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METHOD FOR EFFECTING A VOICE COMMAND RELATING TO A TRANSACTION

FIELD OF INVENTION

10 The present invention relates broadly, but not exclusively, to methods for effecting a voice command relating to a transaction.

BACKGROUND

15 More and more people rely on payment facilitator such as MasterCard®, to send and receive payments. Such payment service providers can make transactions easier and safer for the parties involved. For online transactions, banks or merchants typically request for payment card data in order to authenticate the request for the online transactions before processing. This can be in the form of a checkout link or button for accessing a payment service provider from the merchants' webpage, making it convenient for consumers to
20 complete online purchases through payment service providers. The convenience provided through such integration is one main reason why online purchases and use of payment service providers have become popular. However, a large number of purchase orders are still placed over a telephone. For example, orders for food delivery are typically made verbally over a phone call. Promises to buy and sell between ordinary
25 non-merchant parties are typically made verbally over a phone call also, since non-merchant sellers are not likely to have an online checkout page. In fact, some consumers may actually prefer to make a purchase agreement over mobile phones like having a telephone conversation.

At the same time, more people own and use mobile device (such as mobile phones) with
30 enhanced capabilities, also known as smart phones, more than ever before. The number of users, devices, and device capabilities continue to increase. One of the reasons for this increase is the capability of these phones to expand the mode of communication beyond simple voice conversation. Developers can provide smart phone applications ("apps") that augment voice communication (or "voice commands") in various ways. For
35 example, apps can allow users to make video calls, share photos and videos, play games together.

5 Even though these over-the-phone transactions would benefit greatly from the safety and
convenience provided by payment service providers, and even though many people own
smart phones that are capable of accessing payment service providers, over-the-phone
transaction typically are not completed through payment service providers. One of the
main reasons is that unlike online merchant websites, the lack of integration makes it
10 cumbersome for users to access payment service providers using voice commands like a
mobile phone.

In view of the above, it would be desirable to provide a method and an apparatus for
effecting a voice command relating to a transaction, which overcome one or more of the
above disadvantages, or which at least provides a useful alternative.

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Furthermore, other desirable features and characteristics will become apparent from the
subsequent detailed description and the appended claims, taken in conjunction with the
accompanying drawings and this background of the disclosure.

20 SUMMARY

According to a first aspect, there is provided an apparatus for effecting a voice command
relating to a transaction using a payment module, the payment module in communication
with a voice command module, the payment module and the voice command module being in
25 communication with a payment system and a voice command server, respectively, the
apparatus comprising:

at least one processor; and
at least one memory including computer program code;
the at least one memory and the computer program code configured to, with at least
30 one processor, causes the apparatus at least to:

receive, at the payment module, a converted request message, the converted request
message being converted, at the voice command server or the voice command
module, from an audio signal received at the voice command module, the request message
35 comprising payer data identifying a payer account to be used for the voice command;

forward, to the payment system, the converted request message; and

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receive, at the payment module, a response message to effect the voice command if it is determined at the payment system that the payer account is one that is subscribed to a service based on the payer data, the service being one that is used to effect the voice command, wherein the at least one memory and the computer program code is configured with the at least one processor to compare the converted request message with a list of commands authorized to be performed for the payment account, and send, to the voice command module, a confirmation message to confirm data of the payer account if the converted request message is not included in the list of commands.

15 According to a second aspect, there is provided a method for effecting a voice command relating to a transaction using a payment module, the payment module in communication with a voice command module, the payment module and the voice command module being in communication with a payment system and a voice command server, respectively, the method comprising:

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receiving, at the payment module, a converted request message, the converted request message being converted, at the voice command server or the voice command module, from an audio signal received at the voice command module, the request message comprising payer data identifying a payer account to be used for the voice command;

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forwarding, to the payment system, the converted request message; and

receiving, at the payment module, a response message to effect the voice command if it is determined at the payment system that the payer account is one that is subscribed to a service based on the payer data, the service being one that is used to effect the voice command, wherein the step of forwarding, to the payment system, the converted request message comprises causing the payment system to compare the converted request message with a list of commands authorized to be performed for the payment account and sending, to the voice command module, a confirmation message to confirm data of the payer account if the converted request message is not included in the list of commands.

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5 BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying figures, where like reference numerals refer to identical or functionally similar elements throughout the separate views and which together with the detailed description below are incorporated in and form part of the specification, serve to illustrate various embodiments, by way of example only, and to explain various principles and advantages in accordance with a present embodiment.

FIG. 1 depicts a block diagram of a system for effecting a voice command relating to a transaction in accordance with an embodiment.

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5 FIG. 2 depicts a flow chart for effecting a voice command relating to a transaction.

FIG. 3 depicts a schematic diagram of a computer system suitable for use in executing the methods depicted in FIG. 2.

10 FIG. 4 depicts an exemplary computing device to realise a device shown in FIG. 1.

DETAILED DESCRIPTION

Various embodiments of the present invention will be described, by way of example only,
15 with reference to the drawings. Like reference numerals and characters in the drawings refer to like elements or equivalents.

Some portions of the description which follows are explicitly or implicitly presented in terms
20 of algorithms and functional or symbolic representations of operations on data within a computer memory. These algorithmic descriptions and functional or symbolic representations are the means used by those skilled in the data processing arts to convey most effectively the substance of their work to others skilled in the art. An algorithm is here, and generally, conceived to be a self-consistent sequence of steps leading to a desired result. The steps are
25 those requiring physical manipulations of physical quantities, such as electrical, magnetic or optical signals capable of being stored, transferred, combined, compared, and otherwise manipulated.

Unless specifically stated otherwise, and as apparent from the following, it will be
30 appreciated that throughout the present specification, discussions utilizing terms such as “determining”, “requesting”, “receiving”, “entering”, “receiving”, “waiting”, “identifying”, “activating” or the like, refer to the action and processes of a computer system, or similar electronic device, that manipulates and transforms data represented as physical quantities within the computer system into other data similarly represented as physical quantities within
35 the computer system or other information storage, transmission or display devices.

The present specification also discloses an apparatus for performing the operations of the methods. Such apparatus may be specially constructed for the required purposes, or may

5 comprise a computer or other device selectively activated or reconfigured by a computer
program stored in the computer. The algorithms and displays presented herein are not
inherently related to any particular computer or other apparatus. Various machines may be
used with programs in accordance with the teachings herein. Alternatively, the construction
of a more specialized apparatus to perform the required method steps may be appropriate.
10 The structure of a computer will be shown in the description below.

In addition, the present specification also implicitly discloses a computer program, in that it
would be apparent to the person skilled in the art that the individual steps of the method
described herein may be put into effect by computer code. The computer program is not
15 intended to be limited to any particular programming language and implementation thereof. It
will be appreciated that a variety of programming languages and coding thereof may be used
to implement the teachings of the disclosure contained herein. Moreover, the computer
program is not intended to be limited to any particular control flow. There are many other
variants of the computer program, which can use different control flows without departing
20 from the spirit or scope of the invention.

Furthermore, one or more of the steps of the computer program may be performed in parallel
rather than sequentially. Such a computer program may be stored on any computer readable
medium. The computer readable medium may include storage devices such as magnetic or
25 optical disks, memory chips, or other storage devices suitable for interfacing with a computer.
The computer readable medium may also include a hard-wired medium such as exemplified
in the Internet system, or wireless medium such as exemplified in the GSM mobile telephone
system. The computer program when loaded and executed on such a computer effectively
results in an apparatus that implements the steps of the preferred method.

30 Various embodiments relate to a method and an apparatus for effecting a voice command
relating to a transaction. In various embodiments, the device is a mobile device, typically a
mobile phone with enhanced capabilities e.g., an application. In an embodiment, the method
for effecting a voice command relating to a command comprises converting the voice
35 command into a converted request message. The converted request message is one that has
been processed to generate a text output using a voice input (e.g., the voice command).
Examples of a voice command include, among other things, review a bank balance, deposit
money, and carry out a transaction using the device etc.

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In an embodiment, the user (or payer) of the payer device is an owner of the device. The owner of the device is a person who has the right to the device. In another embodiment, the user of the device may not be the owner of the device.

10 FIG. 1 illustrates a block diagram of a system 100 within which a predetermined function can be activated.

A payer device 102 typically is associated with a user of the device who desires to effect a voice command relating to a transaction. The device 102 may be a fixed (wired) computing
15 device or a wireless (portable) computing device. In specific implementations, the device 100 may be a handheld or portable or mobile device carried or used by the user, or may refer to other types of electronic devices such as a personal computer or an interactive voice response (IVR) system and the like. The mobile device may be a device such as a mobile phone, a laptop computer, a personal digital computer (PDA), a mobile computer, or a portable music
20 player (such as an iPod™ and the like).

One or more mobile applications (“app”) modules 104, 106 are installed on the payer device (e.g., a user’s mobile electronic device) to allow the user to control and/or configure various aspects of the method. A voice command module 104 may be installed
25 on the payer device 102 to control one or more voice commands sent from the payer device 102.

In an embodiment, the voice command module 104 may be configured to communicate with a voice command service (or a voice command server) 108 and a payment module
30 106. The voice command service 108 may comprise a voice convertor that allows the payer device 102 to generate a text output based on a voice input (i.e., a voice command). The voice command may be in a form of an audio signal. In an embodiment, the voice command module 104 and the voice command service 108 are managed by the same party. Alternatively, the voice command module 104 and the voice command service 108 are
35 managed by different parties. Examples of the voice command service 108 are Siri® and Samsung® voice recognition. The voice command module 104 may communicate with the voice command service 108 via one or more API calls, for example.

5 In an embodiment, the payment module 106 is a program that is configured to receive messages from the voice command module 104 and may be configured to communicate with a payment system 110. In an embodiment, the payment system 110 comprises a digital wallet service such as MasterPass® of MasterCard® International Incorporated. The payment system 110 may comprise one or more computer networks that are used for processing transactions, which may include one or more computing devices. In an embodiment, the payment system 110 may be configured to communicate with, or may include, a database 109. The database 109 stores data corresponding to user accounts, such as digital wallet accounts and/or prepaid accounts. Examples of the data include a password, an account holder name and address, a credit limit and/or an indicator indicating whether the holder is a subscriber to a service, such as a prepaid service, such as the Multi-currency Cash Passport (MCP) Web service of Mastercard International Incorporated.

In an embodiment, a 'server' may be understood to mean a single computing device or at least one computer network of interconnected computing devices which operate together to perform a particular function. That is, the server may be contained within a single hardware unit or be distributed among several or many different hardware units.

In an example, the payer device 102 may be used to sign in to the voice command module 104. The payer may be prompted to fill in the details of the mode of payment. He may be required to fill in payer data. The payer data refers to data identifying the account indicated by the payer to be used in the transaction. In an embodiment the payer data can also be known as account data. The account data may include the name of the account holder, the primary account number (or "PAN") and the date of expiry of the account (if applicable).

30 The PAN refers to a number of digits (or characters) which identify an account issued by an issuer (for example, a bank). For example, in some embodiments an account (e.g. credit account, debit account, pre-paid account) is issued by an issuer (e.g., a bank) pursuant to the MasterCard® International Incorporated rules, and the PAN may be a twelve to nineteen-digit string, typically sixteen digits, that identifies both the issuer (e.g. which may be based on the first few digits of the string, for example, the first five to ten digits) and the specific account (e.g. which may be based on some or all of the remaining digits). The PAN may also identify if the payer is subscribed to service such as the MCP Web service, since it can be associated with an MCP Web service account identifier in the database of payment system

110. In an embodiment, the MCP Web service may underlie the authentication programs offered by payment networks to authenticate a client for a merchant during an eCommerce transaction. The PAN is typically utilized to route and process transactions that involve the account. Those skilled in the art will appreciate that other primary account schemes and formats may be used in conjunction with embodiments described herein.

In an example, the payer device 102 includes a speaker and the payer device 102 may be configured to audibly present a request for a verification data via the speaker (or other audio output device, such as a microphone). In an embodiment, at the payment module 106, the verification data is received in response to a verification request message. The verification data may include a password or other information which may be used to test a user of the account (e.g. the payer) to confirm that they are the true holder of the account. The verification request message may be generated based the verification data. For example, if the verification data which corresponds to the payer account indicates that the owner prefers to do verification on a mobile phone, a verification request message may be generated as a Short Message Service (SMS) message or an Interactive Voice Response (IVR) message. The verification request message may be configured to request password data (e.g. a password or part of a password) from a payer of the payer device. The obtained verification data, may be sent to the payment system 110, via the payment module 106; the verification data can then be compared to that has been registered to the payer account (e.g., at the time of registering to the service) to determine if the payer is the true holder of the account.

In an embodiment, the verification data may be in a biometric format. That is, the payer may open the voice command module 104 and either use a fingerprint or facial identification as a verification.

Once the verification data is verified, verifying that the payer is authorised to proceed with using the voice command module 104, the payer device 102 may be used to enter a voice command via the speaker. In an embodiment, the voice command 120 is generated by the payer after he makes a selection of a good and/or service to be purchased maybe on a website hosted by a merchant or to place a food order. Therefore, the voice command 120 relates to a transaction between the payer and the merchant.

5 The voice command 120 may include transaction data and/or payer data. The transaction data may identify the good and/or service to be purchased. The transaction data may further identify a value or price of the good and/or service. The transaction data may also indicate a time and date at which the transaction was initiated. Additionally or alternatively, the voice command 120 may include details of an action that the payer would like to perform, for
10 example, “Reload one thousand dollars” or “View the account balance”. As such, it can be understood that the command is an action relevant to an account or a transaction. In other words, it is not necessary for the command to complete a transaction.

In an example, the payer may select the good and/or service (e.g. a basketball) that he would
15 like to purchase from a website (e.g. www.amazon.com) hosted by a merchant (e.g. Amazon™) over the internet. The selection may be done on his payer device 102 (e.g. a personal computer). He may indicate a type of the good and/or service (e.g. a basketball) and a quantity of the good and/or service (e.g. five). The client may be informed of a corresponding transaction amount to pay. The transaction amount corresponds to the value of
20 the good and/or service to be purchased (e.g. the transaction amount is five times the value of one basketball). In this example, the transaction data refers to data identifying the good and/or service (e.g. five basketballs) to be purchased, and a value of the good and/or service (e.g. the total cost of five times the value of one basketball).

25 The voice command 120 received at the payer device 102 will be forwarded to the voice command module 104. In an embodiment, the voice command module 104 forwards the voice command 120 to the voice command service 108, without processing the voice command 120. In another embodiment, the voice command module 104 may perform further processing to the input, for example by changing the format of the voice command 120,
30 before forwarding the voice command 120 to the voice command service 108.

The voice command service 108 may comprise a speech recognition program that can be implemented in either software or hardware. The speech recognition program comprises a reception module, processing module, and a deciphering module. The reception module receives the voice command 120, the processing module identifies a symbolic or digital text
35 representation of the voice command 120 and the deciphering module outputs a converted request message 126.

5 The reception module performs speech normalization, wherein it accepts voice commands
120 and may determine their transcribed equivalents. The processing module assigns
phonetic transcriptions to each word, and divides and marks the speech into various units,
like phrases, clauses, and sentences. The phonetic transcriptions and prosody information,
depending on the language or its particular dialect, determines the symbolic linguistic
10 representation. The symbolic linguistic representation is inputted to the deciphering module
which generates the converted request message 126 to be sent to the payment module 106.

The converted request message 126 received at the payment module 106 will be forwarded to
the payment system 110. In an embodiment, the payment module 106 forwards the converted
request message 126 to the payment system 110, without processing the converted request
15 message 126. In another embodiment, the payment module 106 may perform further
processing to the input, for example by changing the format of the converted request message
126, before forwarding the converted request message 126 to the payment system 110.

In an embodiment, the payment system 110 comprises a a digital wallet service 110 (a), a
20 prepaid management system 110(b) and a payment gateway service 110(c).

In an example, the converted request message 126 and the payer data are sent to the digital
wallet service 110 (a) to verify if the payer is a subscriber to a particular service. The digital
wallet service 110(a) may be MasterPass®, for example. There are services or protocols
25 which allow transactions to be processed in a secure manner thereby reducing the likelihood
of fraud. The MasterPass® service leverages existing Secure Socket Layer (SSL) encryption
functionality and provides enhanced security through authentication of the payer.

In an embodiment, the payment system 110 determines if the payer account is one that is
30 subscribed to the service based on the payer data. For example, if the payer data comprises a
PAN, some digits included in the PAN may indicate if the issuer of the account is subscribed
to the service. In an embodiment, the payment network server may be in communication
with, or may include, a database which may store data associated with the account based on
the PAN. The stored data may indicate if the payer account is subscribed to the service. The
35 payment system 110 may access the database to read the data associated with the PAN to
determine if the payer account is subscribed to the service.

5 In an embodiment, the payer data includes data of an account including the name which the account was registered to, the PAN and the date of expiry of the account (if applicable). In some instances, the client may also be prompted to enter the security data for the account. In an embodiment, the client may be prompted to enter the Card Verification Value (“CVV”) or Card Security Code (“CSC”) or Card Verification Code (“CVC”) from a payment card. Such
10 data identifying the account is included in the account data. In this way, a transaction request message may be generated using the transaction data and the account data.

If it is determined that the payer account is one that is subscribed to the service based on the payer data, a response message (or token) 130 may be generated at the digital wallet service
15 110(a). In an embodiment, the response message 130 may be forwarded to the payment module 106 and effecting the converted requested message 126 which represents the voice command 120. Effecting the voice command 120 can be understood to mean to execute the voice command 120.

20 In an embodiment, the payment system 110 may compare the payer data with a list of payer data indicating payers who are subscribed to the service so as to determine if the payer account is one that is subscribed to the service. In an embodiment, the payment system 110 may compare the voice command 120 to be effected as indicated in the converted request message 126 with a list of commands authorized to be performed by the payment account
25 based on the PAN. If it is determined that the converted request message 126 does not relate to a command that is authorised to be performed by the payment account based on the PAN, the payment system 110 may be configured to send a confirmation message to the voice command module, via the payment module 106, to confirm data of the payer account.

30 In response to the confirmation message, the payment module 106 may receive a confirmation reply including data of the payer account which may be forwarded to the payment system 110 to determine if the payment account is one that is subscribed to the service.

35 In another embodiment, the response message 130 may be first sent to the prepaid management system 110 (b) which will then forward that response message 130 to the payment gateway service 110(c) to effect the converted requested message which represents the voice command 120. An example of the prepaid management system 110(b) is a MCP

5 web services server. Also, an example of the payment gateway service 110(c) is a MasterCard® payment gateway services server. In an example, a notification message may be generated at the payment gateway service 110(c) once the converted request message 126 is effected. The notification message may then be sent to the digital wallet service 110(a). In an embodiment, the response message 130 may be sent out from the digital wallet service
10 110(a) if the notification message is received.

Additionally or alternatively, the payer data received at digital wallet service 110(a) may be forwarded to the prepaid management system 110(b) which may be sent to a database 112. Examples for the database 112 include, among other things, a MasterCard® Prepaid
15 Management Services infrastructure. In the event that the voice command 120 relates to reloading a specific amount onto the payer account, the voice command 120 will be effected at this point.

In another embodiment, the response message 130 that is received at the payment gateway
20 module 106 will be forwarded, via the voice command module 104, to the voice command server 108. In an example, if the voice command 120 relates to the payer reloading US\$1,000, the voice response 132 may be “So you want to reload One Thousand U.S. Dollars, this will cost you One Thousand Two Hundred Australian Dollars. Do you want to proceed?” The voice response 132 will be sent to the voice command module 104 which will
25 then forward it to the payer device 102.

In response to the voice response 132 received at the payer device 102, a voice acknowledgement (or an audio acknowledgement) 134 may be received at the payer device 102. The voice acknowledgement is a reply to the voice response 132. In the above example
30 where the voice response 132 may be “So you want to reload One Thousand U.S. Dollars, this will cost you One Thousand Two Hundred Australian Dollars. Do you want to proceed?” the voice acknowledgement 134 may be “Yes”.

The voice acknowledgement 134 received at the payer device 102 will be forwarded to the
35 voice command module 104. In an embodiment, the voice command module 104 forwards the voice acknowledgement 134 to the voice command server 108, without processing the voice acknowledgement 134. In another embodiment, the voice command module 104 may perform further processing to the input, for example by changing the format of the voice

5 acknowledgement 134, before forwarding the voice acknowledgement 134 to the voice command server 108.

The voice command server 108 may comprise a speech recognition program that can be implemented in either software or hardware. The reception module receives the voice acknowledgement 134, the processing module identifies a symbolic or digital text
10 representation of the voice acknowledgement 134 and the deciphering module outputs a converted acknowledgement 136 in digital text.

The converted acknowledgement 136 received at the payment module 106 will be forwarded to the payment system 110. In an embodiment, the payment module 106 forwards the converted acknowledgement 136 to the payment system 110, without processing the
15 converted acknowledgement 136.

In an embodiment, the payment system 110 effects the command to initiate the transaction once the converted acknowledgement 136 is received.

Figure 2 shows a flow chart 200 illustrating a computer-implemented method effecting a
20 voice command relating to a transaction using a payment module.

At step 202, a converted request message is received at the payment module, the converted request message being converted, at the voice command server, from the voice command received at the voice command module. The request message comprises payer data
25 identifying a payer account to be used for the voice command. At step 204, the converted request message is forwarded to the payment system. At step 206, a response message is received at the payment module to effect the voice command if it is determined at the payment system, that the payer account is one that is subscribed to a service based on the payer data, the service being one that is used to effect the voice command.

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As mentioned in the background, more people own and use mobile devices (such as mobile phones) with enhanced capabilities, also known as smart phones, than ever before. The number of users, devices, and device capabilities continue to increase. The above embodiments make it possible for users to benefit greatly from the safety and
35 convenience provided by payment service providers by making use of the convenience of mobile apps that allow them to access payment service providers using voice commands.

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In an implementation, the payment system may be configured to update the database when settling a current transaction. This helps to keep the transaction data relevant and updated. The payment network server may also be configured to update the database 109 when a payer (e.g., a payment card user) registers or links a payment card to the payment module.

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As shown in Figure 3, the example computing device 300 includes a processor 304 for executing software routines. Although a single processor is shown for the sake of clarity, the computing device 300 may also include a multi-processor system. The processor 304 is connected to a communication infrastructure 306 for communication with other components of the computing device 400. The communication infrastructure 306 may include, for example, a communications bus, cross-bar, or network.

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The computing device 300 further includes a main memory 308, such as a random access memory (RAM), and a secondary memory 310. The secondary memory 310 may include, for example, a storage drive 312, which may be a hard disk drive, a solid state drive or a hybrid drive and/or a removable storage drive 314, which may include a magnetic tape drive, an optical disk drive, a solid state storage drive (such as a USB flash drive, a flash memory device, a solid state drive or a memory card), or the like. The removable storage drive 314 reads from and/or writes to a removable storage medium 344 in a well-known manner. The removable storage medium 344 may include magnetic tape, optical disk, non-volatile memory storage medium, or the like, which is read by and written to by removable storage drive 314. As will be appreciated by persons skilled in the relevant art(s), the removable storage medium 344 includes a computer readable storage medium having stored therein computer executable program code instructions and/or data.

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In an alternative implementation, the secondary memory 310 may additionally or alternatively include other similar means for allowing computer programs or other instructions to be loaded into the computing device 300. Such means can include, for example, a removable storage unit 322 and an interface 340. Examples of a removable storage unit 322 and interface 340 include a program cartridge and cartridge interface (such as that found in video game console devices), a removable memory chip (such as an EPROM or PROM) and associated socket, a removable solid state storage drive (such as a USB flash drive, a flash memory device, a solid state drive or a memory card), and other removable

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5 storage units 322 and interfaces 340 which allow software and data to be transferred from the removable storage unit 322 to the computer system 300.

The computing device 300 also includes at least one communication interface 324. The communication interface 324 allows software and data to be transferred between computing
10 device 300 and external devices via a communication path 326. In various embodiments of the inventions, the communication interface 324 permits data to be transferred between the computing device 300 and a data communication network, such as a public data or private data communication network. The communication interface 324 may be used to exchange data between different computing devices 300 which such computing devices 300 form part
15 an interconnected computer network. Examples of a communication interface 324 can include a modem, a network interface (such as an Ethernet card), a communication port (such as a serial, parallel, printer, GPIB, IEEE 1394, RJ25, USB), an antenna with associated circuitry and the like. The communication interface 324 may be wired or may be wireless. Software and data transferred via the communication interface 324 are in the form of signals
20 which can be electronic, electromagnetic, optical or other signals capable of being received by communication interface 324. These signals are provided to the communication interface via the communication path 326.

As shown in Figure 3, the computing device 300 further includes a display interface 302
25 which performs operations for rendering images to an associated display 330 and an audio interface 332 for performing operations for playing audio content via associated speaker(s) 334.

As used herein, the term "computer program product" may refer, in part, to removable
30 storage medium 344, removable storage unit 322, a hard disk installed in storage drive 312, or a carrier wave carrying software over communication path 326 (wireless link or cable) to communication interface 324. Computer readable storage media refers to any non-transitory, non-volatile tangible storage medium that provides recorded instructions and/or data to the computing device 300 for execution and/or processing. Examples of such storage media
35 include magnetic tape, CD-ROM, DVD, Blu-rayTM Disc, a hard disk drive, a ROM or integrated circuit, a solid state storage drive (such as a USB flash drive, a flash memory device, a solid state drive or a memory card), a hybrid drive, a magneto-optical disk, or a computer readable card such as a SD card and the like, whether or not such devices are

5 internal or external of the computing device 300. Examples of transitory or non-tangible
computer readable transmission media that may also participate in the provision of software,
application programs, instructions and/or data to the computing device 300 include radio or
infra-red transmission channels as well as a network connection to another computer or
networked device, and the Internet or Intranets including e-mail transmissions and
10 information recorded on Websites and the like.

The computer programs (also called computer program code) are stored in main memory 308
and/or secondary memory 310. Computer programs can also be received via the
communication interface 324. Such computer programs, when executed, enable the
15 computing device 300 to perform one or more features of embodiments discussed herein. In
various embodiments, the computer programs, when executed, enable the processor 304 to
perform features of the above-described embodiments. Accordingly, such computer programs
represent controllers of the computer system 300.

20 Software may be stored in a computer program product and loaded into the computing device
400 using the removable storage drive 314, the storage drive 312, or the interface 340.
Alternatively, the computer program product may be downloaded to the computer system 300
over the communications path 326. The software, when executed by the processor 304,
causes the computing device 300 to perform functions of embodiments described herein.

25 It is to be understood that the embodiment of Figure 3 is presented merely by way of
example. Therefore, in some embodiments one or more features of the computing device 300
may be omitted. Also, in some embodiments, one or more features of the computing device
300 may be combined together. Additionally, in some embodiments, one or more features of
30 the computing device 300 may be split into one or more component parts.

In an implementation, the payment system 110 may be generally described as a physical
device comprising at least one processor 402 and at least one memory 404 including
computer program code. The at least one memory 404 and the computer program code are
35 configured to, with the at least one processor 402, cause the physical device to perform the
operations described in Figure 2. An example of a server of the payment system 110 is shown
in Figure 4.

- 5 For example, the method of Figure 2 may be implemented as software and stored in a non-transitory fashion in the secondary memory 310 or the removable storage units 318, 322 of the computer device 300.

10 It will be appreciated by a person skilled in the art that numerous variations and/or modifications may be made to the present invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. For example, the above description mainly discusses the use of a Bluetooth connection, but it will be appreciated that another type of secure wireless connection, such as Wi-Fi, can be used in alternate embodiments to implement the method. Some modifications, e.g. adding an access
15 point, changing the log-in routine, etc. may be considered and incorporated. The present embodiments are, therefore, to be considered in all respects to be illustrative and not restrictive.

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What is claimed is:

1. An apparatus for effecting a voice command relating to a transaction using a payment
10 module, the payment module in communication with a voice command module, the payment
module and the voice command module being in communication with a payment system and
a voice command server, respectively, the apparatus comprising:

at least one processor; and

at least one memory including computer program code;

15 the at least one memory and the computer program code configured to, with at least
one processor, causes the apparatus at least to:

receive, at the payment module, a converted request message, the converted request
message being converted, at the voice command server or the voice command
20 module, from an audio signal received at the voice command module, the request message
comprising payer data identifying a payer account to be used for the voice command;

forward, to the payment system, the converted request message; and

25 receive, at the payment module, a response message to effect the voice command if it
is determined at the payment system that the payer account is one that is subscribed to a
service based on the payer data, the service being one that is used to effect the voice
command, wherein the at least one memory and the computer program code is configured
with the at least one processor to compare the converted request message with a list of
30 commands authorized to be performed for the payment account, and send, to the voice
command module, a confirmation message to confirm data of the payer account if the
converted request message is not included in the list of commands.

2. The apparatus according to claim 1, wherein the at least one memory and the
35 computer program code is configured with the at least one processor to send, to the voice
command module, the response message, the response message being forwarded to the voice
command server and converted, at the voice command server, to a voice response.

- 5 3. The apparatus according to claim 2, wherein the at least one memory and the computer program code is configured with the at least one processor to receive, at the payment module, an acknowledgement message if an audio acknowledgement is received at the voice command module, the acknowledgement message being converted, at the voice command server, from the audio acknowledgement received at the voice command module,
10 the acknowledgement message indicating an acknowledgment to proceed in response to the voice response.
4. The apparatus according to claim 3, wherein the at least one memory and the computer program code is configured with the at least one processor to receive, the acknowledgement
15 message.
5. The apparatus according to any of claims 1-4, wherein the at least one memory and the computer program code is configured with the at least one processor to compare the payer data with a list of payer data indicating payers who are subscribed to the service so as to
20 determine if the payer account is one that is subscribed to a service.
6. The apparatus according to claim 5, wherein the at least one memory and the computer program code is configured with the at least one processor to receive, a confirmation reply including data of the payer account, to determine system that the payer account is one that is
25 subscribed to a service based on the payer data.
7. The apparatus according to any of claims 1-6, wherein the at least one memory and the computer program code is configured with the at least one processor to send a verification request message, to the payment module, the verification request message requesting
30 password data for verification.
8. The apparatus according to any of claims 1-5, wherein the at least one memory and the computer program code is configured with the at least one processor to send a verification data, to the payment module, in response to the verification request message, the verification
35 data identifying if a user is the true holder of the payer account.
9. A method for effecting a voice command relating to a transaction using a payment module, the payment module in communication with a voice command module, the payment

5 module and the voice command module being in communication with a payment system and a voice command server, respectively, the method comprising:

receiving, at the payment module, a converted request message, the converted request message being converted, at the voice command server or the voice command
10 module, from an audio signal received at the voice command module, the request message comprising payer data identifying a payer account to be used for the voice command;

forwarding, to the payment system, the converted request message; and

15 receiving, at the payment module, a response message to effect the voice command if it is determined at the payment system that the payer account is one that is subscribed to a service based on the payer data, the service being one that is used to effect the voice command, wherein the step of forwarding, to the payment system, the converted request message comprises causing the payment system to compare the converted request message
20 with a list of commands authorized to be performed for the payment account and sending, to the voice command module, a confirmation message to confirm data of the payer account if the converted request message is not included in the list of commands.

25 10. The method according to claim 9, wherein the step of receiving, at the payment module, the response message comprises:

sending, to the voice command module, the response message, the response message being forwarded to the voice command server and converted, at the voice command server, to a voice response.

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11. The method according to claim 10, wherein the step of receiving, at the payment module, the response message further comprises:

receiving, at the payment module, an acknowledgement message if an audio
35 acknowledgement is received at the voice command module, the acknowledgement message being converted, at the voice command server or the voice command module, from the audio acknowledgement received at the voice command module, the acknowledgement message indicating an acknowledgment to proceed in response to the voice response.

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12. The method according to claim 11, further comprising sending, to the payment system, the acknowledgement message.

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13. The method according to any one of claims 9-12, wherein the step of forwarding, to the payment system, the converted request message causes the payment system to compare the payer data with a list of payer data indicating payers who are subscribed to the service so as to determine if the payer account is one that is subscribed to a service.

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14. The method according to claim 9-13, further comprising receiving, at the payment system, a confirmation reply including data of the payer account, and forwarding, to the payment system, the confirmation reply to determine at the payment system that the payer account is one that is subscribed to a service based on the payer data.

20

15. The method according to any of claims 9-14, further comprising receiving a verification request message, at the payment module, the verification request message requesting password data for verification.

25

16. The method according to claim 15, further comprising receiving a verification data, at the payment module, in response to the verification request message, the verification data identifying if a user is the true holder of the payer account.