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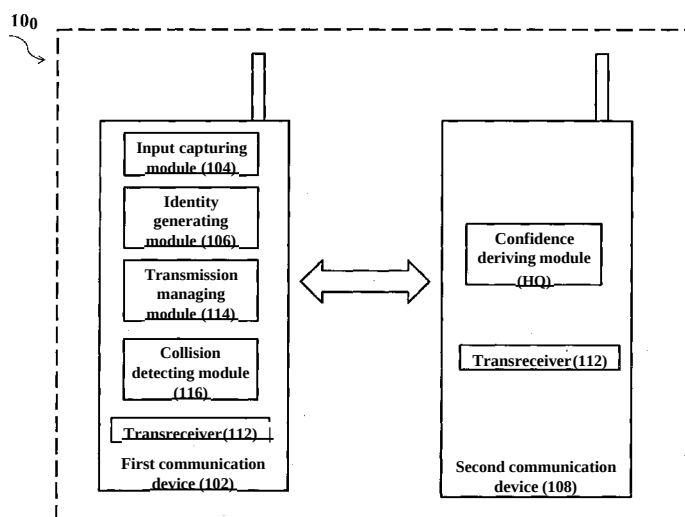
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(54) Title: A SYSTEM AND METHOD ESTABLISHING AN ADHOC NETWORK FOR ENABLING BROADCASTING



(57) Abstract: A system and method for dynamically establishing an adhoc network amongst plurality of communication devices in a beyond audible frequency range is disclosed. The system provides a first communication device to transmit a data to one or more second communication devices. The first communication device comprises of an input capturing module adapted to receive the data from a broadcaster in at least one format and converting the captured data into a modulated data, an identity generating module configured to generate a temporary identity for a broadcasting user. The second communication device then receives at least one broadcasted data from the first communication device and determines a probabilistic confidence level of the modulated data. A transceiver implemented in the first and second communication device to transmit and receive the data in conjugation with the temporary identity within a predefined proximity of each device.



A SYSTEM AND METHOD ESTABLISHING AN ADHOC NETWORK FOR ENABLING BROADCASTING

FIELD OF THE INVENTION

The present invention relates to a short distance communication amongst wireless communication devices. More particularly, the invention relates to a system and method establishing an adhoc network among plurality of communication devices.

BACKGROUND OF THE INVENTION

Mobile communication has altered our social and professional interaction. Mobile communication devices are perceived as one stop solution to our digital requirement. Accordingly, the devices have been adapted to perform plurality of functions of communication. A typical communication happens over microwave frequency. To resolve problem with data and information transmission in a close proximity, a Bluetooth and other related technologies have been very effective. These communication devices are further adapted to support voice, text and video data sharing to maximum eight devices within a predetermined proximity. Through wireless communication data can be shared for short as well as for long distances. Mobile communication networks connect via satellite for using the wireless technology.

Presently available communication devices share data by using applications like Bluetooth, infra-red etc. For sharing data via Bluetooth, each communication device needs to have the appropriate application as well as the basic Bluetooth communication capability. Bluetooth supports data exchange over short range distances by using short wavelength radio transmissions in the ISM band from 2400-2480 MHz. Also, the mobile communication users need to be paired up while sharing data. Bluetooth creates a mini network where maximum eight devices can share data among each other.

Similarly, other widely used sources are zigbee, internet etc but they lacks in spontaneity and are not able to auto identify a group of interest. For most of the methods like use of Bluetooth, infra-red applications etc, communication devices

should be pared for exchanging data. Also for most of the techniques, additional hardware components (like server) are required to support data transmission and receiving. Many of the present systems consume a huge amount of energy in terms of bandwidth consumption. Also, a complex network has to be a created for sharing data between large numbers of communication devices.

Therefore, there is a need of a system which can provide data transmission in a simpler way without involving any additional hardware components. Also, the system should be capable of allowing the data exchange among the mobile communication devices without the need of pairing or binding while ensuring the secured broadcast.

OBJECTS OF THE INVENTION

It is the primary of the invention to provide a system establishing an adhoc network amongst multiple communication devices.

It is another object of the invention to communicate between multiple devices by converting data into beyond audible frequency range.

It is yet another object of the invention to generate a temporary identity of the broadcasting user for preserving anonymity.

It is yet another object of the invention to derive a confidence level for the modulated data received from the plurality of communication devices.

It is yet another object of the invention to provide a system for scheduling data transmission at a preset time and location.

It is yet another object of the invention to provide a system for detecting preexisting signals before activating data transmission.

SUMMARY OF THE INVENTION

The present invention provides a system for dynamically establishing an adhoc network amongst plurality of communication devices in a beyond audible frequency

range. The system comprises of a first communication device configured to transmit a data to one or more second communication devices. The first communication device further comprises of an input capturing module adapted to receive the data from a broadcaster in at least one format and converting the captured data into a modulated data and an identity generating module configured to generate a temporary identity for a broadcasting user. The system further comprises of the second communication device configured to receive at least one broadcasted data from the first communication device. The second communication devices further comprises of a confidence generation module configured to determine a probabilistic confidence level of the modulated data. The system further comprises of a transreceiver implemented in the first and second communication devices, the transreceiver configured to transmit and receive the data in conjugation with the temporary identity within a predefined proximity of each device.

The present invention also provides a method for dynamically establishing an adhoc network amongst plurality of communication devices in a beyond audible frequency range. The method comprises of steps of receiving from a broadcasting user a data into a first communication device in at least one format and converting the received data into a modulated data within the first communication device, generating a temporary identity for the broadcasting user and transmitting the modulated data in conjugation with the generated temporary identity to one or more second communication devices within one or more receiving users in proximity thereof the broadcasting users.

The present invention also a method for dynamically establishing an adhoc network amongst plurality of communication devices in a beyond audible frequency range. The method comprises of steps of receiving a modulated data and a temporary identity of one or more broadcasting users from one or more first communication devices into one or more second communication devices, converting the modulated data into an audible frequency range to obtain a demodulated data within the second communication device, evaluating a probabilistic confidence level of each of the data

received from one or more first communication devices and rendering the demodulated data in an ascending order of probabilistic confidence level of the received data onto each of the second communication device of the receiving users.

BRIEF DESCRIPTION OF DRAWINGS

Figure 1 illustrates the system architecture in accordance with an embodiment of the invention.

Figure 2 illustrates an exemplary flowchart of data transmission in accordance with an embodiment of the invention.

Figure 3 illustrates another exemplary flowchart of data receiving in accordance with an alternate embodiment of the invention.

Figure 4 illustrates the adhoc network in accordance with an exemplary embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Some embodiments of this invention, illustrating its features, will now be discussed:

The words "comprising", "having", "containing", and "including", and other forms thereof, are intended to be equivalent in meaning and be open ended in that an item or items following any one of these words is not meant to be an exhaustive listing of such item or items, or meant to be limited to only the listed item or items.

It must also be noted that as used herein and in the appended claims, the singular forms "a", "an", and "the" include plural references unless the context clearly dictates otherwise. Although any systems, methods, apparatuses, and devices similar or equivalent to those described herein can be used in the practice or testing of embodiments of the present invention, the preferred, systems and parts are now described. In the following description for the purpose of explanation and

understanding reference has been made to numerous embodiments for which the intent is not to limit the scope of the invention.

One or more components of the invention are described as module for the understanding of the specification. For example, a module may include self-contained component in a hardware circuit comprising of logical gate, semiconductor device, integrated circuits or any other discrete component. The module may also be a part of any software programme executed by any hardware entity for example processor. The implementation of module as a software programme may include a set of logical instructions to be executed by the processor or any other hardware entity. Further a module may be incorporated with the set of instructions or a programme by means of an interface.

The disclosed embodiments are merely exemplary of the invention, which may be embodied in various forms.

The present invention provides a system and method for dynamically establishing an adhoc network amongst plurality of communication devices. The data is received onto one or more communication devices in a specific format and is converted into beyond audible frequency range. This data is transmitted to a plurality of communication devices thus creating an adhoc network.

In accordance with an embodiment, referring to figure 1, the system (100) comprises of a first communication device (102) configured for transmitting data onto plurality of communication devices. The first communication device (102) further comprises of an input capturing module (104) configured for receiving input from or more broadcasting user. The first communication device further comprises of an identity generating module (106) for generating a temporary identity for the broadcasting user.

Referring to figure 2, as shown in step (100), the broadcasting user of the first communication device (102) receives data in a particular format onto the first communication device (102) through its input capturing module (104). The data may

include and is not limited to text data, voice data or a combination thereof. After the data is received, the first communication device (102) converts the data into a modulated data as shown in step (102) of figure 2.

By way of specific example, the modulated data may include data in beyond audible frequency range. The beyond audible frequency is above 16 kHz and the upper range is limited by the microphone and at least one speaker available in the communication devices.. This frequency range is dependent on one or more components of the communication device for example microphone and speaker and it is different for different communication devices.

In accordance with an embodiment, the first communication device (102) further comprises of a plurality of converters for example, text to speech converter and speech to text converter. By way of these converters, the format of data can be changed. The speech data can be converted into text data or text data can be converted into speech data.

Still referring to figure 2, as shown in step (104), the first communication device (102) further comprises of an identity generating module (106) for generating a temporary identity for the broadcasting user of the first communication device (102). The temporary identity is generated by using one or more input parameters. These input parameters comprises of an identity of the first communication device (102), time stamp when the transmission session is started, a unique parameter of the first communication device (102) such as battery meter, memory usage or a combination thereof. This temporary identity preserves the anonymity of the identity of the first communication device (102).

When the data is converted into the modulated data and the temporary identity is generated, the first communication device starts the transmission of the modulated data to a plurality of communication devices in its proximity through its transreceiver (112).

In accordance with an embodiment, referring to figure 1, the first communication device (102) further comprises of a collision detecting module (116) configured to detect one or more preexisting signals before ensuing transmission of the modulated data to a plurality of communication devices. As shown in step (106) of figure 2, the collision detecting module (116) checks for any existing signal in a particular frequency range for example, beyond audible frequency range before activating its own. If there is no such signal, the first communication device (102) starts transmitting the modulated data as shown in step (110) of figure 2. While transmitting the modulated data, if any other signal is detected then the transmission is stopped and the transceiver (112) goes into sleep mode and it starts a random timer as shown in step (108) of figure 2. When the collision detecting module detects the end of the transmission of the existing signal, it ends the random timer and again enables the transceiver (112) to start the transmission of the modulated data.

In accordance with an embodiment, the first communication device (102) further comprises of a transmission managing module (114) configured for scheduling the data transmission at a preset time, location or a combination thereof. By way of specific example, the broadcasting user schedules the transmission of a text message regarding meeting at his office (preset location) at 9am (preset time). When the user reaches the office at 9am, the text message will be automatically transmitted to the plurality of communication devices in its proximity.

In accordance with an embodiment, referring to figure 1, the system (100) further comprises of a one or more second communication devices (108) configured to receive the broadcasted data from the one or more first communication devices (102) in its proximity. The second communication device (108) receives the data through the transceiver (112).

Referring to figure 3 as shown in step (112), the second communication device (108) receives the modulated data in conjugation with the temporary identity generated for each first communication device (102). The received modulated data is in a particular format. The second communication device further comprises of a plurality of

converters to convert the modulated data from one format to other. For example, the converter may include and is not limited to the text to speech converter, the speech to text converter or a combination thereof. Also, this modulated data is again converted into a demodulated data as shown in step (114) of figure 3.

The second communication device (108) receives the data from the plurality of first communication devices (102) in its proximity. The second communication device (108) further comprises of a confidence deriving module (110) configured to determine a probabilistic confidence level of the modulated data received from one or more first communication devices (102) as shown in step (116) of figure 3. The determination of confidence level is based on semantic analyses and is a function of similar information received from the plurality of first communication devices (102). If similar information is shared by multiple communication devices (102), then the confidence deriving module (110) builds up a confidence on the truth of the information and then depicts the confidence level to the user of the second communication device (108).

As shown in step 118 and 120 of figure 3, if the data received is true the second communication device plays the message if it is in an audible form or it displays the message if it is in a text form. Also, the second communication device (108) may change the format of the message.

In accordance with an embodiment, figure 4 shows an adhoc network for broadcasting data. Any of the communication devices (first communication device and/or second communication device) may transmit and/or receive the data from each other thus creating an adhoc network. The first communication device (102) may also include the confidence deriving module (110) and may receive the data from the plurality of communication devices. Similarly, the second communication device may also include input capturing module (104), identity generating module (106), collision detecting module (116) and transmission managing module (114) for transmitting data to a plurality of communication devices in its proximity. Any of the communication devices (first communication device or second communication device) may transmit or

receive data to the plurality of communication devices by using one or more module configured for transmission and receiving data.

BEST MODE/EXAMPLE FOR WORKING OF THE INVENTION

The process illustrated for a data broadcast in the above paragraph can be supported by a working example showed in the following paragraph; the process is not restricted to the said example only:

A user needs the feedback of a new restaurant in the town. He types and transmits a message through his mobile communication device to get the feedback from the people taking food at that restaurant. Plurality of persons (for example, 5) replies him and provides their feedback thus creating an adhoc network where members can interact as in a social network. Out of those 5 messages, 4 messages provide positive feedback and 1 message provides negative feedback. Based on the confidence level of the messages received, the user may come to know about the restaurant and about the quality of a particular food.

WE CLAIM:

1. A system for dynamically establishing an adhoc network amongst plurality of communication devices in a beyond audible frequency range, the system comprising:

a first communication device configured to transmit a data to one or more second communication devices, the first communication device comprising:

an input capturing module adapted to receive the data from a broadcaster in at least one format and converting the captured data into a modulated data;

an identity generating module configured to generate a temporary identity for a broadcasting user;

the second communication device configured to receive at least one broadcasted data from the first communication device, the second communication devices comprising:

a confidence generation module configured to determine a probabilistic confidence level of the modulated data; and

a transceiver implemented in the first and second communication devices, the transceiver configured to transmit and receive the data in conjugation with the temporary identity within a predefined proximity of each device.

2. The system as claimed in claim 1, wherein the first communication device further comprises a transmission managing module configured for scheduling the data transmission at a preset time and location.
3. The system as claimed in claim 1, wherein the modulated data comprises a data in beyond audible frequency range.

4. The system as claimed in claim 1, wherein the temporary identity of the broadcaster preserves anonymity of an identity of the first communication device.
5. The system as claimed in claim 1, wherein the first communication device further comprises a collision detecting module configured to detect one or more preexisting signals before ensuing transmission of the modulated data to one or more second communication devices.
6. The system as claimed in claim 1, wherein the format of the captured data includes: a text data, a voice data and a combination thereof.
7. The system as claimed in claim 1, wherein the beyond audible frequency is above 16 KHz and the upper range is limited by the microphone and at least one speaker available in the communication device.
8. The system as claimed in claim 1, wherein the input capturing module further comprises of: a text to speech converter, a speech to text converter and a combination thereof.
9. The system as claimed in claim 1, wherein the temporary identity is generated by using one or more input parameters comprising an identity of the first communication device, time stamp when the transmission session is started, a unique parameter of the first communication device such as battery meter, memory usage or a combination thereof.
10. A method for dynamically establishing an adhoc network amongst plurality of communication devices in a beyond audible frequency range, the method comprising steps of:

receiving from a broadcasting user a data into a first communication device in at least one format and converting the received data into a modulated data within the first communication device;

generating a temporary identity for the broadcasting user; and

transmitting the modulated data in conjugation with the generated temporary identity to one or more second communication devices within one or more receiving users in proximity thereof the broadcasting users.

11. A method for dynamically establishing an adhoc network amongst plurality of communication devices in a beyond audible frequency range, the method comprising steps of:

receiving a modulated data and a temporary identity of one or more broadcasting users from one or more first communication devices into one or more second communication devices;

converting the modulated data into an audible frequency range to obtain a demodulated data within the second communication device;

evaluating a probabilistic confidence level of each of the data received from one or more first communication devices; and

rendering the demodulated data in an ascending order of probabilistic confidence level of the received data onto each of the second communication device of the receiving users.

12. The method as claimed in claim 10, wherein the method further comprises the step of scheduling the data transmission at a preset time and location.
13. The method as claimed in claim 10, wherein the method further comprises the step of detecting any preexisting signal before ensuing transmission of the modulated data to one or more second communication devices.

14. The method as claimed in claim 10 and 11, wherein the method further comprises the step of converting a text data into a speech data, a speech data into a text data and a combination thereof.
15. The method as claimed in claim 10, wherein temporary identity is generated by using one or more input parameters comprising an identity of the first communication device, time stamp when the transmission session is started, a unique parameter of the first communication device such as battery meter, memory usage or a combination thereof.

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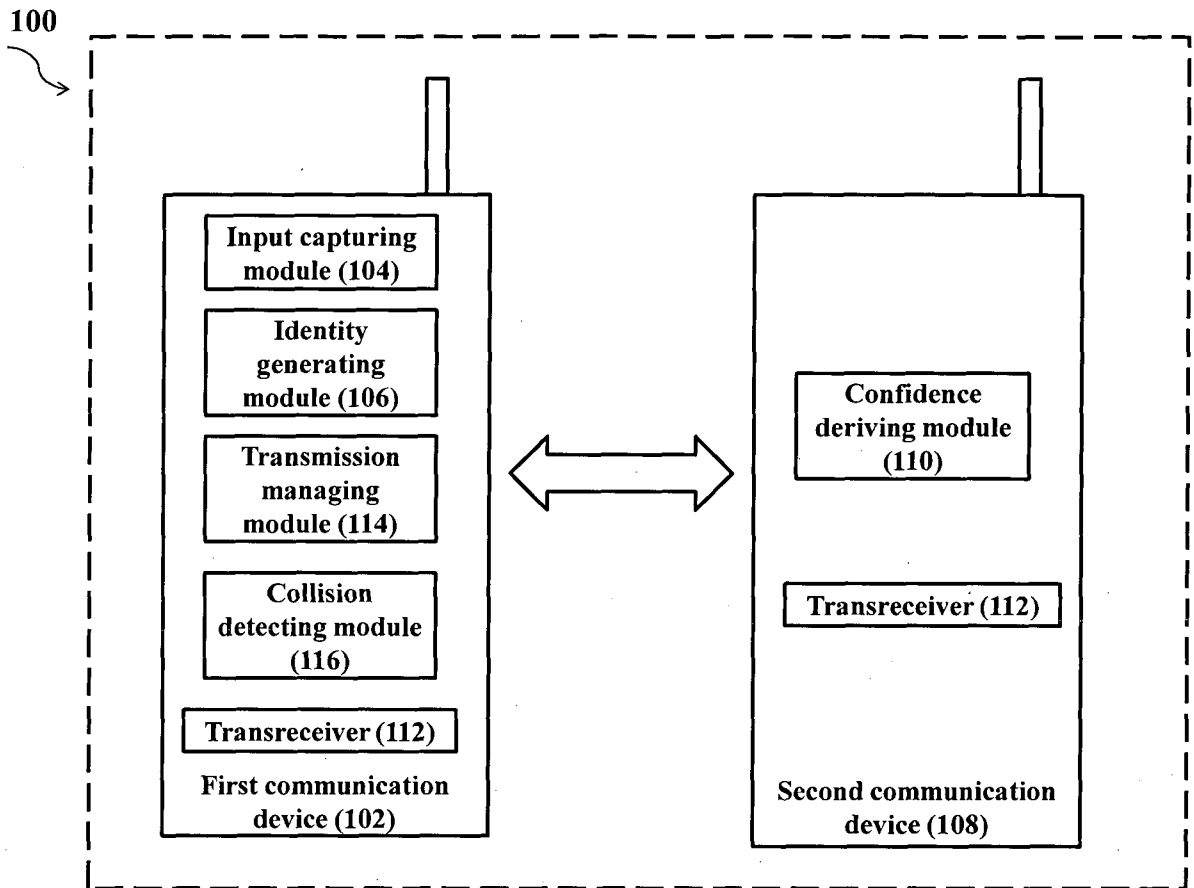


Figure 1

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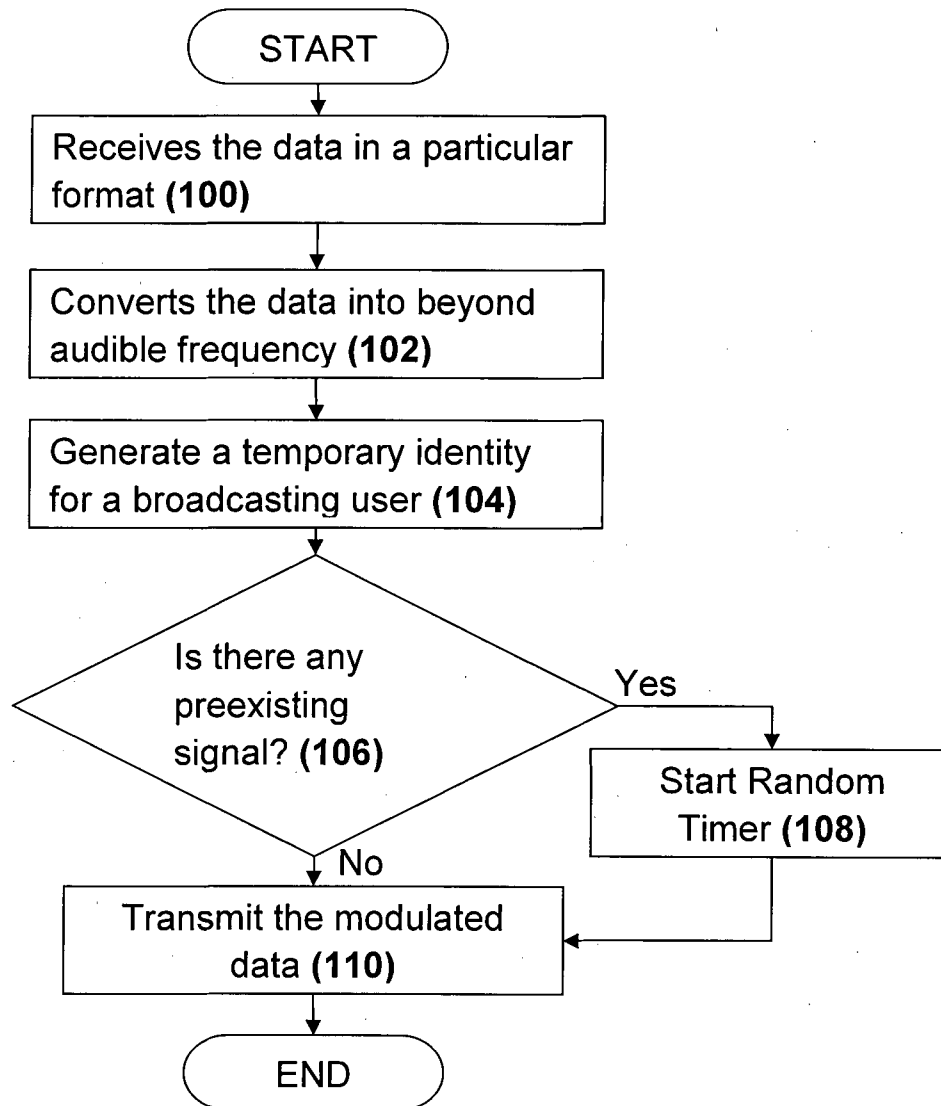


Figure 2

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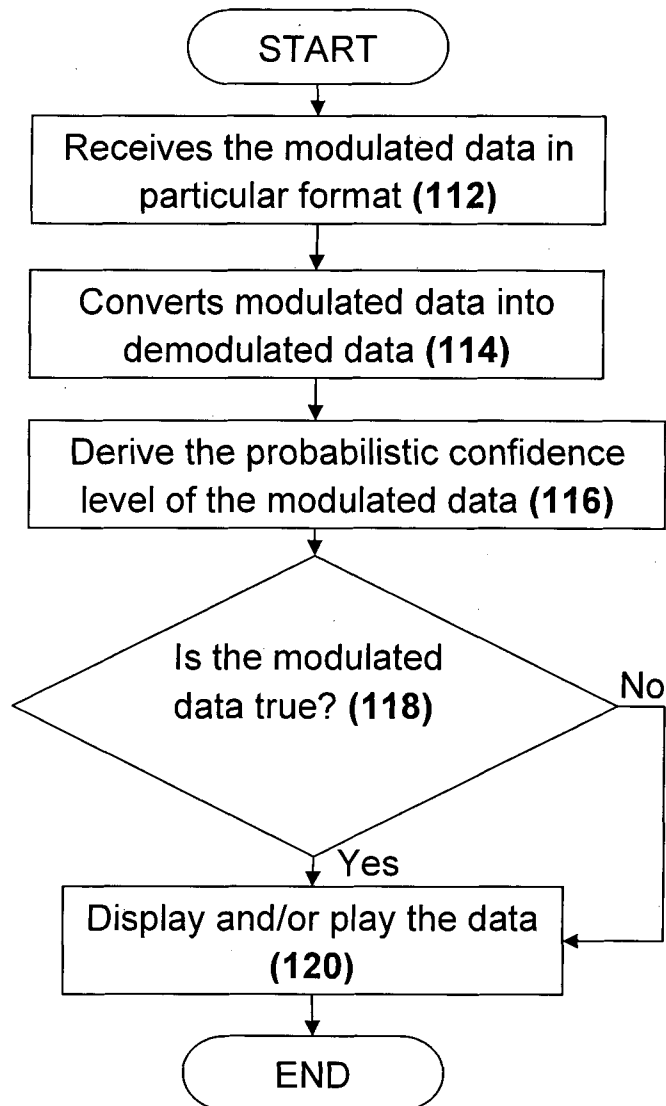


Figure 3

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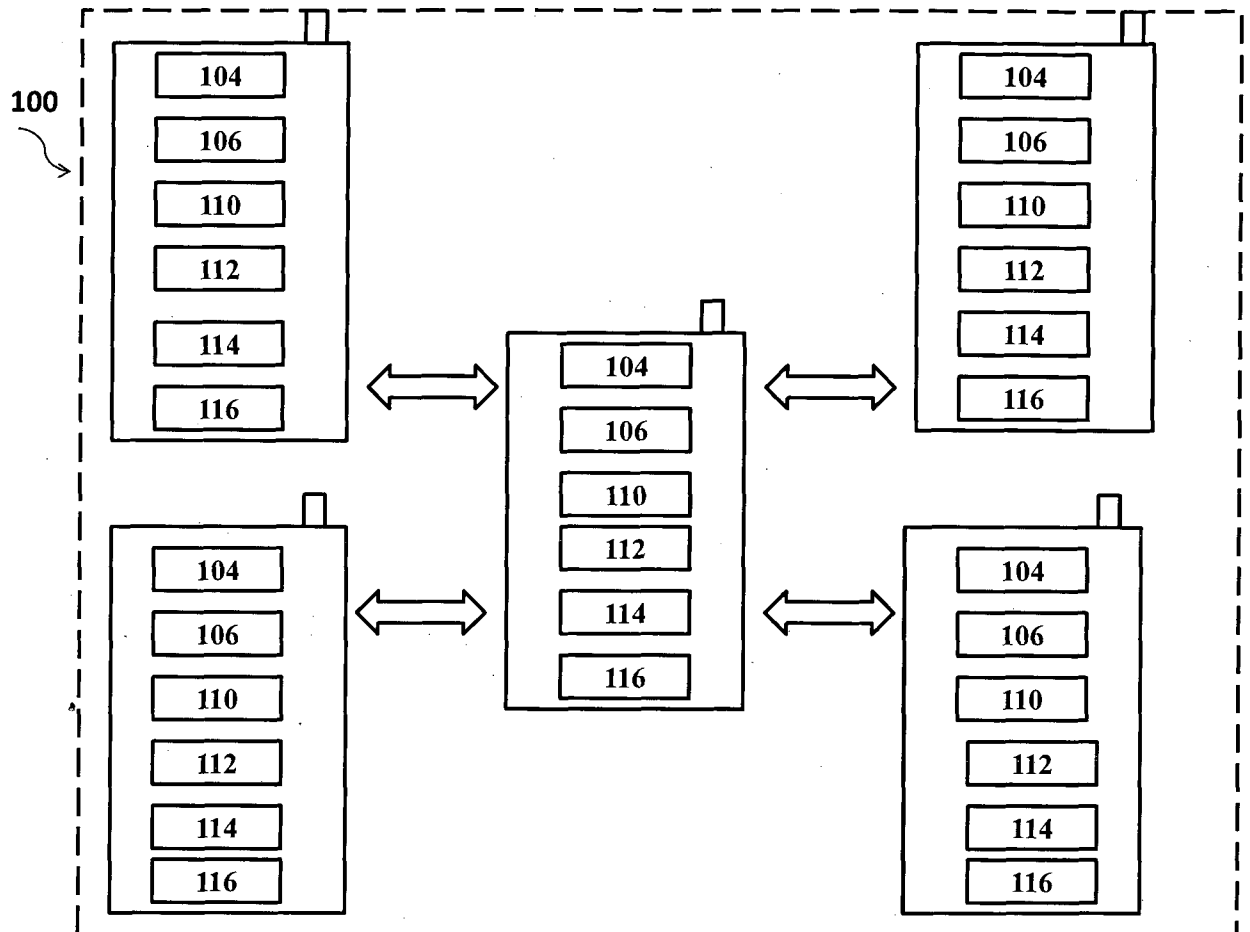


Figure 4