

METHOD FOR ACTIVATING BUSINESS BY VOICE IN COMMUNICATION SOFTWARE AND CORRESPONDING APPARATUS

Technical Field

The present application relates to the field of communication technologies, and in particular, to a method for activating a business by voice in communication software and a corresponding apparatus.

Background Art

With automatic financial payment technologies becoming increasingly mature, various types of financial payment forms have been gradually promoted and applied by people in daily life. For example, mobile banking technologies, e-banks, and the like have involved every field of people's daily life such as transportation, tax, finance, and security. The payment technologies of automatic payment and automatic transfer implemented by communication network systems provide great convenience for people's daily life.

Meanwhile, the current instant messaging technology provides a quick and efficient communication platform for people, such that online users can implement quick and instant information interaction via the Internet, and can also implement payment processing of various financial charges by using the Internet in instant messaging software. Therefore, the users can implement online financial payment conveniently and quickly.

In some existing instant messaging software, a user (payee) may initiate collection of money to an opposite side (payer) by establishing a collection order. However, the payee has to exit from a chat interface with the payer, click a button for selecting a collection function, and then perform a series of operations and clicks according to an operation process to implement the collection action. Therefore, the operation is complex.

Summary of the Invention

An objective of embodiments of the present application is to provide a method for activating a business by voice in communication software and a corresponding apparatus, for solving the problem of complex operations of calling a business function module in chat software in the prior art, such that a user can have improved user experience when using a business function.

The embodiments of the present application provide a method for activating a business by

voice in communication software, including:

collecting, when a user communicates with another person by using communication software, voice information input by the user;

recognizing the voice information, and activating a corresponding business if the voice information includes a specific command; and

sending business information and information including transaction data to a business processing apparatus, such that the business processing apparatus processes the business.

The embodiments of the present application further provide a method for activating a business by voice in communication software, including:

receiving business information and information including transaction data that are sent by a user terminal; and

processing a business based on the business information and the information including transaction data.

The embodiments of the present application further provide an apparatus for activating a business by voice in communication software, including:

a collection unit configured to collect, when a user communicates with another person by using communication software, voice information input by the user;

a command recognition unit configured to recognize the voice information, and activate a corresponding business if the voice information includes a specific command; and

a sending unit configured to send business information and information including transaction data to a business processing apparatus, such that the business apparatus processes the business.

The embodiments of the present application further provide a business processing apparatus, including:

a receiving unit configured to receive business information and information including transaction data that are sent by a user terminal; and

a processing unit configured to process a business based on the business information and the information including transaction data.

It can be seen from the technical solution provided in the embodiments of the present application that, by adding a solution of activating a business by voice in communication software on a user terminal, a business can be initiated during chatting of the user. The user can use a business function without exiting from a chat interface to perform complex click operations, thus greatly simplifying the operation complexity of the user, such that the user can have better user experience.

Definitely, any product or method implementing the present application does not necessarily achieve all the above advantages at the same time.

Brief Description of the Drawings

To describe the technical solutions in the embodiments of the present application or the prior art more clearly, the accompanying drawings to be used in the descriptions of the embodiments or the prior art are briefly introduced in the following. Apparently, the accompanying drawings described in the following are merely some embodiments in the present application, and those of ordinary skill in the art may still derive other drawings from these accompanying drawings without creative efforts.

FIG. 1 is a flowchart of a method for activating a business by voice in communication software according to an embodiment of the present application;

FIG. 2 is a flowchart of a method for activating a business by voice in communication software according to an embodiment of the present application;

FIG. 3 is a schematic structural diagram of an apparatus for activating a business by voice in communication software according to the present application;

FIG. 4 is a schematic structural diagram of a business processing apparatus according to an embodiment of the present application;

FIG. 5 is a data flow diagram of activating a business by voice in communication software according to an embodiment of the present application; and

FIG. 6 is another data flow diagram of activating a business by voice in communication

software according to an embodiment of the present application.

Detailed Description

The embodiments of the present application provide a method for activating a business by voice in communication software and a corresponding apparatus.

To make those skilled in the art better understand the technical solutions in the present application, the technical solutions in the embodiments of the present application will be described clearly and completely below with reference to the accompanying drawings in the embodiments of the present application. Apparently, the described embodiments are merely a part of rather than all of the embodiments of the present application. Based on the embodiments of the present application, all other embodiments derived by those of ordinary skill in the art without any creative effort shall all fall within the protection scope of the present application.

FIG. 1 is a flowchart of a method for activating a business by voice in communication software according to an embodiment of the present application. The method can be applied to instant messaging for activating a business, e.g., a payment business, by voice, and the payment business may specifically be a business of transferring to or paying another user or the like.

Specifically, the method in the embodiment shown in FIG. 1 may include the following steps:

Step 101: When a user communicates with another person by using communication software, voice information input by the user is collected.

Step 102: The voice information is recognized, and a corresponding business is activated if the voice information includes a specific command.

Step 103: Business information and information including transaction data are sent to a business processing apparatus, such that the business processing apparatus processes the business.

This embodiment can be applied to an instant messaging system, and the system may include a user terminal, such as a mobile phone, a tablet computer, or a computer. The system may further include an instant messaging server. Each user can register, through his/her own terminal, with the instant messaging server for an account, and can implement instant messaging between users. The instant messaging system may be QQ, Wechat, Laiwang, and the like. The

communication software may specifically be QQ software, a Wechat application, a Laiwang application, and the like.

In this embodiment, steps 102 to 103 may specifically be executed by a user terminal, which may activate a corresponding business by collecting user voice information of a user in instant messaging; and may send the business to the business processing apparatus for processing. The business processing apparatus here may specifically be an instant messaging server. Alternatively, it may also refer to that the user terminal sends the business to a separate business processing apparatus through an instant messaging server.

As an embodiment of the present application, the method further includes verifying whether the user is a legal user. This step of verifying whether the user is a legal user may be performed when the user starts the communication software. If the user is a legal user, the user is allowed to use the communication software; otherwise, the user is refused to use the communication software. It may be further verified whether a user currently inputting voice information is a legal user, including verifying whether a user who inputs information for transmitting to an opposite side after the communication software is started is a legal user, or whether a user inputting a specific command is a legal user. The subsequent methods for verifying whether a user is a legal user can be used separately or in combination.

As an embodiment of the present application, the verifying whether the user is a legal user may specifically include determining whether the user is a legal user by verifying an input operation of the user or verifying a biometric feature of the user.

As an embodiment of the present application, the input operation includes at least one of the following: a password formed by a character string input by the user, a slide input of the user, and a combination of pressing keys by the user.

As an embodiment of the present application, the biometric feature includes at least one of the following: a fingerprint of the user, a face image of the user, and a voiceprint of the user.

As an embodiment of the present application, the determining whether the user is a legal user by verifying voice of the user includes verifying whether the user is a legal user by voiceprint recognition.

As an embodiment of the present application, the recognizing the voice information further includes recognizing transaction data included in the voice information.

As an embodiment of the present application, the sending business information and information including transaction data to a business processing apparatus further includes sending the business information and the transaction data to the business processing apparatus.

As an embodiment of the present application, the sending business information and information including transaction data to a business processing apparatus further includes sending the business information and the voice information to the business processing apparatus.

As an embodiment of the present application, after receiving the business information and the information including transaction data, the business apparatus may further generate order information, such as a business order, and return it to the user terminal. The business order may include the business information and transaction data that is recognized by the business processing apparatus according to the voice information.

As an embodiment of the present application, the business information includes at least a business ID, and identifiers of users of various parties that are communicating via the communication software.

By means of the method in the above embodiments of the present application, by adding a solution of activating a business by voice in communication software on a user terminal, a financial transaction business can be initiated during chatting of the user. The user can use the financial transaction business without exiting from a chat interface to perform complex click operations, thus greatly simplifying the operation complexity of the user, such that the user can have better user experience. Moreover, according to voiceprint recognition on voice information initiating the financial transaction business, it can be ensured that a user initiating the financial transaction business is a legal user, thus avoiding an insecurity factor that another person initiates a financial transaction business by using an intelligent terminal. Meanwhile, the same piece of voice information is used for verification (which is both a transaction instruction and voiceprint verification content), such that the user can use the method of the present application more conveniently.

FIG. 2 is a flowchart of a method for activating a business by voice in communication software according to an embodiment of the present application.

Step 201: Business information and information including transaction data that are sent by a user terminal are received.

Step 202: A business is processed based on the business information and the information including transaction data.

As an embodiment of the present application, the information including transaction data is voice information, and the method further includes recognizing the transaction data in the voice information.

As an embodiment of the present application, the receiving business information and information including transaction data that are sent by a user terminal further includes verifying whether the user currently sending the business information and the information including transaction data is a legal user.

As an embodiment of the present application, whether the user is a legal user is determined by conducting voiceprint recognition on the voice information sent by the user terminal.

As an embodiment of the present application, the business information includes at least a business ID, and identifiers of users of various parties that are communicating via the communication software. After receiving the business information and the information including transaction data, the business apparatus processes the business to form order information, e.g., a business order, and returns it to multiple user terminals involved in the business. The business may include a payment business, which may specifically be a business of transferring to or paying another user, or the like.

By means of the method in the above embodiments of the present application, by receiving the business information activated by the voice function on the user terminal, a response may be made to a financial transaction business in the process of providing a chatting service for the user. The user can use the financial transaction business without exiting from a chat interface to perform complex click operations, thus greatly simplifying the operation complexity of the user, such that the user can have better user experience. Moreover, according to voiceprint recognition on voice information initiating the financial transaction business, it can be ensured that a user initiating the financial transaction business is a legal user, thus avoiding an insecurity factor that another person initiates a financial transaction business by using an intelligent terminal. Meanwhile, the same piece of voice information is used for verification (which is both a transaction instruction and voiceprint verification content), such that the user can use the method of the present application more conveniently.

FIG. 3 is a schematic structural diagram of an apparatus for activating a business by voice in

communication software according to the present application.

The apparatus includes a collection unit 301 configured to collect, when a user communicates with another person by using communication software, voice information input by the user;

a command recognition unit 302 configured to recognize the voice information, and activate a corresponding business if the voice information includes a specific command; and

a sending unit 303 configured to send business information and information including transaction data to a business processing apparatus, such that the business apparatus processes the business.

As an embodiment of the present application, the apparatus further includes a receiving unit 304 configured to receive a business order sent by the business processing apparatus.

As an embodiment of the present application, the apparatus further includes a verification unit 305 configured to verify whether the user is a legal user. Reference may be made to the corresponding method in the embodiment shown in FIG. 1 for the specific step of the verification unit verifying whether the user is a legal user, which is not repeated herein.

As an embodiment of the present application, the verification unit 305 verifies whether the user is a legal user by voiceprint recognition.

The receiving unit and the sending unit in this embodiment may send and receive data by using a Wifi module, a GPRS or a 3G, 4G network of a mobile phone (or an intelligent terminal such as a tablet computer). The collection unit may be a microphone of the mobile phone (or an intelligent terminal such as a tablet computer). The command recognition unit may use a voice recognition module in the prior art to recognize a specific command by recognizing specific words in the voice. The verification unit may verify legality of the user through an input operation of the user, for example, inputting verification information by clicking a virtual keyboard (or a physical keyboard), inputting verification information by sliding, verifying fingerprint input information by using a biometric feature recognition module such as a fingerprint recognition module, verifying voice input information by using a microphone and a voiceprint recognition module, or verifying human face avatar input information by using a camera and a human face recognition module.

By means of the apparatus in the above embodiments of the present application, by adding a

solution of activating a business by voice in communication software on a user terminal, a financial transaction business can be initiated during chatting of the user. The user can use the financial transaction business without exiting from a chat interface to perform complex click operations, thus greatly simplifying the operation complexity of the user, such that the user can have better user experience. Moreover, according to voiceprint recognition on voice information initiating the financial transaction business, it can be ensured that a user initiating the financial transaction business is a legal user, thus avoiding an insecurity factor that another person initiates a financial transaction business by using an intelligent terminal. Meanwhile, the same piece of voice information is used for verification (which is both a transaction instruction and voiceprint verification content), such that the user can use the method of the present application more conveniently.

FIG. 4 is a schematic structural diagram of a business processing apparatus according to an embodiment of the present application.

The apparatus includes a receiving unit 401 configured to receive business information and information including transaction data that are sent by a user terminal; and

a processing unit 402 configured to process a business based on the business information and the information including transaction data.

As an embodiment of the present application, the apparatus further includes a voice recognition unit 403 configured to recognize, when the information including transaction data is voice information, the transaction data in the voice information.

As an embodiment of the present application, the apparatus further includes a verification unit 404 configured to verify whether the user currently sending the business information and the information including transaction data is a legal user.

As an embodiment of the present application, the verification unit 404 is a voiceprint recognition unit configured to determine whether the user is a legal user by conducting voiceprint recognition on the voice information sent by the user terminal.

In this embodiment, the receiving unit may be a communication unit of a computer, for example, including an Ethernet connection device, and so on. An order generation unit may be implemented by using a device such as a CPU of the computer, a particularly set DSP, or a single chip microcomputer. The voice recognition unit may be implemented by using a voice

recognition module, and the voice recognition module may use a voice recognition algorithm in the prior art, which is not repeated herein. The verification unit may compare a received character string with pre-stored verification information to achieve the objective of verification. For example, the verification unit compares the received character string verification information sent by the user terminal with the pre-stored verification information, or compares the received biometric feature with the pre-stored verification information to achieve the objective of verification. For example, the verification unit compares received fingerprint information sent by the user terminal with pre-stored fingerprint verification information, compares received voice information sent by the user terminal with pre-stored voiceprint verification information, or compares received human face avatar information sent by the user terminal with pre-stored human face verification information.

By means of the apparatus in the above embodiments of the present application, by receiving the business information activated by the voice function on the user terminal, a response may be made to a financial transaction business in the process of providing a chatting service for the user. The user can use the financial transaction business without exiting from a chat interface to perform complex click operations, thus greatly simplifying the operation complexity of the user, such that the user can have better user experience. Moreover, according to voiceprint recognition on voice information initiating the financial transaction business, it can be ensured that a user initiating the financial transaction business is a legal user, thus avoiding an insecurity factor that another person initiates a financial transaction business by using an intelligent terminal. Meanwhile, the same piece of voice information is used for verification (which is both a transaction instruction and voiceprint verification content), such that the user can use the method of the present application more conveniently.

FIG. 5 is a data flow diagram of activating a business by voice in communication software according to an embodiment of the present application. This embodiment is illustrated by taking a specific application scenario as an example. This embodiment includes a user terminal A and a user terminal B that are chatting via communication software, as well as a business processing apparatus configured to correspondingly process the business initiated by the user terminal. The user terminal A and the user terminal B may include mobile phones, tablet computers, computers, and the like. The communication software may be QQ software, a Wechat application, a Laiwang application, and the like. Definitely, in another embodiment, there may be more user terminals in a chatting communication state.

Step 501: The user terminal A conducts chatting communication with the user terminal B.

The communication may include text-type chatting, or include voice-type communication. Here, the voice-type communication refers to a chatting communication manner in which users inputs voice short messages and sends them in chat software.

Step 502: The user terminal A collects, through a microphone, voice information input by the user.

The voice information collected in this step may include chatting content and a specific instruction. For example, the user terminal A inputs voice information “Hello” by using a microphone of a mobile phone, and sends it to the user terminal B; the user terminal B replies with voice information “Hello”; and then the user terminal A inputs “Omnipotent Alipay collection, I want to charge 100 Yuan from you” through the microphone. The voice information includes a specific command “Omnipotent Alipay collection” and transaction data “I want to charge 100 Yuan from you”.

Step 503: A command recognition unit of the user terminal A recognizes all voice information input by the user.

A voice recognition module in the user terminal A may be used for voice recognition, which is not repeated herein.

Step 504: It is determined whether the recognized voice information includes a specific command, and step 505 is performed if a specific command is included; otherwise, step 506 is performed.

In this example, the user terminal A recognizes that the voice information “Hello” input by the user does not include a specific command, and therefore, step 506 is performed to send the voice information as chatting content normally. “Omnipotent Alipay collection, I want to charge 100 Yuan from you” input by the user includes the specific command “Omnipotent Alipay collection”. Definitely, in another embodiment, the specific command may be different, as long as it is different from common chatting voice information.

Step 505: Voiceprint recognition is conducted on the input voice information, and step 507 is performed if the voiceprint recognition is successful; otherwise, step 508 is performed.

In this step, the user performs training of voiceprint recognition in the mobile phone in advance to obtain a relatively accurate voiceprint model. The voiceprint model may be a Hidden Markov Model (HMM), a Gaussian Mixed Model (GMM), a Support Vector Machine (SVM), or

the like. Then, the voiceprint recognition is conducted on the current voice information. For example, “Omnipotent Alipay collection” is matched with the voiceprint model to confirm whether the user currently initiating a business is a legal user. In this way, the possibility of economic loss caused by a financial transaction to a friend initiated when the mobile phone is used by another person in the prior art may be avoided. On the other hand, the voiceprint recognition is conducted on the local mobile phone, to avoid the problem of personal information leakage of the user when the voiceprint information of the user is uploaded to the server and the server is attacked to cause information leakage.

Definitely, in another embodiment, verifying whether the user is a legal user by voiceprint recognition in this step may further be replaced with that it is implemented by a password input by the user on a touch screen or a keyboard of the user terminal A (or a combined pressing of keys may be further used as a password, such as simultaneously pressing the power key and the volume down key), and it can be proved that the current business is initiated by a legal user only when the password is correct. Alternatively, by use of an operation of sliding a finger of the user on a touch screen of the user terminal A, for example, a track of the sliding operation being a predetermined track, it can be proved that the current business is initiated by a legal user. Likewise, a fingerprint recognition manner may further be used. Many existing mobile phones have fingerprint recognition units, and when the user presses or samples on the fingerprint recognition unit, the fingerprint may be compared with a pre-stored fingerprint. If the comparison result is consistent, it can be proved that the current business is initiated by a legal user. For another example, whether the user currently initiating the business is a legal user may further be verified by collecting a human face image of the current user with a camera on the mobile phone and then conducting human face recognition. Many other verification manners are also available, which are not repeated in the present application.

As another embodiment, the voiceprint recognition of this step (or other verification manners) may also be conducted in the business processing apparatus. In this case, a voiceprint sample database (or corresponding data required in other verification manners) may be preset on the business processing apparatus. When a business request is sent, the voice information or data required by other verifications is sent to the business processing apparatus for verification of the user at a remote end.

It can be seen from the above embodiment that, recognition by using a voiceprint is a preferred embodiment, as user legality verification can be performed while the user inputs the voice information (that is, including the specific command and the transaction data), and the user

does not need to input more verification information again, such that the user can more conveniently and quickly activate a corresponding business, thereby improving the user experience.

In other embodiments, the verification of the user legality may further be set before or after step 501, or they may be performed at the same time. The verification is performed when the user starts the communication software, thus ensuring the legality of the user. Alternatively, the verification may also be performed when a user A conducts chatting communication with a user B. For example, when voice short messages for the purpose of chatting are input in the process of using the chat software, voiceprint recognition is conducted to verify the legality of the user. Alternatively, verification may be conducted in another step. For example, in the process that the voice recognition is conducted on the voice information input by the user to determine whether a specific command is included, voiceprint recognition is conducted to verify the legality of the user. The verification method is described comprehensively in the foregoing, and only the timing for verification is different, so the verification method is not repeated herein.

Step 506: The voice information as chatting content is sent normally.

Step 507: A collection business module is started to initiate a collection business request to the business processing apparatus.

In this step, the collection business request includes business information and voice information. The business information includes a business ID (representing a collection business) and user identifiers (user unique identifiers of the user terminal A and the user terminal B or unique identifiers of SIM cards, or the like) of different parties in the chatting communication. The voice information includes “Omnipotent Alipay collection, I want to charge 100 Yuan from you”, and the voice information includes transaction data “I want to charge 100 Yuan from you”.

Step 508: Error information is prompted to the user, and the collection business module is not started.

Step 509: The business processing apparatus parses the collection business request sent by the user terminal A.

The business to be processed currently (obtained according to the business ID), users involved in the business (obtained through the user identifiers), and the voice information are obtained from the business information.

Step 510: Voice recognition is conducted on the voice information to obtain the transaction data included therein.

In this step, the recognition may be conducted on the voice information by using a voice recognition unit to obtain the transaction data included therein. The business processing apparatus constructed by using a high-performance computer can provide a relatively accurate voice recognition result; in other words, it can obtain accurate transaction data in the voice information.

In this example, the recognized transaction data is “I want to charge 100 Yuan from you”. Through semantic analysis and the user identifiers of the current communication, it is determined that the payee is the user terminal A, the payer is the user terminal B, and the transaction amount is 100 Yuan.

Step 511: The business is processed, and a business order is generated and sent to the user terminal A and the user terminal B that are related to the business.

The corresponding business is processed according to the business ID and the users involved in the business and according to the transaction data, and the business order is generated and sent to both parties of this collection business. The business order sent to the user terminal A is a notification, and the business order sent to the user terminal B is a request for payment. The user terminal B may perform a payment operation according to a business process in the prior art.

FIG. 6 is another data flow diagram of activating a business by voice in communication software according to an embodiment of the present application.

This embodiment includes a user terminal A, a user terminal B, and a user terminal C that are chatting by using communication software, as well as a business processing apparatus configured to correspondingly process a business initiated by the user terminals.

Step 601 is included, in which the user terminal A, the user terminal B and the user terminal C conduct chatting communication.

Step 602: The user terminal A collects, through a microphone, voice information input by the user.

In this embodiment, contents identical to those in the embodiment shown in FIG. 5 are not repeated, and voice information including a specific instruction in this step is “Omnipotent

Alipay payment, I want to pay 100 Yuan to the user terminal C”.

Step 603: A command recognition unit of the user terminal A recognizes all voice information input by the user.

In this step, the voice information “Omnipotent Alipay payment, I want to pay 100 Yuan to the user terminal C” is recognized completely. In other words, not only is the specific instruction “Omnipotent Alipay payment” recognized, but also transaction data “I want to pay 100 Yuan to the user terminal C” is recognized. Through semantic analysis and user identifiers of the current communication, the obtained transaction data is: the payer is the user terminal A, the payee is the user terminal C, and the transaction amount is 100 Yuan.

Step 604: It is determined whether the recognized voice information includes a specific command, and step 605 is performed if a specific command is included; otherwise, step 606 is performed.

Step 605: Voiceprint recognition is conducted on the input voice information, and step 607 is performed if the voiceprint recognition is successful; otherwise, step 608 is performed.

In this step, verification of user legality is implemented by voiceprint recognition, and may also be implemented by using other verification manners as those in the embodiment shown in FIG. 5, which are not repeated herein.

Moreover, the verification of user legality in this step may also be conducted in the business processing apparatus. In this case, necessary data for the verification of user legality needs to be sent to the business processing apparatus.

Step 607: A payment business module is started to initiate a payment business request to the business processing apparatus.

In this step, the payment business request includes business information and transaction data. The business information includes a business ID (representing a collection business) and user identifiers (the user terminal A, the user terminal B, and the user terminal C) of different parties in the chatting communication. The transaction data is that: the payer is the user terminal A, the payee is the user terminal C, and the transaction amount is 100 Yuan.

Step 608: Error information is prompted to the user, and the payment business module is not started.

Step 609: The business processing apparatus parses the collection business request sent by the user terminal A.

The business to be currently processed (obtained according to the business ID) is obtained from the business information, and it is obtained from the transaction data that the payer is the user terminal A, the payee is the user terminal C, and the transaction amount is 100 Yuan. The parsing in this step does not require voice recognition, as voice recognition has been conducted in the user terminal A, and the payment business request sent by the user terminal A includes business information and transaction data that are in the form of characters.

Step 610: The business processing apparatus processes the business, generates a business order, and sends the business order to the user terminal A and the user terminal C that are related to the business.

The business order is generated according to the business ID and the users involved in the business and according to the transaction data. The business order is sent to both parties of this payment business. The business order sent to the user terminal A is a payment request, and the user terminal A may perform a payment operation according to a business process in the prior art. The business order sent to the user terminal C is a collection notification.

By means of the method and apparatus in the above embodiments of the present application, by activation by the voice function on the user terminal, a response may be made to a financial transaction business in the process of providing a chatting service for the user. The user can use the financial transaction business without exiting from a chat interface to perform complex click operations, thus greatly simplifying the operation complexity of the user, such that the user can have better user experience. Moreover, according to voiceprint recognition on voice information initiating the financial transaction business, it can be ensured that a user initiating the financial transaction business is a legal user, thus avoiding an insecurity factor that another person initiates a financial transaction business by using an intelligent terminal. Meanwhile, the same piece of voice information is used for verification (which is both a transaction instruction and voiceprint verification content), such that the user can use the method of the present application more conveniently.

An improvement on a technology may be obviously distinguished as an improvement on hardware (for example, an improvement on a circuit structure such as a diode, a transistor, and a switch) or an improvement on software (an improvement on a method procedure). However, with the development of technologies, improvements of many method procedures at present may be

considered as direct improvements on hardware circuit structures. Almost all designers program the improved method procedures into hardware circuits to obtain corresponding hardware circuit structures. Therefore, it cannot be assumed that the improvement of a method procedure cannot be implemented by using a hardware entity module. For example, a Programmable Logic Device (PLD) (for example, a Field Programmable Gate Array (FPGA)) is such an integrated circuit, and logic functions thereof are determined by a user programming devices. Designers program by themselves to "integrate" a digital system into a piece of PLD, without asking a chip manufacturer to design and manufacture a dedicated integrated circuit chip 2. Moreover, at present, the programming is mostly implemented by using "logic compiler" software, instead of manually manufacturing an integrated circuit chip. The software is similar to a software compiler used for developing and writing a program, and original code before compiling also needs to be written in a specific programming language, which is referred to as a Hardware Description Language (HDL). There are many types of HDLs, such as ABEL (Advanced Boolean Expression Language), AHDL (Altera Hardware Description Language), Confluence, CUPL (Cornell University Programming Language), HDCal, JHDL (Java Hardware Description Language), Lava, Lola, MyHDL, PALASM, and RHDL (Ruby Hardware Description Language), among which VHDL (Very-High-Speed Integrated Circuit Hardware Description Language) and Verilog2 are most commonly used now. Persons skilled in the art also should know that a hardware circuit for implementing the logic method procedure may be easily obtained simply by logically programming the method procedure using the above several hardware description languages and programming it into an integrated circuit.

A controller may be implemented in any suitable manner. For example, the controller may be in the form of, for example, a microprocessor or a processor and a computer readable medium storing computer readable program codes (for example, software or firmware) executable by the (micro)processor, a logic gate, a switch, an Application Specific Integrated Circuit (ASIC), a programmable logic controller, and an embedded micro-controller. Examples of the controller include, but are not limited to, the following micro-controllers: ARC 625D, Atmel AT91SAM, Microchip PIC18F26K20, and Silicone Labs C8051F320. A memory controller may also be implemented as a part of control logic of a memory.

Those skilled in the art also know that, in addition to implementing the controller by using pure computer readable program codes, the method steps may be logically programmed to enable the controller to implement the same function in the form of a logic gate, a switch, an application specific integrated circuit, a programmable logic controller and an embedded microcontroller. Therefore, such a controller may be considered as a hardware component, and apparatuses

included therein and configured to implement various functions may also be considered as structures inside the hardware component. Alternatively, the apparatuses configured to implement various functions may further be considered as both software modules for implementing the method and structures inside the hardware component.

The system, apparatus, module or unit illustrated in the above embodiments may specifically be implemented by using a computer chip or an entity, or a product having a certain function.

For ease of description, when the apparatus is described, it is divided into various units in terms of functions for respective descriptions. Definitely, when the present application is implemented, the functions of the units may be implemented in the same or multiple software and/or hardware.

Based on the foregoing descriptions of the implementation manners, those skilled in the art may clearly understand that the present application may be implemented by software plus a necessary universal hardware platform. Based on such understanding, the technical solution of the present application essentially, or the portion contributing to the prior art may be embodied in the form of a software product. The software product may be stored in a storage medium, such as a ROM/RAM, a magnetic disk, or an optical disc, and include several instructions that enable a computer device (which may be a personal computer, a server, a network device, or the like) to execute the method in the embodiments or certain portions of the embodiments of the present application.

The embodiments in the specification are described progressively, identical or similar parts of the embodiments may be obtained with reference to each other, and each embodiment emphasizes a part different from other embodiments. Especially, the system embodiment is basically similar to the method embodiment, so it is described simply. For related parts, refer to the descriptions of the parts in the method embodiment.

The present application is applicable to various universal or dedicated computer system environments or configurations, such as, a personal computer, a server computer, a handheld device or a portable device, a tablet device, a multi-processor system, a microprocessor-based system, a set top box, a programmable consumer electronic device, a network PC, a minicomputer, a mainframe computer, and a distributed computing environment including any of the above systems or devices.

The present application may be described in a common context of a computer executable instruction executed by a computer, for example, a program module. Generally, the program module includes a routine, a program, an object, a component, a data structure, and the like for executing a specific task or implementing a specific abstract data type. The present application may also be practiced in a distributed computing environment, and in the distributed computer environment, a task is executed by using remote processing devices connected through a communications network. In the distributed computer environment, the program module may be located in a local and remote computer storage medium including a storage device.

Although the present application is described through embodiments, those of ordinary skill in the art should know that the present application has many variations and changes without departing from the spirit of the present application, and it is intended that the appended claims cover the variations and changes without departing from the spirit of the present application.

CLAIMS

What is claimed is:

1. A computer-implemented method, comprising:
 - collecting, by a computing device, voice information from a user during communication with one or more parties;
 - determining, by the computing device, whether the voice information includes a specific voice command associated with a payment collection request;
 - based upon the determining whether the voice information includes the specific voice command, forwarding, by the computing device, the voice information to the one or more parties or preventing forwarding, by the computing device, the specific voice command to the one or more parties;
 - upon preventing forwarding of the specific voice command to the one or more parties, verifying an identity of the user by voiceprint verification of the voice information from the user;
 - upon successful verification of the identity of the user, identifying, by the computing device from the specific voice command, network-based service information and transaction data, wherein the network-based service information includes a command for starting one or more network-based services for the user and the transaction data includes the one or more parties associated with a transaction and a transaction amount;
 - sending, by the computing device, at least a portion of the voice information that includes the network-based service information and the transaction data to a server to process the one or more network-based services based on the service information and the transaction data; and
 - receiving, by the computing device from the server, an order notification associated with the payment collection request.
2. The computer-implemented method of claim 1, further comprising verifying whether the user is authorized to use the one or more network-based services.
3. The computer-implemented method of claim 2, wherein verifying whether the user is an authorized user is based on a user input operation or a user biometric feature.
4. The computer-implemented method of claim 3, wherein verifying whether the user is an

authorized user is based on recognizing a user voiceprint and authorizing the user for starting the one or more network-based services when the user voiceprint matches a pre-stored voiceprint.

5. The computer-implemented method of claim 1, wherein the service information further includes one or more service identifications (IDs) associated with the one or more network-based services and one or more user IDs or user computing device IDs associated with one or more users or user computing devices that use the communication software for starting the one or more network-based services.

6. The computer-implemented method of claim 1, further comprising receiving a business order associated with one or more operations of completing the network-based service from the server.

7. A non-transitory, computer-readable medium storing one or more instructions executable by a computer system to perform operations comprising:

- collecting, by a computing device, voice information from a user during communication with one or more parties;

- determining, by the computing device, whether the voice information includes a specific voice command associated with a payment collection request;

- based upon the determining whether the voice information includes the specific voice command, forwarding, by the computing device, the voice information to the one or more parties or preventing forwarding, by the computing device, the specific voice command to the one or more parties;

- upon preventing forwarding of the specific voice command to the one or more parties, verifying an identity of the user by voiceprint verification of the voice information from the user;

- upon successful verification of the identity of the user, identifying, by the computing device from the specific voice command, network-based service information and transaction data, wherein the network-based service information includes a command for starting one or more network-based services for the user and the transaction data includes the one or more parties associated with a transaction and a transaction amount;

sending, by the computing device, at least a portion of the voice information that includes the network-based service information and the transaction data to a server to process the one or more network-based services based on the service information and the transaction data; and

receiving, by the computing device from the server, an order notification associated with the payment collection request.

8. The non-transitory, computer-readable medium of claim 7, further comprising verifying whether the user is authorized to use the one or more network-based services.

9. The non-transitory, computer-readable medium of claim 8, wherein verifying whether the user is an authorized user is based on a user input operation or a user biometric feature.

10. The non-transitory, computer-readable medium of claim 9, wherein verifying whether the user is an authorized user is based on recognizing a user voiceprint and authorizing the user for starting the one or more network-based services when the user voiceprint matches a pre-stored voiceprint.

11. The non-transitory, computer-readable medium of claim 7, wherein the service information further includes one or more service identifications (IDs) associated with the one or more network-based services and one or more user IDs or user computing device IDs associated with one or more users or user computing devices that use the communication software for starting the one or more network-based services.

12. The non-transitory, computer-readable medium of claim 7, further comprising receiving a business order associated with one or more operations of completing the network-based service from the server.

13. A computer-implemented system, comprising:

one or more computers; and

one or more computer memory devices interoperably coupled with the one or more computers and having tangible, non-transitory, machine-readable media storing instructions that, when executed by the one or more computers, perform operations comprising:

collecting, by a computing device, voice information from a user during communication with one or more parties;

determining, by the computing device, whether the voice information includes a specific voice command associated with a payment collection request;

based upon the determining whether the voice information includes the specific voice command, forwarding, by the computing device, the voice information to the one or more parties or preventing forwarding, by the computing device, the specific voice command to the one or more parties;

upon preventing forwarding of the specific voice command to the one or more parties, verifying an identity of the user by voiceprint verification of the voice information from the user;

upon successful verification of the identity of the user, identifying, by the computing device from the specific voice command, network-based service information and transaction data, wherein the network-based service information includes a command for starting one or more network-based services for the user and the transaction data includes the one or more parties associated with a transaction and a transaction amount;

sending, by the computing device, at least a portion of the voice information that includes the network-based service information and the transaction data to a server to process the one or more network-based services based on the network-based service information and the transaction data; and

receiving, by the computing device from the server, an order notification associated with the payment collection request.

14. The computer-implemented system of claim 13, further comprising verifying whether the user is authorized to use the one or more network-based services.

15. The computer-implemented system of claim 14, wherein verifying whether the user is an authorized user is based on a user input operation or a user biometric feature.

16. The computer-implemented system of claim 15, wherein verifying whether the user is an authorized user is based on recognizing a user voiceprint and authorizing the user for starting the one or more network-based services when the user voiceprint matches a pre-stored voiceprint.

17. The computer-implemented system of claim 13, wherein the service information further includes one or more service identifications (IDs) associated with the one or more network-based services and one or more user IDs or user computing device IDs associated with one or more users or user computing devices that use the communication software for starting the one or more network-based services.

18. The computer-implemented system of claim 13, further comprising receiving a business order associated with one or more operations of completing the network-based service from the server.