

# INFORMATION OUTPUT METHODS, APPARATUSES, AND DEVICES

## TECHNICAL FIELD

[0001] The present specification relates to the field of information processing  
5 technologies, and in particular, to information output methods, apparatuses, and devices.

## BACKGROUND

[0002] The user scans a payment code of a merchant through the "scan QR code"  
function of the user-side ALIPAY mobile application, and then directly makes  
settlement and payment to the merchant by using the user-side ALIPAY mobile  
10 application, and the merchant checks and broadcasts a payment receipt through a  
mobile phone. However, there are many inconveniences for the merchant with a mobile  
phone broadcasting a payment receipt, which are mainly reflected as follows: First, the  
merchant relies on the mobile phone to broadcast receipt information. If the merchant  
forgets to carry the mobile phone or does not use the merchant-side ALIPAY mobile  
15 application to check a payment result, the merchant cannot know whether the payment  
from user is successfully received. Secondly, the mobile phone has relatively low  
broadcasting volume, and due to some limitations on the mobile phone (such as the  
compatibility of the mobile phone and the lower version of the merchant-side ALIPAY  
mobile application), the broadcasting triggering rate is relatively low, which is liable to  
20 lead to a failure in checking the payment result.

[0003] To alleviate the previous problem, in the existing technology, an audio  
device (such as a Bluetooth audio device) is used to establish a connection to a mobile  
phone and broadcast receipt information by using the audio device. However, this  
method still requires the merchant to carry the mobile phone, and due to limitations, for  
25 example, only merchants having WIFI or Bluetooth can use this method, some  
merchants are unable to purchase and use the previous product, there are still many  
inconveniences for merchants to check payment receipts.

## SUMMARY

**[0004]** An object of one or more embodiments of the present specification is to provide information output methods, apparatuses, and devices for improving the success rate and convenience of outputting payment receipts, thereby satisfying the needs of various merchants for checking the payment receipts.

**[0005]** To alleviate the previous technical problem, one or more embodiments of the present specification are implemented as follows:

**[0006]** According to one aspect, one or more embodiments of the present specification provide an information output method, applied to an information output device and including the following: establishing a long connection to a server by using a communication module provided in the information output device; and sending account number information associated with the information output device to the server; receiving an output instruction for a payment receipt sent by the server based on the account number information, where the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and outputting the payment receipt based on the output instruction.

**[0007]** In some embodiments, the method further includes the following: receiving the account number information sent by a mobile device connected to the information output device, where the account number information is set by using a settings interface corresponding to the information output device displayed on the mobile device; and establishing a mapping relationship between the account number information and the information output device.

**[0008]** In some embodiments, the information output device carries a two-dimensional code used for the user to make the online payment; and correspondingly, before the receiving an output instruction for a payment receipt sent by the server based on the account number information, the method further includes the following: receiving a scan operation performed by the user for the two-dimensional code, so that the user makes the online payment by using the two-dimensional code, and sends the payment receipt corresponding to the online payment to the server.

**[0009]** In some embodiments, the outputting the payment receipt includes the following: obtaining a pre-stored payment receipt output template; combining the payment receipt output template with the payment receipt based on a predetermined

rule to generate payment receipt output content; and outputting the payment receipt output content.

5     **[0010]**     In some embodiments, before the obtaining a pre-stored payment receipt output template, the method further includes the following: receiving the payment receipt output template sent by a mobile device connected to the information output device, where the payment receipt output template is set by using a settings interface corresponding to the information output device displayed on the mobile device; and storing the payment receipt output template.

10    **[0011]**     In some embodiments, before the receiving an output instruction for a payment receipt, sent by the server based on the account number information, the method further includes the following: outputting first content, where the first content includes pre-stored content on the information output device and/or specified content sent by the server to the information output device; and correspondingly, the outputting the payment receipt includes the following: suspending output of the first content; and  
15    outputting the payment receipt, and continuing to output the first content after output of the payment receipt is completed.

**[0012]**     In some embodiments, the communication module is a general packet radio service module.

20    **[0013]**     According to another aspect, one or more embodiments of the present specification provide an information output apparatus, applied to an information output device and including the following: a connection module, configured to establish a long connection to a server by using a communication module provided in the information output device; and send account number information associated with the information output device to the server; a first receiving module, configured to receive an output  
25    instruction for a payment receipt sent by the server based on the account number information, where the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and a first output module, configured to output the payment receipt based on the output instruction.

30    **[0014]**     In some embodiments, the apparatus further includes the following: a second receiving module, configured to receive the account number information sent by a mobile device connected to the information output device, where the account number information is set by using a settings interface corresponding to the information output device displayed on the mobile device; and an establishing module, configured

to establish a mapping relationship between the account number information and the information output device.

**[0015]** In some embodiments, the information output device carries a two-dimensional code used for the user to make the online payment; and correspondingly, the apparatus further includes the following: a third receiving module, configured to, before the output instruction for the payment receipt sent by the server based on the account number information is received, receive a scan operation performed by the user for the two-dimensional code, so that the user makes the online payment by using the two-dimensional code, and sends the payment receipt corresponding to the online payment to the server.

**[0016]** In some embodiments, the first output module includes the following: an acquisition unit, configured to obtain a pre-stored payment receipt output template; a generation unit, configured to combine the payment receipt output template with the payment receipt based on a predetermined rule to generate payment receipt output content; and a first output unit, configured to output the payment receipt output content.

**[0017]** In some embodiments, the apparatus further includes the following: a fourth receiving module, configured to, before the pre-stored payment receipt output template is obtained, receive the payment receipt output template sent by a mobile device connected to the information output device, where the payment receipt output template is set by using a settings interface corresponding to the information output device displayed on the mobile device; and a storage module, configured to store the payment receipt output template.

**[0018]** In some embodiments, the apparatus further includes the following: a second output module, configured to output first content before the output instruction for the payment receipt sent by the server based on the account number information is received, where the first content includes pre-stored content on the information output device and/or specified content sent by the server to the information output device; and correspondingly, the first output module includes the following: a suspending unit, configured to suspend output of the first content; and a second output unit, configured to output the payment receipt, and continue to output the first content after output of the payment receipt is completed.

**[0019]** In some embodiments, the communication module is a general packet radio service module.

**[0020]** According to still another aspect, one or more embodiments of the present

specification provide an information output device, including the following: a communication module, configured to establish a long connection to a server; a processor, configured to send account number information associated with the information output device to the server; and receive an output instruction for a payment receipt sent by the server based on the account number information, where the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and a player, configured to output the payment receipt based on the output instruction.

10 **[0021]** In some embodiments, the device carries a two-dimensional code used for the user to make the online payment.

**[0022]** In some embodiments, the device carries a two-dimensional code for entering a settings interface corresponding to the information output device, and the settings interface is used by a user to set related information about the information output device, where the related information includes at least one of the account number information, a payment receipt output template, output volume, output content, output time, and output frequency.

**[0023]** In some embodiments, the communication module is a general packet radio service module.

20 **[0024]** According to still another aspect, one or more embodiments of the present specification provide an information output device, including the following: a processor; and a memory configured to store computer-executable instructions, where when the executable instructions are executed, the processor performs the following steps: establishing a long connection to a server by using a communication module provided in the information output device; and sending account number information associated with the information output device to the server; receiving an output instruction for a payment receipt sent by the server based on the account number information, where the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and outputting the payment receipt based on the output instruction.

30 **[0025]** According to still another aspect, embodiments of the present application provide a storage medium for storing computer-executable instructions, where when the executable instructions are executed, the following procedure is implemented: establishing a long connection to a server by using a communication module provided

in the information output device; and sending account number information associated with the information output device to the server; receiving an output instruction for a payment receipt sent by the server based on the account number information, where the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and outputting the payment receipt based on the output instruction.

**[0026]** According to the technical solution in the one or more embodiments of the present specification, the long connection is established to the server by using the communication module provided in the information output device, and the account number information associated with the information output device is sent to the server, so that the server can send the output instruction for the payment receipt to the information output device based on the account number information, and then the information output device can output the payment receipt based on the received output instruction. It can be seen that, compared with the method for broadcasting a payment receipt by a mobile phone in the existing technology, in the technical solution, the payment receipt is output by directly establishing the long connection between the information output device and the server, which alleviates the problems of low broadcasting volume of a mobile phone and a low broadcasting triggering rate due to compatibility or the lower version of a merchant-side client, thereby improving the success rate of outputting payment receipts; moreover, since the information output device in the technical solution does not need to establish a connection to a mobile phone by using WIFI or Bluetooth, a merchant does not need to rely on the mobile phone to check payment receipts, and the information output device imposes no limitation on places of use (such as street stalls, convenience stores, or taxies), thereby greatly improving the experience of the merchant when checking payment receipts.

## **BRIEF DESCRIPTION OF DRAWINGS**

**[0027]** To describe the technical solution in one or more embodiments of the present specification or in the existing technology more clearly, the following briefly describes the accompanying drawings needed for describing the embodiments or the existing technology. It is to be understood that the accompanying drawings in the following descriptions merely show some of the one or more embodiments of the present specification, and a person of ordinary skill in the art can still derive other drawings

from these accompanying drawings without creative efforts.

**[0028]** FIG. 1 is a schematic flowchart of an information output method according to an embodiment of the present specification;

**[0029]** FIG. 2 is a schematic block diagram of an information output apparatus  
5 according to an embodiment of the present specification;

**[0030]** FIG. 3 is a schematic block diagram of an information output device according to an embodiment of the present specification;

**[0031]** FIG. 4 is a schematic structural diagram of an information output device according to an embodiment of the present specification;

10 **[0032]** FIG. 5a to FIG. 5b are schematic structural diagrams of an information output device according to another embodiment of the present specification; and

**[0033]** FIG. 6 is a schematic block diagram of an information output device according to an embodiment of the present specification.

## DESCRIPTION OF EMBODIMENTS

15 **[0034]** One or more embodiments of the present specification provide information output methods, apparatuses, and device for improving the success rate and convenience of outputting payment receipts, thereby satisfying the needs of various merchants for checking the payment receipts.

**[0035]** To make a person skilled in the art better understand the technical solution  
20 in the one or more embodiments of the present specification, the following clearly and comprehensively describes the technical solution in the one or more embodiments of the present specification with reference to the accompanying drawings in the one or more embodiments of the present specification. It is to be understood that the described embodiments are merely some but not all of the embodiments of the present  
25 specification. All other embodiments obtained by a person of ordinary skill in the art based on the one or more embodiments of the present specification without creative efforts shall fall within the protection scope of the one or more embodiments of the present specification.

**[0036]** FIG. 1 is a schematic flowchart of an information output method according  
30 to an embodiment of the present specification. As shown in FIG. 1, the method includes the following:

**[0037]** S102: Establish a long connection to a server by using a communication

module provided in the information output device; and send account number information associated with the information output device to the server.

**[0038]** The communication module is a general packet radio service module, namely, a GPRS module.

5 **[0039]** After being powered on, the information output device can automatically access the server through the Message Queuing Telemetry Transport (MQTT) protocol (including a connection address, port, name, account number, password, etc.) pre-stored by the information output device. In addition, based on the throughput of the information output device, an automatic connection heartbeat can be maintained with  
10 the server at certain frequency (for example, once every three minutes) after power-on. After the long connection is established between the information output device and the server, a channel is established by using the MQTT protocol between the information output device and the server for subscribing/issuing message, and receiving/transmitting data. Through the channel, the server can send, to the  
15 information output device, a message to be output, for example, an advertisement or a payment receipt.

**[0040]** The account number information associated with the information output device is unique, and can be information carried by the two-dimensional code, or can be account number information corresponding to the two-dimensional code and  
20 predetermined by a user.

**[0041]** S104: Receive an output instruction for a payment receipt sent by the server based on the account number information.

**[0042]** The output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has  
25 completed online payment.

**[0043]** Before the present step is performed, the user can scan the two-dimensional code for the online payment by using the payment client on the mobile device, and then complete the online payment by interacting with the server. The two-dimensional code can be provided on the outer surface of the information output device, or can be  
30 provided on other types of materials, such as paper materials, and is associated with the account number information of the information output device. After the user completes the online payment, the server sends the output instruction for the payment receipt to the information output device corresponding to the account number information based on the account number information associated with the two-dimensional code.

**[0044]** S106: Output the payment receipt based on the output instruction.

**[0045]** In some embodiments, the payment receipt can be output by using voice.

**[0046]** According to the technical solution in the one or more embodiments of the present specification, the long connection is established to the server by using the communication module provided in the information output device, and the account number information associated with the information output device is sent to the server, so that the server can send the output instruction for the payment receipt to the information output device based on the account number information, and then the information output device can output the payment receipt based on the received output instruction. It can be seen that, compared with the method for broadcasting a payment receipt by a mobile phone in the existing technology, in the technical solution, the payment receipt is output by directly establishing the long connection between the information output device and the server, which alleviates the problems of low broadcasting volume of a mobile phone and a low broadcasting triggering rate due to compatibility or the lower version of a merchant-side client, thereby improving the success rate of outputting payment receipts; moreover, since the information output device in the technical solution does not need to establish a connection to a mobile phone by using WIFI or Bluetooth, a merchant does not need to rely on the mobile phone to check payment receipts, and the information output device imposes no limitation on places of use (such as street stalls, convenience stores, or taxies), thereby greatly improving the experience of the merchant when checking payment receipts.

**[0047]** In some embodiments, the outer surface of the information output device is provided with a two-dimensional code for entering the settings interface of the information output device. The user can enter the settings interface of the information output device by scanning the two-dimensional code through the "scan QR code" function of the mobile device. On the settings interface, the user can set the related information about the information output device, where the related information can include a payment receipt output template, the account number information associated with the information output device, output volume, output content, output time, output frequency, processing of data fee payment, etc.

**[0048]** The setting and use of various items of related information will be described in detail below.

**[0049]** In some embodiments, the user sets the account number information associated with an information output setting in advance on the settings interface of the

information output device, and after the account number information is set, the mobile device sends the account number information to the information output device. After receiving the account number information sent by the mobile device, the information output device establishes a mapping relationship between the account number information and the information output device.

**[0050]** In some embodiments, the mapping relationship between the account number information and the information output device is established, so that the server can directly send the payment receipt to the information output device based on the account number information without using a mobile device (such as a mobile phone) as an intermediate device, thereby alleviating the problems of low broadcasting volume of a mobile phone and a low broadcasting triggering rate due to compatibility or the lower version of a merchant-side client, thereby improving the success rate of outputting payment receipts.

**[0051]** In some embodiments, the user sets the payment receipt output template in advance on the settings interface of the information output device, where the payment receipt output template can be set by the user based on preferences or needs, or a pre-stored payment receipt output template can be downloaded from the server. The server pre-stores a plurality of payment receipt output templates, and the user can select one of the payment receipt output templates based on preferences or needs by using the settings interface of the information output device. After the payment receipt output template is set, the mobile device sends the payment receipt output template to the information output device. The information output device receives the payment receipt output template sent by the mobile device, and stores the payment receipt output template.

**[0052]** After storing the payment receipt output template, the information output device can receive the payment receipt sent by the server, and generate payment receipt output content based on the payment receipt and the payment receipt output template.

**[0053]** In some embodiments, the information output device carries a two-dimensional code used for the user to make the online payment. When making online payment, the user can scan the two-dimensional code on the information output device by using the "scan QR code" function of the mobile device, and then make the online payment by using the two-dimensional code and send a payment receipt corresponding to the online payment to the server.

**[0054]** Next, the server sends the payment receipt to the information output device.

After receiving the payment receipt, the information output device obtains a pre-stored payment receipt output template, and combines the payment receipt output template with the payment receipt based on a predetermined rule to generate payment receipt output content and then output the payment receipt output content.

5   **[0055]**     Optionally, a blank space is provided in the payment receipt output template. Correspondingly, the predetermined rule is to directly add the payment receipt to the blank space in the payment receipt output template. For example, the payment receipt output template is "xiaopingguo's account...", where "xiaopingguo" is the name of the merchant's ALIPAY account, and here the ellipsis "..." indicates a blank space. If the  
10   payment receipt is "20 RMB is received", after the payment receipt is directly added to the blank space in the payment receipt output template, the payment receipt output content "20 RMB is received in xiaopingguo's account" is generated. Certainly, the blank space can be expressed in other ways than ellipses.

**[0056]**     Optionally, a specified character is provided in the payment receipt output  
15   template. Correspondingly, the predetermined rule is to replace the specified character in the payment receipt template with the payment receipt. For example, the payment receipt output template is "xiaopingguo's account XXXX", where "xiaopingguo" is the name of the merchant's ALIPAY account, and "XXXX" is a specified character. If the payment receipt is "20 RMB is received", after the specified character in the payment  
20   receipt output template is replaced with the payment receipt, the payment receipt output content "20 RMB is received in xiaopingguo's account" is generated.

**[0057]**     In some embodiments, the payment receipt output template is predetermined, and the payment receipt output content is generated based on the payment receipt output template and the payment receipt, so that the payment receipt output by the information  
25   output device can better satisfy the preferences or needs of the user, and the experience of checking the payment receipt by the user is improved.

**[0058]**     Certainly, in some embodiments, the payment receipt output template does not need to be set, that is, the information output device directly outputs the payment receipt as the payment receipt output content after receiving the payment receipt sent  
30   by the server.

**[0059]**     In some embodiments, the user sets output content in advance on the settings interface of the information output device. The output content can be the payment receipt output content in the previous embodiment, or can be other content independent of the payment receipt. Other content include, for example, startup broadcasting content

"Welcome to XXX", broadcasting content upon a low battery "Battery alarm, please charge", broadcasting content upon a network outage "Poor network signal, reconnecting", broadcasting content upon a software upgrade "System update in progress, please wait", pre-payment receipt broadcasting content, post-payment receipt  
5 broadcasting content, and a merchant's sales and promotion content.

**[0060]** The other content listed previously can be set on the settings interface of the information output device. A plurality of pieces of output content can be pre-stored on the information output device, and the user can select which piece of output content to output based on needs.

10 **[0061]** If the pre-payment receipt broadcasting content is set, the pre-payment receipt broadcasting content is prioritized to be broadcast after receiving the payment receipt, and then the payment receipt output content is broadcast. If the post-payment receipt broadcasting content is set, the payment receipt output content is prioritized to be broadcast after the payment receipt is received, and then the post-payment receipt  
15 broadcasting content is broadcast.

**[0062]** In some embodiments, the information output device can also broadcast other content that is not predetermined. For example, the server periodically sends a message (such as a weather forecast or a time broadcast) to the information output device, and the information output device broadcasts the message sent by the server  
20 after receiving it.

**[0063]** In some embodiments, the information output device can output not only the payment receipt, but also the content of other information such as weather, time, etc., which is very convenient for some merchants such as street vendors, snack shops, convenience stores, food markets, taxies, etc., and greatly improves the experience of  
25 such merchants in using the information output device.

**[0064]** In some embodiments, the information output device can output first content before the output instruction for the payment receipt sent by the server based on the account number information, where the first content can include pre-stored content (such as pre-stored merchant's sales and promotion content) on the information output  
30 device and/or specified content (such as a weather forecast) sent by the server to the information output device. If the information output device receives an output instruction sent by the server when outputting the first content, the output of the first content is suspended and a payment receipt is output, and then the output of the first content is continued after the output of the payment receipt is completed.

**[0065]** In addition to the output content described in the several embodiments enumerated above, the information output device can exchange other content with the server, and the other content includes configuration parameters of the information output device, upgrade firmware files, configuration results (including configuration success or failure), longitude and latitude information, device information, message download results (download success or failure), etc.

**[0066]** In conclusion, specific embodiments of the subject matter have been described. Other embodiments fall within the scope of the appended claims. In some situations, the actions described in the claims can be performed in a different order and the desired results can still be achieved. In addition, the process depicted in the accompanying drawings does not necessarily need a particular execution order or a sequential order to achieve the desired results. In some embodiments, multi-tasking and concurrent processing can be advantageous.

**[0067]** The previous descriptions are the information output method according to the one or more embodiments of the present specification, and based on the same idea, the one or more embodiments of the present specification further provide an information output apparatus.

**[0068]** FIG. 2 is a schematic block diagram of an information output apparatus according to an embodiment of the present specification. As shown in FIG. 2, the information output apparatus 200 is applied to an information output device and includes the following: a connection module 210, configured to establish a long connection to a server by using a communication module provided in the information output device; and send account number information associated with the information output device to the server; a first receiving module 220, configured to receive an output instruction for a payment receipt sent by the server based on the account number information, where the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and a first output module 230, configured to output the payment receipt based on the output instruction.

**[0069]** In some embodiments, the apparatus 200 further includes the following: a second receiving module, configured to receive the account number information sent by a mobile device connected to the information output device, where the account number information is set by using a settings interface corresponding to the information output device displayed on the mobile device; and an establishing module, configured

to establish a mapping relationship between the account number information and the information output device.

**[0070]** In some embodiments, the information output device carries a two-dimensional code used for the user to make the online payment; and correspondingly, the apparatus 200 further includes the following: a third receiving module, configured to, before the output instruction for the payment receipt sent by the server based on the account number information is received, receive a scan operation performed by the user for the two-dimensional code, so that the user makes the online payment by using the two-dimensional code, and sends the payment receipt corresponding to the online payment to the server.

**[0071]** In some embodiments, the first output module 230 includes the following: an acquisition unit, configured to obtain a pre-stored payment receipt output template; a generation unit, configured to combine the payment receipt output template with the payment receipt based on a predetermined rule to generate payment receipt output content; and a first output unit, configured to output the payment receipt output content.

**[0072]** In some embodiments, the apparatus 200 further includes the following: a fourth receiving module, configured to, before the pre-stored payment receipt output template is obtained, receive the payment receipt output template sent by a mobile device connected to the information output device, where the payment receipt output template is set by using a settings interface corresponding to the information output device displayed on the mobile device; and a storage module, configured to store the payment receipt output template.

**[0073]** In some embodiments, the apparatus 200 further includes the following: a second output module, configured to output first content before the output instruction for the payment receipt sent by the server based on the account number information is received, where the first content includes pre-stored content on the information output device and/or specified content sent by the server to the information output device; and correspondingly, the first output module 230 includes the following: a suspending unit, configured to suspend output of the first content; and a second output unit, configured to output the payment receipt, and continue to output the first content after output of the payment receipt is completed.

**[0074]** In some embodiments, the communication module is a general packet radio service module.

**[0075]** According to the apparatus in the one or more embodiments of the present

specification, the long connection is established to the server by using the communication module provided in the information output device, and the account number information associated with the information output device is sent to the server, so that the server can send the output instruction for the payment receipt to the information output device based on the account number information, and then the information output device can output the payment receipt based on the received output instruction. It can be seen that, compared with the method for broadcasting a payment receipt by a mobile phone in the existing technology, in the technical solution, the payment receipt is output by directly establishing the long connection between the information output device and the server, which alleviates the problems of low broadcasting volume of a mobile phone and a low broadcasting triggering rate due to compatibility or the lower version of a merchant-side client, thereby improving the success rate of outputting payment receipts; moreover, since the information output device in the technical solution does not need to establish a connection to a mobile phone by using WIFI or Bluetooth, a merchant does not need to rely on the mobile phone to check payment receipts, and the information output device imposes no limitation on places of use (such as street stalls, convenience stores, or taxis), thereby greatly improving the experience of the merchant when checking payment receipts.

**[0076]** FIG. 3 is a schematic block diagram of an information output device according to an embodiment of the present specification. As shown in FIG. 3, the information output device 300 includes the following: a communication module 310, configured to establish a long connection to a server; a processor 320, configured to send account number information associated with the information output device to the server; and receive an output instruction for a payment receipt sent by the server based on the account number information, where the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and a player 330, configured to output the payment receipt based on the output instruction.

**[0077]** In some embodiments, the device carries a two-dimensional code used for the user to make the online payment.

**[0078]** In some embodiments, the device carries a two-dimensional code for entering a settings interface corresponding to the information output device, and the settings interface is used by a user to set related information about the information output device, where the related information includes at least one of the account number

information, a payment receipt output template, output volume, output content, output time, and output frequency.

**[0079]** In some embodiments, the communication module is a general packet radio service module.

5 **[0080]** FIG. 4 is a schematic structural diagram of an information output device according to an embodiment of the present specification. As shown in FIG. 4, the outer surface of the information output device carries a two-dimensional code used for the user to make online payment, and "ALIPAY" in FIG. 4 is used as an example. After the user scans the two-dimensional code carried on the outer surface of the information  
10 output device, the user can enter a payment interface corresponding to the account number information associated with the information output device, and complete online payment on the payment interface. After the online payment is completed, the server sends the payment receipt to the information output device so that the information output device broadcasts the payment receipt.

15 **[0081]** The rear surface of the information output device shown in FIG. 4 can be provided with a hanging hole (not shown), where the hanging hole can be used for hanging the information output device, for example, on a protrusion, or on a rope, so that the information output device is portable.

**[0082]** FIG. 5a to FIG. 5b are schematic structural diagrams of an information  
20 output device according to another embodiment of the present specification. The information output device shown in FIG. 5a and FIG. 5b is provided with a base, where FIG. 5a shows the side surface of the information output device with the base, and FIG. 5b shows the side rear surface of the information output device with the base. The base can be used to place the information output device on a horizontal plane so that the  
25 information output device is portable.

**[0083]** According to the device in the one or more embodiments of the present specification, the long connection is established to the server by using the communication module provided in the information output device, and the account number information associated with the information output device is sent to the server,  
30 so that the server can send the output instruction for the payment receipt to the information output device based on the account number information, and then the information output device can output the payment receipt based on the received output instruction. It can be seen that, compared with the method for broadcasting a payment receipt by a mobile phone in the existing technology, in the technical solution, the

payment receipt is output by directly establishing the long connection between the information output device and the server, which alleviates the problems of low broadcasting volume of a mobile phone and a low broadcasting triggering rate due to compatibility or the lower version of a merchant-side client, thereby improving the success rate of outputting payment receipts; moreover, since the information output device in the technical solution does not need to establish a connection to a mobile phone by using WIFI or Bluetooth, a merchant does not need to rely on the mobile phone to check payment receipts, and the information output device imposes no limitation on places of use (such as street stalls, convenience stores, or taxies), thereby greatly improving the experience of the merchant when checking payment receipts.

**[0084]** A person skilled in the art should understand that the previous information output apparatus and information output device can be used to implement the previously described information output method, and the detailed description thereof should be similar to that in the previously described method. To avoid tediousness, details are omitted here for simplicity.

**[0085]** Based on the same idea, the one or more embodiments of the present specification further provide an information output device, as shown in FIG. 6. The information output device may vary widely depending on configuration or performance and can include one or more processors 601 and a memory 602, where the memory 602 can store one or more stored application programs or data. The memory 602 can perform temporary storage or persistent storage. Application programs stored in the memory 602 can include one or more modules (not shown), and each of the modules can include a series of computer-executable instructions for the information output device. Still further, the processor 601 can be configured to communicate with the memory 602 to execute the series of computer-executable instructions in the memory 602 on the information output device. The information output device can also include one or more power supplies 603, one or more wired or wireless network interfaces 604, one or more input/output interfaces 605, and one or more keypads 606.

**[0086]** In some embodiments, the information output device includes a memory, and one or more programs, where the one or more programs are stored in the memory, the one or more programs can include one or more modules, and each of the modules can include a series of computer-executable instructions for the information output device, and after configuration, the one or more processors perform the one or more programs, including performing the following computer-executable instructions:

establishing a long connection to a server by using a communication module provided in the information output device; and sending account number information associated with the information output device to the server; receiving an output instruction for a payment receipt sent by the server based on the account number information, where the  
5 output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and outputting the payment receipt based on the output instruction.

**[0087]** Optionally, when the computer-executable instructions are executed, the processor can also perform the following steps: receiving the account number  
10 information sent by a mobile device connected to the information output device, where the account number information is set by using a settings interface corresponding to the information output device displayed on the mobile device; and establishing a mapping relationship between the account number information and the information output device.

**[0088]** Optionally, the information output device carries a two-dimensional code  
15 used for the user to make the online payment; and correspondingly, when the computer-executable instructions are executed, the processor can also perform the following steps: before the output instruction for the payment receipt sent by the server based on the account number information is received, receiving a scan operation performed by the user for the two-dimensional code, so that the user makes the online payment by using  
20 the two-dimensional code, and sends the payment receipt corresponding to the online payment to the server.

**[0089]** Optionally, when the computer-executable instructions are executed, the processor can also perform the following steps: obtaining a pre-stored payment receipt output template; combining the payment receipt output template with the payment  
25 receipt based on a predetermined rule to generate payment receipt output content; and outputting the payment receipt output content.

**[0090]** Optionally, when the computer-executable instructions are executed, the processor can also perform the following steps: before the pre-stored payment receipt output template is obtained, receiving the payment receipt output template sent by a  
30 mobile device connected to the information output device, where the payment receipt output template is set by using a settings interface corresponding to the information output device displayed on the mobile device; and storing the payment receipt output template.

**[0091]** Optionally, when the computer-executable instructions are executed, the

processor can also perform the following steps: before the output instruction for the payment receipt sent by the server based on the account number information is received, outputting first content, where the first content includes pre-stored content on the information output device and/or specified content sent by the server to the information output device; and correspondingly, when the computer-executable instructions are executed, the processor can perform the following steps: suspending output of the first content; and outputting the payment receipt, and continuing to output the first content after output of the payment receipt is completed.

**[0092]** Optionally, the communication module is a general packet radio service module.

**[0093]** One or more embodiments of the present specification further provide a computer-readable storage medium, where the computer-readable storage medium stores one or more programs, the one or more programs includes instructions that, when executed by an electronic device including a plurality of application programs, enable the electronic device to perform the previously described information output method, and specifically perform the following steps: establishing a long connection to a server by using a communication module provided in the information output device; and sending account number information associated with the information output device to the server; receiving an output instruction for a payment receipt sent by the server based on the account number information, where the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and outputting the payment receipt based on the output instruction.

**[0094]** The system, apparatus, module, or unit illustrated in the previous embodiments can be implemented by using a computer chip or an entity, or can be implemented by using a product having a certain function. A typical embodiment device is a computer. Specifically, the computer can be, for example, a personal computer, a laptop computer, a cellular phone, a camera phone, a smartphone, a personal digital assistant, a media player, a navigation device, an email device, a game console, a tablet computer, a wearable device, or any combination of these devices.

**[0095]** For ease of description, the apparatus above is described by dividing functions into various units. Certainly, when the one or more embodiments of the present specification are implemented, a function of each unit can be implemented in one or more pieces of software and/or hardware.

**[0096]** A person skilled in the art should understand that the one or more embodiments of the present specification can be provided as a method, a system, or a computer program product. Therefore, the one or more embodiments of the present specification can use a form of hardware only embodiments, software only  
5 embodiments, or embodiments with a combination of software and hardware. Moreover, the one or more embodiments of the present specification can use a form of a computer program product that is implemented on one or more computer-usable storage media (including but not limited to a disk memory, a CD-ROM, an optical memory, etc.) that include computer-usable program code.

**[0097]** The one or more embodiments of the present specification is described with reference to the flowcharts and/or block diagrams of the method, the device (system), and the computer program product based on the embodiments of the present application. It is worthwhile to note that computer program instructions can be used to implement each process and/or each block in the flowcharts and/or the block diagrams and a  
15 combination of a process and/or a block in the flowcharts and/or the block diagrams. These computer program instructions can be provided for a general-purpose computer, a dedicated computer, an embedded processor, or a processor of another programmable data processing device to generate a machine, so the instructions executed by the computer or the processor of the another programmable data processing device generate  
20 an apparatus for implementing a specific function in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

**[0098]** These computer program instructions can be stored in a computer readable memory that can instruct the computer or the another programmable data processing device to work in a specific way, so the instructions stored in the computer readable  
25 memory generate an artifact that includes an instruction apparatus. The instruction apparatus implements a specific function in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

**[0099]** These computer program instructions can be loaded onto the computer or another programmable data processing device, so a series of operations and operations  
30 and steps are performed on the computer or the another programmable device, thereby generating computer-implemented processing. Therefore, the instructions executed on the computer or the another programmable device provide steps for implementing a specific function in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

**[0100]** In a typical configuration, a computing device includes one or more processors (CPU), an input/output interface, a network interface, and a memory.

**[0101]** The memory can include a non-persistent memory, a random access memory (RAM), a non-volatile memory, and/or another form that are in a computer readable medium, for example, a read-only memory (ROM) or a flash memory (flash RAM). The memory is an example of the computer readable medium.

**[0102]** The computer readable medium includes persistent, non-persistent, movable, and unmovable media that can store information by using any method or technology. The information can be a computer readable instruction, a data structure, a program module, or other data. Examples of the computer storage medium include but are not limited to a phase change random access memory (PRAM), a static RAM (SRAM), a dynamic RAM (DRAM), a RAM of another type, a read-only memory (ROM), an electrically erasable programmable ROM (EEPROM), a flash memory or another memory technology, a compact disc ROM (CD-ROM), a digital versatile disc (DVD), or another optical storage, a cassette, a cassette magnetic disk storage, or another magnetic storage device or any other non-transmission medium. The computer storage medium can be configured to store information that can be accessed by a computing device. Based on the definition in the present specification, the computer readable medium does not include transitory media such as a modulated data signal and carrier.

**[0103]** It is worthwhile to further note that, the terms "include", "contain", or their any other variants are intended to cover a non-exclusive inclusion, so a process, a method, a product or a device that includes a list of elements not only includes those elements but also includes other elements which are not expressly listed, or further includes elements inherent to such process, method, product or device. Without more constraints, an element preceded by "includes a ..." does not preclude the existence of additional identical elements in the process, method, product or device that includes the element.

**[0104]** The one or more embodiments of the present specification can be described in the general context of computer-executable instructions, for example, a program module. Generally, the program module includes a routine, a program, an object, a component, a data structure, etc. executing a specific task or implementing a specific abstract data type. The present application can alternatively be practiced in distributed computing environments in which tasks are performed by remote processing devices that are connected through a communications network. In a distributed computing

environment, the program module can be located in both local and remote computer storage media including storage devices.

**[0105]** The embodiments in the present specification are described in a progressive way. For same or similar parts of the embodiments, references can be made to the  
5 embodiments mutually. Each embodiment focuses on a difference from other embodiments. Particularly, a system embodiment is similar to a method embodiment, and therefore is described briefly. For related parts, references can be made to related descriptions in the method embodiment.

**[0106]** The previous descriptions are merely one or more embodiments of the  
10 present specification, and are not intended to limit the present specification. For a person skilled in the art, the one or more embodiments of the present specification can have various modifications and changes. Any modifications, equivalent replacements, and improvements made within the spirit and principle of the one or more embodiments of the present specification shall fall within the scope of the claims in the one or more  
15 embodiments of the present specification.

## CLAIMS

What is claimed is:

1. An information output method, applied to an information output device and comprising:

5        establishing a long connection to a server by using a communication module provided in the information output device; and sending account number information associated with the information output device to the server;

         receiving an output instruction for a payment receipt sent by the server based on the account number information, wherein the output instruction is used to instruct the  
10      information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and

         outputting the payment receipt based on the output instruction.

2. The method according to claim 1, further comprising:

         receiving the account number information sent by a mobile device connected to  
15      the information output device, wherein the account number information is set by using a settings interface corresponding to the information output device displayed on the mobile device; and

         establishing a mapping relationship between the account number information and the information output device.

20      3. The method according to claim 1, wherein the information output device carries a two-dimensional code used for the user to make the online payment; and

         correspondingly, before the receiving an output instruction for a payment receipt sent by the server based on the account number information, the method further comprises:

25      receiving a scan operation performed by the user for the two-dimensional code, so that the user makes the online payment by using the two-dimensional code, and sends the payment receipt corresponding to the online payment to the server.

4. The method according to claim 1, wherein the outputting the payment receipt comprises:

30      obtaining a pre-stored payment receipt output template;

         combining the payment receipt output template with the payment receipt based on a predetermined rule to generate payment receipt output content; and

         outputting the payment receipt output content.

5. The method according to claim 4, wherein before the obtaining a pre-stored payment receipt output template, the method further comprises:

receiving the payment receipt output template sent by a mobile device connected to the information output device, wherein the payment receipt output template is set by using a settings interface corresponding to the information output device displayed on the mobile device; and

storing the payment receipt output template.

6. The method according to claim 1, wherein before the receiving an output instruction for a payment receipt sent by the server based on the account number information, the method further comprises:

outputting first content, wherein the first content comprises pre-stored content on the information output device and/or specified content sent by the server to the information output device; and

correspondingly, the outputting the payment receipt comprises:

suspending output of the first content; and

outputting the payment receipt, and continuing to output the first content after output of the payment receipt is completed.

7. The method according to any one of claims 1 to 6, wherein the communication module is a general packet radio service module.

8. An information output apparatus, applied to an information output device and comprising:

a connection module, configured to establish a long connection to a server by using a communication module provided in the information output device; and send account number information associated with the information output device to the server;

a first receiving module, configured to receive an output instruction for a payment receipt sent by the server based on the account number information, wherein the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and

a first output module, configured to output the payment receipt based on the output instruction.

9. The apparatus according to claim 8, further comprising:

a second receiving module, configured to receive the account number information sent by a mobile device connected to the information output device, wherein the account

number information is set by using a settings interface corresponding to the information output device displayed on the mobile device; and

an establishing module, configured to establish a mapping relationship between the account number information and the information output device.

5        10. The apparatus according to claim 8, wherein the information output device carries a two-dimensional code used for the user to make the online payment; and

correspondingly, the apparatus further comprises:

10        a third receiving module, configured to, before the output instruction for the payment receipt sent by the server based on the account number information is received, receive a scan operation performed by the user for the two-dimensional code, so that the user makes the online payment by using the two-dimensional code, and sends the payment receipt corresponding to the online payment to the server.

11. The apparatus according to claim 8, wherein the first output module comprises:

15        an acquisition unit, configured to obtain a pre-stored payment receipt output template;

a generation unit, configured to combine the payment receipt output template with the payment receipt based on a predetermined rule to generate payment receipt output content; and

a first output unit, configured to output the payment receipt output content.

20        12. The apparatus according to claim 11, further comprising:

a fourth receiving module, configured to, before the pre-stored payment receipt output template is obtained, receive the payment receipt output template sent by a mobile device connected to the information output device, wherein the payment receipt output template is set by using a settings interface corresponding to the information output device displayed on the mobile device; and

a storage module, configured to store the payment receipt output template.

13. The apparatus according to claim 8, wherein the apparatus further comprises:

30        a second output module, configured to output first content before the output instruction for the payment receipt sent by the server based on the account number information is received, wherein the first content comprises pre-stored content on the information output device and/or specified content sent by the server to the information output device; and

correspondingly, the first output module comprises:

a suspending unit, configured to suspend output of the first content; and

a second output unit, configured to output the payment receipt, and continue to output the first content after output of the payment receipt is completed.

14. The apparatus according to any one of claims 8 to 13, wherein the communication module is a general packet radio service module.

5 15. An information output device, comprising:

a communication module, configured to establish a long connection to a server;

a processor, configured to send account number information associated with the information output device to the server; and receive an output instruction for a payment receipt sent by the server based on the account number information, wherein the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and

a player, configured to output the payment receipt based on the output instruction.

15 16. The device according to claim 15, wherein the device carries a two-dimensional code used for the user to make the online payment.

17. The device according to claim 15, wherein the device carries a two-dimensional code for entering a settings interface corresponding to the information output device, and the settings interface is used by a user to set related information about the information output device, wherein

20 the related information comprises at least one of the account number information, a payment receipt output template, output volume, output content, output time, and output frequency.

18. The device according to any one of claims 15 to 17, wherein the communication module is a general packet radio service module.

25 19. An information output device, comprising:

a processor; and

a memory configured to store computer-executable instructions, wherein when the executable instructions are executed, the processor performs the following steps:

30 establishing a long connection to a server by using a communication module provided in the information output device; and sending account number information associated with the information output device to the server;

receiving an output instruction for a payment receipt sent by the server based on the account number information, wherein the output instruction is used to instruct the information output device to output the payment receipt, and the payment receipt is

used to identify that a user has completed online payment; and

outputting the payment receipt based on the output instruction.

20. A storage medium for storing computer-executable instructions, wherein when the executable instructions are executed, the following procedure is implemented:

5        establishing a long connection to a server by using a communication module provided in the information output device; and sending account number information associated with the information output device to the server;

         receiving an output instruction for a payment receipt sent by the server based on the account number information, wherein the output instruction is used to instruct the  
10        information output device to output the payment receipt, and the payment receipt is used to identify that a user has completed online payment; and

         outputting the payment receipt based on the output instruction.