device 106 has a messaging alert ringtone with the filename "Hello.mp3." The first device 102 will conclude that there is a conflict based on the fact that the ringtone of second device 104 has the same filename as the ringtone of the first device 102. The first device 102 may also be able to tell if the ringtones are similar enough, even if not identical, to possibly cause confusion based, for example, on the file metadata or

on a digital signature of each of the ringtone files. If the first device 102 concludes that there is no conflict, the process ends.

[0017] If the first device 102 concludes that there is a conflict, then the process continues to block 306, at which the first device 102 appends an individualized alert to the ringtone of the first device. Examples of how this may be done include the following.

[0018] In one implementation, the first device 102 takes an item of information that differentiates the user of the first device 102, such as the user's name or the device name (e.g., set by the user when the user originally set up the first device 102) and produces synthesized speech (so-called "text-to-speech"). The first device 102 appends the synthesized speech to the ringtone, such as by emitting the synthesized speech immediately prior to, interspersed with, overlapping with, or immediately after emitting the ringtone (e.g., when the first device 102 receives an incoming text). In some embodiments, the first device 102 selects a secondary piece of textual data if the first piece of textual data is a duplicate of that of one of the other devices. For example, assume that the first device's default choice for an individualized identifier is the user's first name, the user name on the first device 102 is "John Smith," and the user name on the second device 104 is "John Connelly." The first device 102 would learn this fact during communication with the second device 104 (e.g., when determining which ringtones the second device 104 has) and would switch to the last name as the individualized identifier.

[0019] In another implementation, the first device 102 takes a previously-recorded individualized alert—either an additional ringtone or a voice recording (e.g., of the user's voice)—and appends the individualized alert to the ringtone (e.g., in one of the ways described above). For example, the user of the first device 102 could record her voice saying "Alice you have received a message." Then, when the first device 102 receives an incoming text message, it may play the user's voice and then play the ringtone. By doing this, the first device 102 will help to avoid confusion regarding who received the alert (i.e., confusing between the user of the first device 102 and the user of the second device 104).

[0020] Turning to FIG. 4, a process carried out by the first device 102 according to another embodiment is described. The first device 102 carries out blocks 402 and 404 in the same manner described above with respect to blocks 302 and 304 in FIG. 3. If, at block 404, the first device 102 concludes that there is no conflict and (at block 406), the first device 102

receives an incoming call or message, the first device 102 will emit the preconfigured, preset, or default ringtone (for an incoming call or message) from the speaker 214 at block 408. If, at block 404, the first device 102 concludes that there is a conflict and (at block 410) the first device 102 receives an incoming call or message, then the first device 102 will send an alert to the companion device 112 instead of emitting the ringtone. By doing this, the first device 102 will help to make it clear to the user of the first device 102 that the alert belongs to him or her, and not to the user of the second device 104.

[0021] According to an embodiment, the first device 102 monitors whether devices with conflicting ringtones (of the devices identified as being within hearing range) continue to remain within hearing range. In other words, the first device 102 can detect when, for example, one or more of the distance (from the second device 104), the speaker volume (of the first device 102), the ambient noise, and the signal strength (between the first device 102 and the second device 104 of FIG. 1) changes to an extent that the first device 102 no longer considers the second device 104 to be within hearing range. For example, if the first device 102 no longer detects any signal from the second device 104 in the ad hoc, peer-to-peer network, then the second device 102 may stop appending the individualized alert to the ringtone and revert back to “regular” ringtone handling.

[0022] In view of the many possible embodiments to which the principles of the present discussion may be applied, it should be recognized that the embodiments described herein with respect to the drawing figures are meant to be illustrative only and should not be taken as limiting the scope of the claims. Therefore, the techniques as described herein contemplate all such embodiments as may come within the scope of the following claims and equivalents thereof.

[0023] Example 1: A method, on a first electronic device, for individualizing a ringtone, the method comprising: identifying a second electronic device to be within hearing range of the first electronic device; determining whether a ringtone of the second electronic device conflicts with a ringtone of the first electronic device; and if the ringtone of the second electronic device is determined to conflict with a ringtone of the first electronic device, appending an individualized alert to the ringtone of the first electronic device.

[0024] Example 2: The method of Example 1, wherein designating the second electronic device to be within hearing range of the first electronic device comprises determining that the second electronic device is within a predetermined distance of the first electronic device.

[0025] Example 3: The method of any of Examples 1-2, wherein identifying the second electronic device to be within hearing range of first electronic device comprises: determining the speaker volume of at least one of the first and second electronic devices; determining the distance between the first electronic device and the second electronic device; and identifying the second electronic device based on determined speaker volume and on the determined distance.

[0026] Example 4: The method of any of Examples 1-3, wherein identifying the second electronic device to be within hearing range of first electronic device comprises: determining the speaker volume of at least one of the first and second electronic devices; determining a strength of a signal passed between the first electronic device and the second electronic device; and identifying the second electronic device based on determined speaker volume and on the determined signal strength.

[0027] Example 5: The method of any of Examples 1-4, wherein appending an individualized alert comprises appending the individualized alert at the beginning of the ringtone of the first electronic device, inserting the individualized alert within the ringtone of the first electronic device, or appending the individualized alert to the end of the ringtone of the first electronic device.

[0028] Example 6: The method of any of Examples 1-5, wherein appending an individualized alert to the ringtone of the first electronic device comprises converting text that individually identifies the user of the first electronic device into speech and emitting the speech from a speaker of the first electronic device along with the ringtone of the first electronic device.

[0029] Example 7: The method of any of Examples 1-6, further comprising: determining that a first item of identifying information of the first electronic device is the same as that of the second electronic device; determining that a second item of identifying information of the first electronic device is different from that of the second electronic device; and basing the individualized alert on the second item of identifying information.

[0030] Example 8: The method of any of Examples 1-7, wherein determining whether a ringtone on the second electronic device conflicts with a ringtone of the first electronic device comprises: establishing a communication link with the second electronic device; and querying the second electronic device regarding the second electronic device's active ringtones.

[0031] Example 9: The method of any of Examples 1-8, wherein determining whether a ringtone on the second electronic device conflicts with a ringtone of the first electronic device comprises: establishing a communication link with a server via a public network; and querying the server regarding the second electronic device's active ringtones.

[0032] Example 10: The method of any of Examples 1-9, further comprising: determining that the first electronic device is no longer within hearing range of the second electronic device; and based on the determination, ceasing to append the individualized alert to the ringtone.

[0033] Example 11: The method of any of Examples 1-10, wherein the ringtone is selected from a group consisting of an incoming call ringtone, an incoming message alert, a device status notification, a social media alert, and a spoken notification.

[0034] Example 12: The method of any of Examples 1-11, wherein determining whether a ringtone of the second electronic device conflicts with a ringtone of the first electronic device comprises determining whether the second electronic device is set to a default ringtone.

[0035] Example 13: A method, on a first electronic device, for individualizing an alert, the method comprising: identifying a second electronic device to be within hearing range of the first electronic device; determining whether a ringtone of the second electronic device conflicts with a ringtone of the first electronic device; receiving an incoming call or message; if the ringtone of the second electronic device is determined not to conflict with a ringtone of the first electronic device, emitting the ringtone; and if the ringtone of the second electronic device is determined to conflict with a ringtone of the first electronic device, sending an alert to a companion device instead of emitting the ringtone.

[0036] Example 14: The method of Example 13, wherein identifying the second electronic device to be within hearing range of the first electronic device comprises

determining that the second electronic device is within a predetermined distance of the first electronic device.

[0037] Example 15: The method of any of Examples 13-14, wherein identifying the second electronic device to be within hearing range of first electronic device comprises: determining the speaker volume of at least one of the first and second electronic devices; determining the distance between the first electronic device and the second electronic device; and identifying the second electronic device based on determined speaker volume and on the determined distance.

[0038] Example 16: The method of any of Examples 13-15, wherein identifying the second electronic device to be within hearing range of first electronic device comprises: determining the speaker volume of at least one of the first and second electronic devices; determining a strength of a signal passed between the first electronic device and the second electronic device; and identifying the second electronic device based on determined speaker volume and on the determined signal strength.

[0039] Example 17: The method of any of Examples 13-16, wherein determining whether a ringtone on the second electronic device conflicts with a ringtone of the first electronic device comprises: establishing a communication link with the second electronic device; and querying the second electronic device regarding the second electronic device's active ringtones.

[0040] Example 18: The method of any of Examples 13-17, wherein determining whether a ringtone on the second electronic device conflicts with a ringtone of the first electronic device comprises: establishing a communication link with a server via a public network; and querying the server regarding the second electronic device's active ringtones.

[0041] Example 19: The method of any of Example 13-18, further comprising: determining that the first electronic device is no longer within hearing range of the second electronic device; and based on the determination, ceasing to send the alert to the companion device.

[0042] Example 20: A first electronic device comprising: a speaker; a processor configured to identify a second electronic device to be within hearing range of the first electronic device; determine whether a ringtone of the second electronic device conflicts with

a ringtone of the first electronic device; and if the ringtone of the second electronic device is determined to conflict with a ringtone of the first electronic device, append an individualized alert to the ringtone of the first electronic device and emit the ringtone and the individualized alert from the speaker.

CLAIMS

We claim:

1. A method, on a first electronic device, for individualizing a ringtone, the method comprising:
 - identifying a second electronic device to be within hearing range of the first electronic device;
 - determining whether a ringtone of the second electronic device conflicts with a ringtone of the first electronic device; and
 - if the ringtone of the second electronic device is determined to conflict with a ringtone of the first electronic device, appending an individualized alert to the ringtone of the first electronic device.
2. The method of claim 1, wherein designating the second electronic device to be within hearing range of the first electronic device comprises determining that the second electronic device is within a predetermined distance of the first electronic device.
3. The method of any of claims 1-2, wherein identifying the second electronic device to be within hearing range of first electronic device comprises:
 - determining the speaker volume of at least one of the first and second electronic devices;
 - determining the distance between the first electronic device and the second electronic device; and
 - identifying the second electronic device based on determined speaker volume and on the determined distance.
4. The method of any of claims 1-3, wherein identifying the second electronic device to be within hearing range of first electronic device comprises:
 - determining the speaker volume of at least one of the first and second electronic devices;
 - determining a strength of a signal passed between the first electronic device and the second electronic device; and
 - identifying the second electronic device based on determined speaker volume and on the determined signal strength.

5. The method of any of claims 1-4, wherein appending an individualized alert comprises appending the individualized alert at the beginning of the ringtone of the first electronic device, inserting the individualized alert within the ringtone of the first electronic device, or appending the individualized alert to the end of the ringtone of the first electronic device.
6. The method of any of claims 1-5, wherein appending an individualized alert to the ringtone of the first electronic device comprises converting text that individually identifies the user of the first electronic device into speech and emitting the speech from a speaker of the first electronic device along with the ringtone of the first electronic device.
7. The method of any of claims 1-6, further comprising:
determining that a first item of identifying information of the first electronic device is the same as that of the second electronic device;
determining that a second item of identifying information of the first electronic device is different from that of the second electronic device; and
basing the individualized alert on the second item of identifying information.
8. The method of any of claims 1-7, wherein determining whether a ringtone on the second electronic device conflicts with a ringtone of the first electronic device comprises:
establishing a communication link with the second electronic device; and
querying the second electronic device regarding the second electronic device's active ringtones.
9. The method of any of claims 1-8, wherein determining whether a ringtone on the second electronic device conflicts with a ringtone of the first electronic device comprises:
establishing a communication link with a server via a public network; and
querying the server regarding the second electronic device's active ringtones.

10. The method of any of claims 1-9, further comprising:
 - determining that the first electronic device is no longer within hearing range of the second electronic device; and
 - based on the determination, ceasing to append the individualized alert to the ringtone.
11. The method of any of claims 1-10, wherein the ringtone is selected from a group consisting of an incoming call ringtone, an incoming message alert, a device status notification, a social media alert, and a spoken notification.
12. The method of any of claims 1-11, wherein determining whether a ringtone of the second electronic device conflicts with a ringtone of the first electronic device comprises determining whether the second electronic device is set to a default ringtone.
13. A method, on a first electronic device, for individualizing an alert, the method comprising:
 - identifying a second electronic device to be within hearing range of the first electronic device;
 - determining whether a ringtone of the second electronic device conflicts with a ringtone of the first electronic device;
 - receiving an incoming call or message;
 - if the ringtone of the second electronic device is determined not to conflict with a ringtone of the first electronic device, emitting the ringtone; and
 - if the ringtone of the second electronic device is determined to conflict with a ringtone of the first electronic device, sending an alert to a companion device instead of emitting the ringtone.
14. The method of claim 13, wherein identifying the second electronic device to be within hearing range of the first electronic device comprises determining that the second electronic device is within a predetermined distance of the first electronic device.

15. The method of any of claims 13-14, wherein identifying the second electronic device to be within hearing range of first electronic device comprises:

determining the speaker volume of at least one of the first and second electronic devices;

determining the distance between the first electronic device and the second electronic device; and

identifying the second electronic device based on determined speaker volume and on the determined distance.

16. The method of any of claims 13-15, wherein identifying the second electronic device to be within hearing range of first electronic device comprises:

determining the speaker volume of at least one of the first and second electronic devices;

determining a strength of a signal passed between the first electronic device and the second electronic device; and

identifying the second electronic device based on determined speaker volume and on the determined signal strength.

17. The method of any of claims 13-16, wherein determining whether a ringtone on the second electronic device conflicts with a ringtone of the first electronic device comprises:

establishing a communication link with the second electronic device; and

querying the second electronic device regarding the second electronic device's active ringtones.

18. The method of any of claims 13-17, wherein determining whether a ringtone on the second electronic device conflicts with a ringtone of the first electronic device comprises:

establishing a communication link with a server via a public network; and

querying the server regarding the second electronic device's active ringtones.

19. The method of any of claims 13-18, further comprising:

determining that the first electronic device is no longer within hearing range of the second electronic device; and

based on the determination, ceasing to send the alert to the companion device.

20. A first electronic device comprising:
- a speaker;
 - a processor configured to
 - identify a second electronic device to be within hearing range of the first electronic device;
 - determine whether a ringtone of the second electronic device conflicts with a ringtone of the first electronic device; and
 - if the ringtone of the second electronic device is determined to conflict with a ringtone of the first electronic device, append an individualized alert to the ringtone of the first electronic device and emit the ringtone and the individualized alert from the speaker.

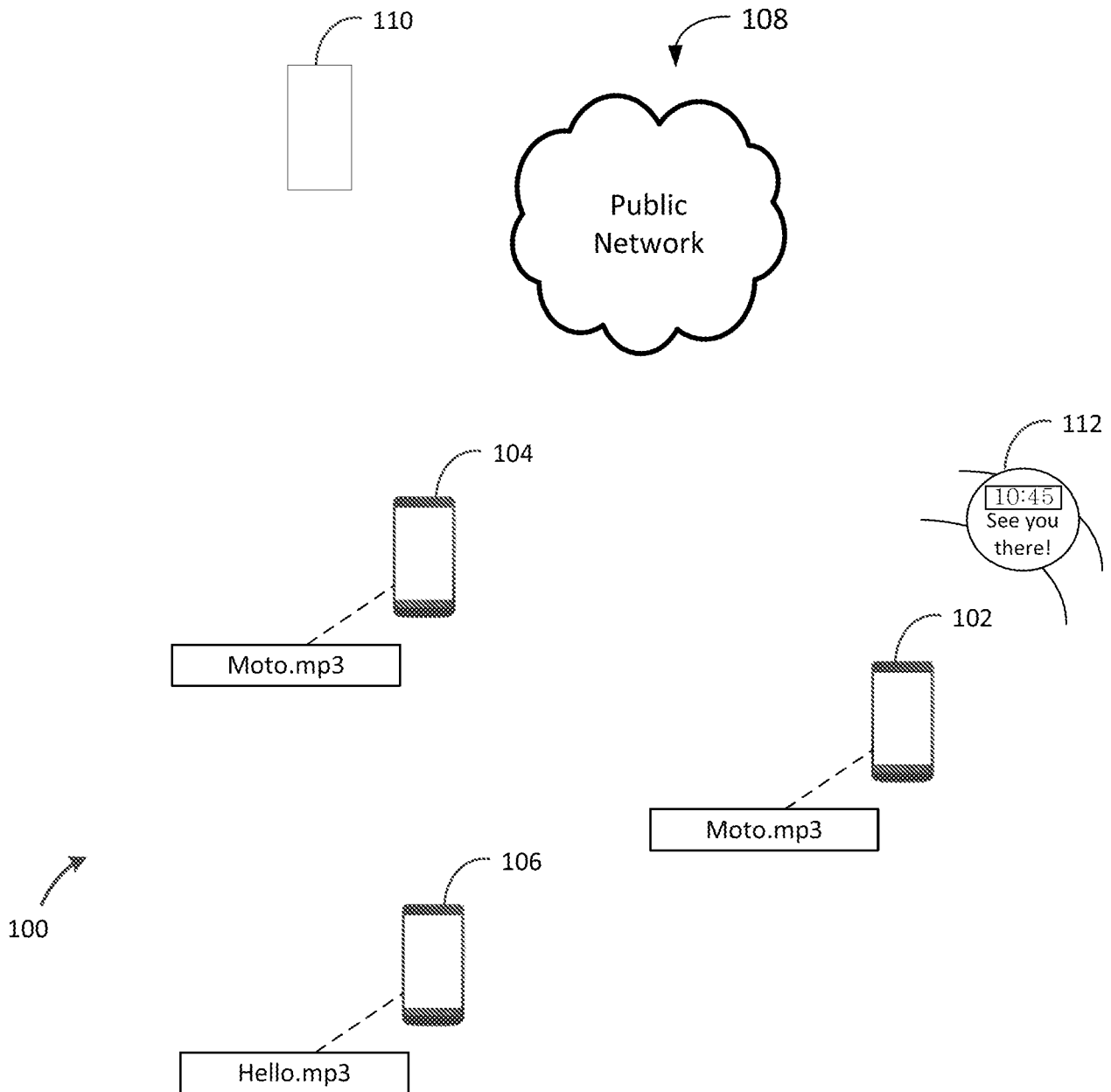
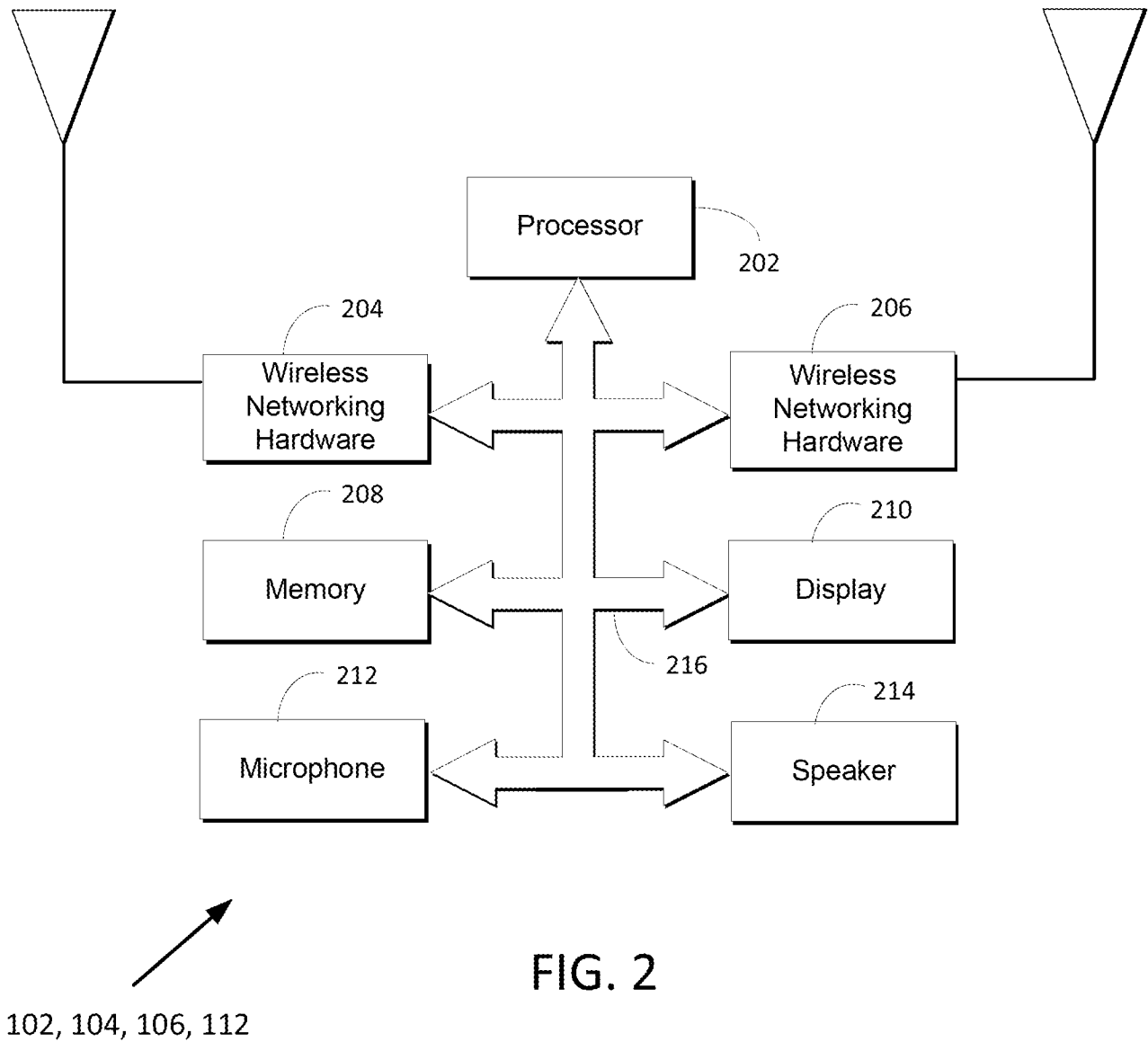


FIG. 1



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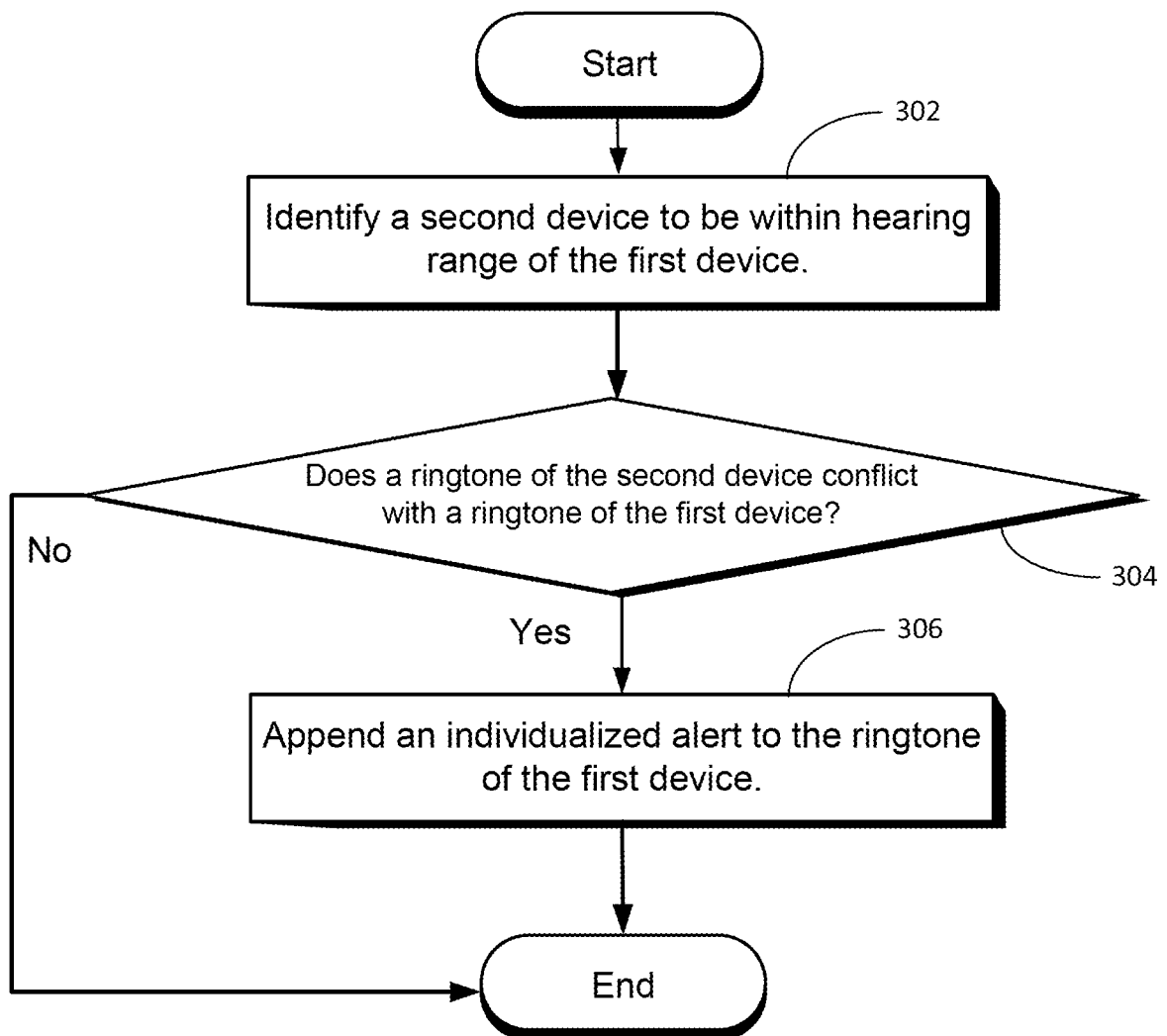


FIG. 3

4/4

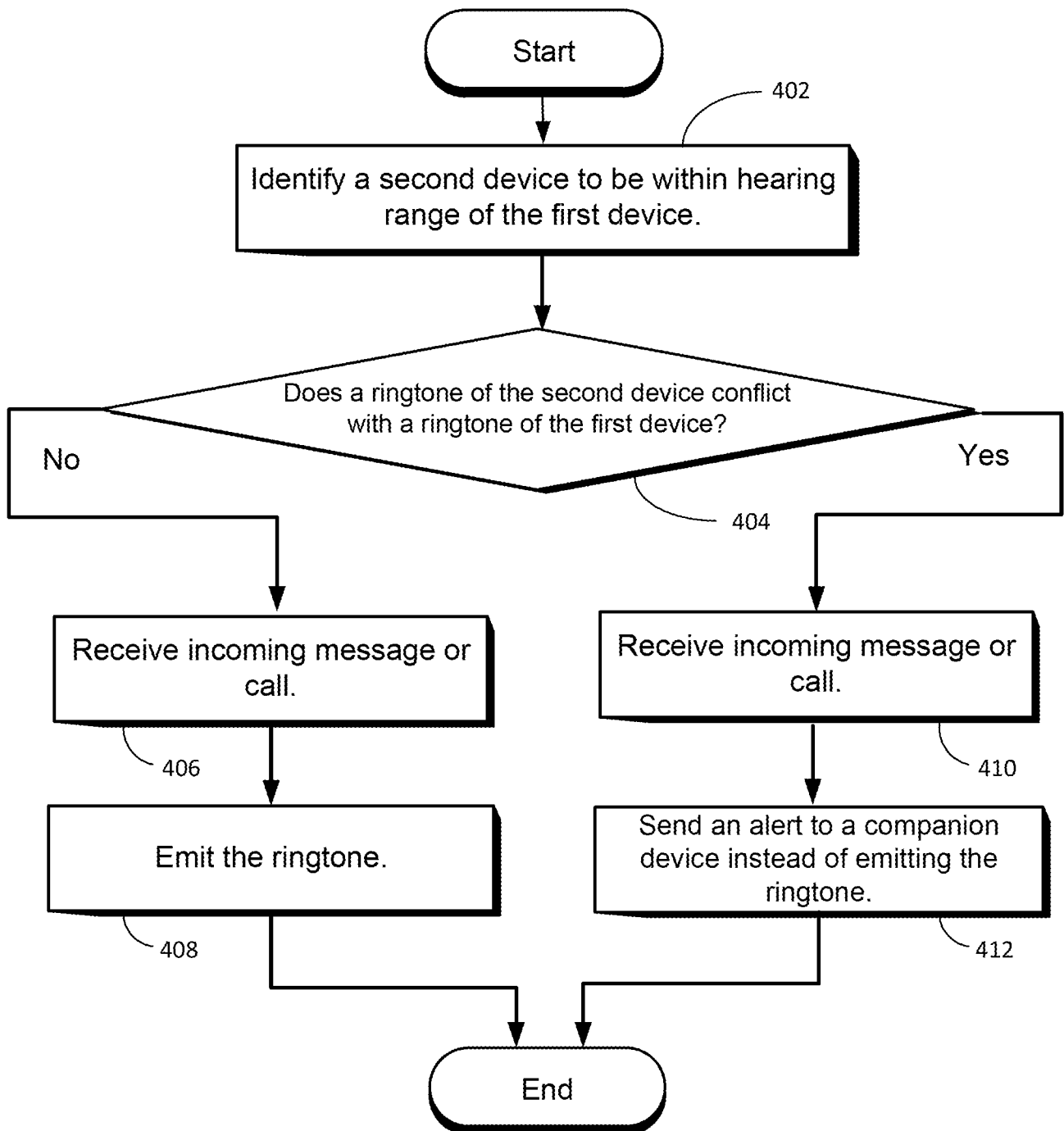


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2015/043008

A. CLASSIFICATION OF SUBJECT MATTER

INV. H04M19/04

ADD. H04M1/725

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04M

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2014/194101 A1 (MULLEN SHAWN P [US] ET AL) 10 July 2014 (2014-07-10) page 2, paragraph 25 - page 5, paragraph 50; figure 3	1-20
Y	----- US 7 602 901 B1 (KATES JESSE [US] ET AL) 13 October 2009 (2009-10-13) column 18, line 37 - column 18, line 51; figures 3-4	1-20
Y	----- US 2005/107128 A1 (DEEDS DOUGLAS [US]) 19 May 2005 (2005-05-19) page 3, paragraph 31 - page 4, paragraph 35	2,4,14,16
	----- -/-	



Further documents are listed in the continuation of Box C.



See patent family annex.

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2015/043008

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 8 027 460 B1 (COUGHLAN MARC WILLIAM JOSEPH [AU] ET AL) 27 September 2011 (2011-09-27) column 3, line 23 - column 5, line 3; figures 2-4 -----	3,15
Y	JP 2011 077755 A (NEC PERSONAL PRODUCTS CO LTD) 14 April 2011 (2011-04-14) paragraph [0021] - paragraph [0031] -----	10,19

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2015/043008

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2014194101 A1	10-07-2014	US 2014194101 A1	10-07-2014
		US 2014194104 A1	10-07-2014
US 7602901 B1	13-10-2009	NONE	
US 2005107128 A1	19-05-2005	NONE	
US 8027460 B1	27-09-2011	NONE	
JP 2011077755 A	14-04-2011	NONE	