【DESCRIPTION】

【Invention Title】

SYSTEM, METHOD, AND COMPUTER PROGRAM FOR PREVENTING PROCESSING OF FRAUDULENT EXPENSE USING PERSONAL CARD

【Technical Field】

Exemplary embodiments relate to a system, method and computer program for preventing inappropriate expense processing using a personal card, and more particularly, to technology that prevents inappropriate expense processing by automatically collecting cancelled payments of the payments made by executives and employees of a company using personal cards for the purpose of business expenses.

【Background Art】

Companies usually issue corporate joint cards or corporate individual cards to their executives and employees for convenience of expense execution. However, because corporate cards cannot be issued to all executives and employees, executives and employees who were not issued with corporate cards are required to make payments using personal cards, and then prepare expense statements corresponding to the payments and submit it to an expense processing clerk of the company together with written evidence (for example, receipts). In general, this submission process is manually performed using a printed document on a paper, and after approval of the expense statement is completed, the approved expense statement is filed and kept in a warehouse, or is scanned to create an image and stored in a server.

It is impossible that the company directly collects employees' card payments by reason of personal information protection and privacy invasion prevention, even though the payments were made for the purpose of business expenses. Thus, even though expenses are

incurred, an expense processing clerk cannot recognize the incurrence of expenses until an employee having used a personal card submits an attached written evidence. However, from the point of view of the employee having used the personal card, preparing expense statements with written evidence such as paper receipts attached thereto is a very tedious process because of being manually performed in whole, and thus, employees cannot but endure a variety of problems with the reduced efficiency at work due to expense statements peaking toward the end of the month, the prolonged period of handling an unnecessary task due to the manual task, errors and omission in data due to the manual task, and increases in unnecessary incidental expenses for preparing paper documents.

Moreover, after an employee pays expenses using a personal card, the employee may cancel the submitted payments based on changes in company circumstances or for the malicious purposes of the individual employee. However, because it is impossible that the company directly collects or is informed of cancelled payments in the cases spent using the personal card, the company cannot identify if the payments were finally completed unless the employee who have cancelled the payment voluntarily makes a report. Accordingly, for the company's point of view, there is a problem with legitimacy in reimbursing the employee for expenses paid using the personal card and it is impossible for the company to manage risks in the future.

【Disclosure】

【Technical Problem】

According to an aspect of the present disclosure, there is provided a system and method for preventing inappropriate expense processing using a personal card, in which executives and employees of a company collect payments made using their personal cards for the purpose of business expenses, submit the same to an expense processing clerk,

automatically collect cancelled payments of the submitted receipts and provide the company supervisor with reports through which the cancelled payments can be identified, thereby allowing ex-post verification of reimbursement risks of expenses for which the company should not reimburse and preventing incidents, and a management service server, a user device and a computer program therefor.

【Technical Solution】

According to an embodiment, a system for preventing inappropriate expense processing using a personal card comprises a user device of a personal card user and a management server.

The user device is configured to receive personal card payments from a card company server, and transmit at least one payment selected to submit for expense processing from the personal card payments.

The management service server is configured to receive the at least one payment from the user device, and store the at least one received payment for expense processing.

The user device is further configured to further receive cancelled personal card payments from the card company server, compare the cancelled personal card payments with the at least one payment transmitted to the management service server, and transmit information associated with cancelled payment of the at least one payment to the management service server.

In an embodiment, the user device is further configured to periodically receive the cancelled personal card payments from the card company server.

In an embodiment, the user device is further configured to receive the cancelled personal card payments from the card company server in response to an execution of a predetermined application on the user device.

According to an embodiment, a management service server for preventing inappropriate expense processing using a personal card comprises: a receiving unit configured to receive, from a first user device of a personal card user, at least one payment selected to submit for expense processing from personal card payments and information associated with cancelled payment of the at least one payment; a storing unit configured to store the at least one payment received by the communication unit for expense processing; and a cancellation history managing unit configured to update the at least one payment stored in the storing unit, by comparing the at least one payment stored in the storing unit with the information associated with cancelled payment.

In an embodiment, the cancellation history managing unit is further configured to provide a second user device of an expense processing clerk with a report on a cancellation history of the at least one payment submitted for expense processing.

In an embodiment, the at least one payment and the information associated with cancelled payment is obtained by the first user device from a card company server by a scrapping or electronic data interchange method using account information or card information of the user. Herein, the management service server does not store the account information and the card information.

According to an embodiment, a user device for use by a personal card user comprises: a communication unit configured to store account information or card information of the user, and receive personal card payments from a card company server by a scrapping or electronic data interchange method using the account information or the card information; a display unit configured to display the personal card payments; and an input unit configured to receive input of selection information of the user for payment to submit for expense processing, based on the personal card payments displayed on the display unit.

The communication unit is further configured to transmit at least one payment selected to submit by the selection information to a management service server for expense processing, and to further receive cancelled personal card payments from the card company server by a scrapping or electronic data interchange method using the account information or the card information, compare the cancelled personal card payments with the at least one payment transmitted to the management service server, and transmit information associated with cancelled payment of the at least one payment to the management service server.

In an embodiment, the communication unit is further configured to periodically receive the cancelled personal card payments from the card company server.

In another embodiment, the communication unit is further configured to receive the cancelled personal card payments from the card company server in response to an execution of a predetermined application on the user device.

In embodiments, the communication unit is further configured to automatically receive the cancelled personal card payments in the absence of a user input for receiving the cancelled personal card payments.

According to an embodiment, a method for preventing inappropriate expense processing using a personal card comprises: receiving, by a management service server, at least one payment submitted for expense processing from a first user device of a personal card user; storing, by the management service server, the at least one payment in the management service server for expense processing; receiving, by the management service server, information associated with cancelled payment of the at least one payment from the first user device; and updating, by the management service server, the at least one payment stored in the management service server, based on the information associated with cancelled payment.

In an embodiment, the method for preventing inappropriate expense processing using

a personal card further comprises: providing a second user device of an expense processing clerk with a report on a cancellation history of the at least one payment submitted for expense processing.

In an embodiment, the at least one payment and the information associated with cancelled payment is obtained by the first user device from a card company server by a scrapping or electronic data interchange method using account information or card information of the user. Herein, the management service server does not store the account information and the card information.

According to another embodiment, a method for preventing inappropriate expense processing using a personal card comprises: receiving, by a user device of a personal card user, personal card payments from a card company server by a scrapping or electronic data interchange method using account information or card information of the user; displaying the personal card payments on the user device; receiving, by the user device, input of selection information of the user for payment to submit for expense processing, based on the personal card payments displayed on the user device; transmitting, by the user device, at least one payment selected to submit by the selection information to a management service server; receiving, by the user device, cancelled personal card payments from the card company server by a scrapping or electronic data interchange method using account information or card information of the user; and comparing, by the user device, the cancelled personal card payments with the at least one payment transmitted to the management service server, and transmitting information associated with cancelled payment of the at least one payment to the management service server.

In an embodiment, the receiving of cancelled personal card payments is periodically performed.

In another embodiment, the receiving of cancelled personal card payments is performed in response to an execution of a predetermined application on the user device.

In embodiments, the receiving of cancelled personal card payments is automatically performed in the absence of a user input for receiving the cancelled personal card payments.

A computer program according to an embodiment is to enable the execution of the method for preventing inappropriate expense processing using a personal card according to aforementioned embodiments and can be stored in a computer-readable medium.

【Advantageous Effects】

By the system and method for preventing inappropriate expense processing using a personal card according to an aspect of the present disclosure, executives and employees who made payments using personal cards for the purpose of business expenses can easily inquire about the payments through an application (or app) that is executed on their user devices, designate a recipient for payment to submit for expense processing, enter the purpose, etc. and easily transmit receipt data to an expense processing clerk.

Furthermore, by the system and method for preventing inappropriate expense processing using a personal card according to an aspect of the present disclosure, whether any of the payments submitted for expense processing has been cancelled is automatically inquired by the user device of the personal card user, and the inquired cancelled payments are automatically transmitted to the management service server, thereby allowing ex-post verification of reimbursement risks of expenses for which the company should not reimburse and preventing incidents.

By the system and method for preventing inappropriate expense processing using a personal card according to an aspect of the present disclosure, the payments and the cancelled payments submitted by the personal card user are received from the card company and

transmitted to the management service server using the user device of the user, thereby collecting and verifying personal card payments rapidly and efficiently without concern about infringement on personal information and privacy of executives and employees.

Furthermore, by the system and method for preventing inappropriate expense processing using a personal card according to an aspect of the present disclosure, the receipt data and the purpose transmitted by the personal card user is stored in the management service server, and notification is transmitted to the designated expense processing clerk to allow the expense processing clerk to perform expense processing. Further, reports on the cancelled payments in the receipt data submitted for expense processing are provided to the expense processing clerk, thereby facilitating ex-post verification.

【Description of Drawings】

FIG. 1 is a schematic block diagram of a system for preventing inappropriate expense processing using a personal card according to an embodiment.

FIG. 2 is a schematic block diagram of a user device according to an embodiment.

FIG. 3 is a schematic flowchart of a method for preventing inappropriate expense processing using a personal card according to an embodiment.

FIGS. 4 through 7 are images showing exemplary screens on a user device for preventing inappropriate expense processing using a personal card according to embodiments.

FIG. 8 is an image showing an exemplary screen on a user device of an expense processing clerk accessing a management service server according to an embodiment.

FIG. 9 is an image showing an exemplary screen for identifying cancelled payments on a user device of an expense processing clerk accessing a management service server according to an embodiment.

【Mode for Invention】

Hereinafter, the embodiments of the present disclosure will be described in detail with reference to the accompanying drawings.

FIG. 1 is a schematic block diagram of a system for preventing inappropriate expense processing using a personal card according to an embodiment.

Referring to FIG. 1, the system for preventing inappropriate expense processing using a personal card according to this embodiment includes a first user device 1 of a personal card user and a management service server 3 that receives payments submitted for expense processing from the first user device 1. The first user device 1 and the management service server 3 are configured to allow communication with each other via a wired and/or wireless network 2. Furthermore, the first user device 1 is also configured to allow communication with a card company server 4. In an embodiment, the management service server 3 is also configured to allow communication with a national tax organization server 5. Furthermore, the management service server 3 is configured to allow communication with a second user device 6 of an expense processing clerk.

Communication methods via the wired and/or wireless network 2 include any communication method that allows networking between objects, and are not limited to wired communication, wireless communication, 3G, 4G, or other methods. For example, the wired and/or wireless network 2 refers to a communication network by at least one communication method selected from the group consisting of Local Area Network (LAN), Metropolitan Area Network (MAN), Global System for Mobile Network (GSM), Enhanced Data GSM Environment (EDGE), High Speed Downlink Packet Access (HSDPA), Wideband Code Division Multiple Access (W-CDMA), Code Division Multiple Access (CDMA), Time Division Multiple Access (TDMA), Bluetooth, Zigbee, Wi-Fi, Voice over Internet Protocol

(VoIP), LTE Advanced, IEEE802.16m, WirelessMAN-Advanced, HSPA+, 3GPP Long Term Evolution (LTE), Mobile WiMAX (IEEE 802.16e), UMB (formerly EV-DO Rev. C), Flash-OFDM, iBurst and MBWA (IEEE 802.20) systems, HIPERMAN, Beam-Division Multiple Access (BDMA), World Interoperability for Microwave Access (Wi-MAX) and ultrasonic communication, but is not limited thereto.

In an embodiment, the management service server 3 includes a receiving unit 31, a storing unit 32, and a cancellation history managing unit 35. In an embodiment, the management service server 3 includes a notification transmitting unit 33. Furthermore, in an embodiment, the management service server 3 further includes a user database 34.

The system, the user device and the server according to the embodiments may take the form of entirely hardware or partially hardware and partially software. For example, the user devices 1 and 6 and the management service server 3, and each unit included therein may refer collectively to hardware and its related software for processing data of particular format and content and/or transmitting and receiving it by an electronic communication method. The term "unit", "module", "device", "terminal", "server" or "system" as used herein is intended to refer to a combination of hardware and software that works by the corresponding hardware. For example, the hardware may be a data processing device including a central processing unit (CPU) or other processor. Furthermore, the software that works by the hardware may refer to a process being executed, an object, an executable, a thread of execution, and a program.

Each element that makes up the management service server 3 according to this embodiment is not necessarily intended to indicate separate devices that are physically different from each other. That is, the receiving unit 31, the storing unit 32, the notification transmitting unit 33, the user database 34 and the cancellation history managing unit 35 of

FIG. 1 are only functional division of hardware that makes up the management service server 3 according to the operation performed by the corresponding hardware, and each unit does not need to be provided independently from each other. Of course, according to the embodiments, at least one of the receiving unit 31, the storing unit 32, the notification transmitting unit 33, the user database 34 and the cancellation history managing unit 35 can be embodied as separate devices that are physically different from each other.

In an embodiment, the management service server 3 acts, at least in part, as an application server that allows the function of the application to be performed, by communicating with an application (or app) that is executed on the first user device 1 of the personal card user. And/or, the management service server 3 may act as a web server that provides a predetermined web page accessible via a web browser that is executed on the first user device 1 and the second user device 6.

The first user device 1 according to an embodiment is embodied in the form of a smartphone, and the first user device 1 carries out personal card payment inquiry for expense processing and receipt submission by communicating with the card company server 4 and the management service server 3 through the application. However, the type of the first user device 1 is not limited to a smartphone, and the first user device 1 may be embodied in the form of any computing device such as other mobile communication terminal, a personal computer, a notebook computer, a personal digital assistant (PDA), a tablet, and a set-top box for Internet Protocol Television (IPTV).

The personal card user as used herein refers to the company's executive or employee using a card for the purpose of business expenses, and here, the card is not a corporate card in the name of the company, but a card issued in the name of an individual. The first user device 1 as used herein is a device used by the personal card user. Furthermore, the personal

card as used herein refers to a card issued in the name of an individual user using the first user device 1, not a corporate card in the name of the company. Further, the second user device 6 as used herein refers to a device used by an expense processing clerk whose primary task is expense processing in the company.

In the case of expense processing of expenses spent by executives and employees using personal cards, it is impossible that the company directly collects card payments due to concerns about infringement on personal information and privacy. The embodiments of the present disclosure are aimed at solving such inconvenience, and the first user device 1 is configured to transmit only payments selected to submit by the user to the management service server 3, to allow the management service server 3 to collect receipt data without infringement on personal information or privacy of executives and employees and thereby perform expense processing smoothly.

Furthermore, in the case of expense processing of payments made by executives and employees using personal cards, even though card transactions are cancelled after receipts are submitted for expense processing, the company cannot directly collect or identify the cancelled payments. Accordingly, there is a possibility of inappropriate expense processing caused by mistake or for malicious purposes. The embodiments of the present disclosure are aimed at preventing such an issue, and the first user device 1 is configured to automatically collect cancelled personal card payments from the card company server 4, and in the case that any of payments submitted for expense processing has been cancelled, to automatically transmit information associated with the cancelled payments to the management service server 3. The management service server 3 reflects the cancelled payments of the payments submitted for expense processing, thereby allowing ex-post verification of reimbursement risks of expenses that should not be reimbursed and preventing incidents. The specific

operation is described below.

FIG. 2 is a schematic block diagram of the user device according to an embodiment.

Referring to FIGS. 1 and 2, the user device according to this embodiment is for use by a personal card user, and corresponds to the first user device 1 of the embodiment shown in FIG. 1. The user device 1 includes a communication unit 11, a display unit 12 and an input unit 13. Each unit 11-13 shown in FIG. 2 is functional division of the user device 1 according to the operation performed by the user device 1 for preventing inappropriate expense processing using a personal card, and does not necessarily indicate separate devices that are physically different from each other. For example, the display unit 12 and the input unit 13 may be integrally formed in the form of a touchscreen that concurrently performs display and input through the screen.

The communication unit 11 is configured to transmit a request for personal card payments to the card company server 4, and receive personal card payments from the card company server 4. According to an inquiring method of payments from the card company server 4, the communication unit 11 may store account information (for example, an ID and a password, or a digital certificate and a certificate password, etc.) of the user and/or card information (for example, a card number, an expiration date and a Card Verification Code (CVC)) of the personal card, and transmit some or all of the information to the card company server 4 in response to the request for payments.

In an embodiment, the communication unit 11 acquires personal card payments from the card company server 4 by a scrapping method. The scrapping as used herein refers to technique that extracts only necessary information from information provided by the card company server 4 through its homepage and fetches data, and scrapping includes screen scrapping or data scrapping according to a specific extraction method. The communication

unit 11 is configured to acquire personal card payments from the card company server 4 by any type of known scrapping technique. The scrapping by the communication unit 11 may be periodically performed, or may be performed when there is an inquiry request from the user.

In another embodiment, the communication unit 11 acquires personal card payments from the card company server 4 by an Electronic Data Interchange (EDI) method. The EDI as used herein refers to an information transmission method that converts information provided by the card company server 4 to a standardized electronic document in accordance with a predetermined communication standard and allows the communication unit 11 to receive it. To enable personal card payment acquisition through an EDI method, an agreement may be made with the card company server 4, whereby the card company server 4 agrees to respond to the request through an application that is executed on the user device 1.

In an embodiment, inquiry of personal card payments by the communication unit 11 is performed, at least in part, using an exclusive line connected to the card company server 4. To this end, the communication unit 11 may transmit and receive data to/from the card company server 4 via a gateway server (not shown) connected to the card company server 4 with the exclusive line. The exclusive line as used herein refers to a type of network exclusively connected to the card company server 4, not a public network. For example, the exclusive line may be an exclusive line by a software means implemented using Virtual Private Network (VPN) on TCP/IP protocol based network, and may be an exclusive line by a hardware means that makes a physical connection using a Digital Service Unit (DSU) and a router. Furthermore, the management service server 3 may act, at least in part, as a gateway server by the connection to the card company server 4 with the exclusive line.

In an embodiment, the communication unit 11 inquires about a taxation type for each

merchant of the personal card payments, and further receives taxation type information for each merchant, by further communicating with the national tax organization server 5. The application running on the first user device 1 displays the taxation type information of the merchants with the personal card payments, and through this, the personal card user can easily perceive whether owners corresponding to each merchant are taxed or tax exempted, or a general taxpayer or a simplified taxpayer.

Furthermore, in an embodiment, the communication unit 11 may be configured to further inquire about whether owners corresponding to each merchant closed and/or quit business, by communicating with the national tax organization server 5.

The inquiry of the taxation type and business closing and/or quitting may be performed in the way that the communication unit 11 scraps information provided by the national tax organization server 5. Alternatively, inquiry of the taxation type and business closing and/or quitting may be carried out, at least in part, via the exclusive line connected to the national tax organization server 5 to allow communication. Here, the exclusive line may be similar to the exclusive line connecting the gateway server to the card company server 4.

The display unit 12 is configured to display the personal card payments received by the communication unit 11, and the personal card user sees the personal card payments displayed on the display unit 12 and inputs, into the input unit 13, selection information for payment to submit to the expense processing clerk as receipt data for expense processing. The receipt data of payment to submit may include an approval number, an approval date, merchant information and an amount of the payment made using the personal card. In this instance, the user may further input, into the input unit 13, the purpose and the content in relation to the payment to submit, and recipient information (i.e., expense processing clerk information) to receive the corresponding receipt.

The specific operation for receipt selection and submission using the user device according to an embodiment is described in detail below with reference to FIGS. 4 through 7.

The receiving unit 31 of the management service server 3 receives at least one payment submitted from the first user device 1 of the personal card user. The received payment includes receipt data, and further, may further include the purpose and the content inputted by the user and/or recipient information to receive the corresponding receipt. In the embodiments, the management service server 3 does not store account information or card information for inquiring about personal card payments. The inquiry operation using account information or card information is performed by the first user device 1, and the management service server 3 only receives the receipt data submitted by the user. Accordingly, there is no concern about infringement on personal information or privacy of the personal card user.

In an embodiment, the management service server 3 stores the payment received by the receiving unit 31 in the storing unit 32, and transmits notification information about that the payment was received to the recipient (i.e., the expense processing clerk) designated by the user of the first user device 1. The management service server 3 may inquire into the pre-stored user database 34, identify the second user device 6 of the expense processing clerk corresponding to the recipient, and transmit notification to the second user device 6. The notification is transmitted to the second user device 6 as a Short Message Service (SMS) message, a Multimedia Message Service (MMS) message, an e-mail, a push notification through an application, or any other appropriate type of notification.

The expense processing clerk may recognize that there is a receipt applied for expense processing through the notification received by the second user device 6, then access the management service server 3 using the second user device 6 to read the payment stored in

the management service server 3, and perform a necessary procedure for approval of cost execution, such as accepting or turning back the receipt, or identifying the amount, purpose, and content of the receipt, and if necessary, modifying it.

Meanwhile, the communication unit 11 further receives cancelled personal card payments from the card company server 4. Furthermore, the communication unit 11 compares the payments submitted from the first user device 1 to the management service server 3 for expense processing with the cancelled personal card payments, and in the case that any of the payments submitted to the management service server 3 has been cancelled, information about cancelled payments is transmitted to the management service server 3. The above operation is automatically performed by the first user device 1 without a separate input by the user, thereby basically eliminating the possibility of inappropriate expense processing. Of course, if the user prefers, the communication unit 11 may be configured to collect cancelled payments and submit the same to the management service server 3 through a separate user input.

The above operation by the communication unit 11 may be performed by a predetermined application that is executed on the first user device 1. For example, the application may be configured to automatically collect cancelled personal card payments upon execution and transmit information associated with cancelled payments of the submitted payments to the management service server 3. Alternatively, the application that is always loaded into memory of the first user device 1 may be configured to periodically collect cancelled personal card payments and transmit information associated with cancelled payments of the submitted payments to the management service server 3.

The above operation through the application may be performed in a state that the user recognizes through a user interface displayed on the display unit 12, or in the case where the

operating system of the first user device 1 permits, the above operation may be performed in the background without being revealed to the user.

The information associated with cancelled payments of the submitted payments is received by the receiving unit 31 of the management service server 3. When the information associated with cancelled payments is received by the receiving unit 31, the cancellation history managing unit 35 of the management service server 3 compares the cancelled payments with the existing payments stored in the storing unit 32 for expense processing, and updates the payments stored in the storing unit 32 to reflect the cancelled payments. The updates may be performed immediately in response to receiving information associated with cancelled payments, or may be performed periodically after collecting cancelled payments received for a predetermined period.

In an embodiment, the cancellation history managing unit 35 generates a report on a cancellation history and provides the same to the second user device 6 of the expense processing clerk. The cancellation history report may include not only detailed information of individual cancelled payments of the payments submitted for expense processing, but also statistical information such as the number of cancelled cases and the sum of amounts of cancelled payments within a set period, and the number of cancelled cases and the sum of amounts of cancelled payments for each employee. The cancellation history report may be transmitted to the second user device 6 in the form of an e-mail. Alternatively, only the fact that the cancellation history report was generated is notified to the second user device 6 using an SMS message, an MMS message, an e-mail, and a push notification, and for the cancellation history report itself, the second user device 6 may be allowed to see it by accessing the management service server 3. The expense processing clerk verifies if the personal card payments submitted by the employee are valid through the cancellation history

report, and can prevent illegitimate reimbursement.

FIG. 3 is a schematic flowchart of a method for preventing inappropriate expense processing using a personal card according to an embodiment.

Referring to FIG. 3, the personal card user may request payments to the card company server 4 using his/her first user device 1 (S1). To this end, the user may pre-input, into the first user device 1, account information of the card company homepage (for example, an ID and a password, or a digital certificate and a certificate password, etc.) and/or card information (for example, a card number, an expiration date and CVC) as information related to a personal card used by the user. In an embodiment, the first user device 1 receives personal card payments from the card company server 4 by a screen scrapping method or an EDI method using the account information and/or the card information.

When personal card payments including an approval number, an approval date, merchant information, and an amount for a series of payments made using the personal card is transmitted from the card company server 4 to the first user device 1 (S2), the first user device 1 displays the received personal card payments (S3). In this instance, the first user device 1 may further perform an operation for inquiring about taxation type or business closing and/or quitting of merchants corresponding to the payments from the national tax organization server. On the other hand, communication between the first user device 1 and the card company server 4 may be performed as encrypted communication via a public network, or may be performed, at least in part, via a gateway server connected to the card company server 4 with an exclusive line. For example, the management service server 3 may act as a gateway server.

The personal card user may identify the personal card payments displayed on the first user device 1, and input selection information for at least one payment to submit for expense

processing into the first user device 1 (S4). Furthermore, in this instance, the personal card user may further input the purpose and the content related to the payment to submit, and recipient information (i.e., expense processing clerk information) to receive the corresponding receipt. In an embodiment, the first user device 1 may be configured to receive a user list based on the user database of the management service server 3 from the management service server 3, and allow the user to select a recipient of the receipt based on the received user list.

FIGS. 4 through 7 are images showing exemplary screens on the user device for preventing inappropriate expense processing using a personal card according to embodiments. Referring to FIGS. 4 through 7, the operation (S3, S4) for displaying personal card payments on the user device and selecting payment to submit is described in detail.

FIG. 4A shows the main screen of the user device on which the personal card user executes an application, and an image 400 corresponding to a registered personal card, and information, such as the remaining balance 410 and the spent amount 420, received through communication with the card company server is displayed on the screen of the user device. A user interface of the application displayed on the screen may include interface elements 401-404 corresponding respectively to summary, a payment list, notification and other settings. Furthermore, a payment list can be viewed by selecting an interface element 430 corresponding to card payment view.

FIG. 4B shows the screen for registering a personal card to use. The user may register a personal card in the application by inputting a card company and a card number of the personal card and going through an authorization process through a certificate. As shown in the screen of FIG. 4A, the registered personal card may be visualized in the form of the image 400 and displayed to the user. Furthermore, the user may further input a card nickname and/or a spending limit when registering the personal card, or a card nickname

and/or a spending limit may be inquired from the card company server using the card company and the card number inputted by the user.

However, it will be easily understood by those skilled in the art that the type of the user interface shown in FIGS. 4A and 4B is for illustration purposes only.

FIG. 5 shows the screen displaying a payment list by selecting the interface element 402 or the interface element 430 on the screen shown in FIG. 4. When the user possesses a plurality of personal cards, a drop-down element 405 for selecting a personal card to inquire may be displayed on the screen. On the screen of FIG. 5, personal card payments 501-504, 511 and 512 inquired through communication with the card company server are displayed in the form of a list. Each payment 501-504, 511 and 512 includes information such as the date, amount, and merchant. When the user possesses a plurality of personal cards, payments may be displayed for each card.

In an embodiment, payments 501-504 for which the personal card user has already submitted receipts for expense processing and payments 511, 512 for which the personal card user has not yet submitted receipts are displayed in different forms, to allow the user to easily perceive payments for which the user will have to submit receipts. Although FIG. 5 shows that payments 501-504 for which receipts were submitted and payments 511, 512 for which receipt were not submitted are displayed in different colors, this is for illustration purposes, and in other embodiments, payments may be displayed in different forms depending on whether or not receipts were submitted, for example, payments may be listed separately.

FIGS. 6A through 6E show screens displaying a process in which the personal card user inputs selection information to submit a receipt for a particular payment.

When the user selects a certain payment 600 for which a receipt was not yet submitted from a payment list shown in FIG. 6A, detailed information related to the

corresponding payment may be displayed on a separate screen as shown in FIG. 6B. The detailed information displayed on the separate screen includes payment information 604 including information such as a card approval number, an approved amount, an amount tendered, and a value added tax, merchant information 601 including a merchant name or a business registration number, and a business type 603 of the merchant. In an embodiment, the user device further receives taxation type information of the corresponding merchant by communicating with the national tax organization server, and the taxation type information is displayed on the user device as part of the detailed information about the payment as indicated by 602 in FIG. 6B.

When the user selects an interface element 605 on the screen shown in FIG. 6B to carry out receipt submission for the corresponding payment, a separate screen for selecting a recipient of the receipt may be displayed as shown in FIG. 6C. The recipient of the receipt refers to an expense processing clerk to carry out approval and settlement of expense processing for the corresponding receipt. The user device receives a related user list from the management service server and displays it, and the personal card user may designate one or more users in the received user list as a recipient.

In an embodiment, the user database of the management service server includes relationship information between a plurality of users, and the management service server may generate a related user list related to the personal card user using the relationship information and present it to the user device, allowing the personal card user to easily select an expense processing clerk related to the personal card user.

For example, the user database may store company information to which each user belongs, and the management service server may transmit a related user list consisting only of users who belong to the same company as the personal card user requesting receipt

submission to the user device, allowing the user to identify a receipt recipient from the related user list.

Alternatively, the user database may include online contact information that is pre-inputted by each user and stored in the user database, and the management service server may transmit a user list registered in an online contact of the personal card user requesting receipt submission to the user device, allowing the user to identify a receipt recipient from his/her online contact.

When the personal card user selects the recipient of the receipt, a payment inquiry screen including designated recipient information 606 is displayed as shown in FIG. 6D. Furthermore, the user may input the purpose (for example, gasoline costs, transportation fees, etc.) for the corresponding payment by selecting an interface element 607 on the corresponding screen, and may further include the content of use by selecting an interface element 608. After the personal card user inputs all necessary information, the personal card user selects an interface element 609 for receipt submission, and thereby the recipient information designed by the user and the purpose and/or the content inputted by the user is transmitted to the management service server as selection information of the user for transmission to the management service server.

In an embodiment, the user may further attach a photographic or scanned image of the paper receipt as information associated with the payment to submit. FIG. 6E is the screen displayed when the user selects the interface element 608 on the screen shown in FIG. 6D, and the user may input payment through an input box 610 on the screen shown in FIG. 6E. In this instance, the user may select each interface element 611-613 displayed on the screen to capture a new image or select a stored image, or select an attachment file other than an image, and input it into the input box 610. Using this, the user inputs an image 620 of the

paper receipt corresponding to the receipt data submitted by the user into the input box 610, to allow the receipt image 620 to be transmitted to the management service server together with other electronic information.

Although FIGS. 4 through 6 show the screen in the case where the personal card user carries out receipt submission for the first time, the user interface may be configured to allow the corresponding user to submit a receipt with no need to newly designate a recipient each time, in the case where the user has carried out receipt submission before.

FIGS. 7A and 7B show exemplary screens therefor, and if the personal card user has submitted receipts before, clerk information 700 having received receipts from the corresponding personal card user before may be displayed on the detailed inquiry screen of the payment as shown in FIG. 7A. The personal card user may designate an expense processing clerk to receive the receipt being submitted at this time by selecting a particular clerk from the clerk information 700. Furthermore, the personal card user may call for a clerk list management screen as shown in FIG. 7B by selecting an interface element 701, and add or delete a clerk to be displayed as the clerk information 700.

Referring back to FIG. 3, the payment submitted from the first user device 1 of the personal card user is transmitted to the management service server 3 (S5). The management service server 3 stores receipt data and related information of the received payment in the management service server 3 (S6), and transmits notification information to the second user device 6 of the expense processing clerk designated as a recipient by the related information (S7). The notification information is transmitted to the second user device 6 in the form of SMS, MMS, an e-mail, and a push notification through an application, to allow the expense processing clerk to recognize the fact that there is a receipt submitted for expense processing. The management service server 3 may define necessary information such as a mobile phone

number or an e-mail address of the expense processing clerk to receive, by inquiring into the user database using the recipient information designated by the personal card user, and using this, may transmit notification information.

The expense processing clerk who received the notification information may identify the receipt and the related information received and stored in the management service server 3, by accessing the management service server 3 using the second user device 6 (S8). In this instance, the management service server 3 may act as a web server providing a predetermined web page that allows the expense processing clerk to read receipts and carry out expense processing such as settlement and approval of payments for which receipts were submitted.

FIG. 8 is an image showing an exemplary screen of the user device of the expense processing clerk having access to the management service server according to an embodiment.

Referring to FIG. 8, the expense processing clerk may read the received personal card payments destined for himself/herself as a recipient by getting access to the management service server. The submitted payment may include receipt data, and information corresponding to the corresponding receipt, such as the user, date, amount, merchant and purpose and/or content. Furthermore, the submitted payment may include an image of a real receipt corresponding to receipt data. The expense processing clerk may read payments of all personal card users at once, or may inquire about the current card user status or separately read payments of an individual user. Furthermore, the expense processing clerk may perform a management task, such as registering or modifying a personal card user for expense processing.

Referring back to FIG. 3, the first user device 1, having transmitted payments to the management service server 3 for expense processing, receives cancelled personal card

payments from the card company server 4 (S9). In the same way as the step for receiving personal card payments (S2), the operation of receiving cancelled personal card payments may be performed by a screen scrapping method or an EDI method using account information and/or card information of the user.

The step for receiving cancelled personal card payments (S9) may be automatically performed even though a separate user input for performing this step is absent. For example, when the user executes an application for receipt data submission, the application may automatically receive cancelled personal card payments as soon as the application is executed, or the application may receive cancelled personal card payments by a background operation in a state that the application is loaded into memory of the first user device 1. Furthermore, the step for receiving cancelled personal card payments (S9) may be periodically performed.

When the cancelled personal card payments are received, the first user device 1 compares the payments transmitted to the management service server 3 in the step S5 with the cancelled personal card payments, and in the case where any of the payments transmitted to the management service server 3 has been cancelled, information associated with cancelled payment is transmitted to the management service server 3 (S10). In the same way as the step S9, the step for transmitting information associated with cancelled payment to the management service server 3 (S10) may be automatically performed without a separate user input.

However, if the personal card user needs, the first user device 1 may be configured to perform the step for receiving cancelled personal card payments (S9) and/or the step for transmitting information associated with cancelled payment to the management service server 3 (S10) through a separate user input.

The management service server 3 receives the information associated with cancelled

payment from the first user device 1, compares the payments stored in the step S6 with the cancelled payment, and updates the stored payments (S11). That is, because the company does not need to reimburse for the cancelled cases in the spending cases using the personal card, the management service server 3 may delete the cancelled payment of the payments stored in the step S6. Through this, it is possible to verify if the personal card payments submitted by the employee are valid and prevent illegitimate reimbursement. The updates of the payments may be performed immediately in response to receiving cancelled payments, or may be performed periodically after collecting cancelled payments received for a predetermined period.

FIG. 9 is an image showing an exemplary screen for identifying cancelled payments on the user device of the expense processing clerk accessing the management service server according to an embodiment. For example, cancelled payments are displayed on a predetermined area (for example, the top of the screen) 900 of the screen being viewed by the expense processing clerk, allowing the expense processing clerk to identify the cancelled payments. The payments at the area 900 may be shaded to intuitively distinguish from uncancelled payments. However, this is for illustration purposes, and the display type of cancelled payments is not limited thereto.

Referring back to FIG. 3, in an embodiment, the management service server 3 provides a cancellation history report to the second user device 6 of the expense processing clerk (S12). The cancellation history report may be generated and provided by the management service server 3 each time payment is cancelled, or the cancellation history report may be generated and provided in a predetermined cycle (for example, monthly) by collecting cancelled payments for the corresponding period.

At the step S12, the cancellation history report itself may be transmitted to the second

user device 6, or only a notification about the cancellation history report that can be viewed may be transmitted to the second user device 6, and for the cancellation history report itself, the second user device 6 may be allowed to see it by accessing the management service server 3. In the case of a plurality of expense processing clerks, the management service server 3 may inquire about the expense processing clerk designated as a recipient when submitting the payments at the step S5 in relation to the cancelled payments, and provide the cancellation history report to the second user device 6 of the corresponding expense processing clerk.

The cancellation history report may include detailed information associated with each cancelled payment of the payments submitted for expense processing, for example, an approval number, an approval date, merchant information, an amount of the cancelled payment, the purpose and the content inputted by the user of the first user device 1 in relation thereto, and a receipt image. Furthermore, the cancellation history report may include statistical information such as the total number of cancelled cases and the sum of amounts of cancelled payments within the period during which the report is generated, and the total number of cancelled cases and the sum of amounts of cancelled payments for each employee. The expense processing clerk verifies if the personal card payments submitted by the employee are valid through the cancellation history report and can prevent improper reimbursement.

The operation by the method for preventing inappropriate expense processing using a personal card according to the embodiments as described hereinabove may be implemented, at least in part, as a computer program and recorded in a computer-readable recording medium. The computer-readable recording medium for recording the program for implementing the operation by the method for preventing inappropriate expense processing using a personal card according to the embodiments includes any type of recording device in

which computer-readable data is stored. Examples of the computer-readable recording medium include ROM, RAM, CD-ROM, magnetic tape, floppy disks, and optical data storage devices. Furthermore, the computer-readable recording medium may be distributed over computer systems connected via a network, to store and execute computer-readable codes in a distribution fashion. Additionally, functional programs, codes and code segments for implementing this embodiment will be easily understood by person having ordinary skill in the technical field to which this embodiment belongs.

While the present disclosure has been described hereinabove with reference to the embodiments shown in the drawings, this is for illustration only, and it will be apparent to person having ordinary skill in the art that various modifications and variations in the embodiments may be made thereto. However, it should be understood that such modifications fall within the technical scope of protection of the present disclosure. Therefore, the true technical scope of protection of the present disclosure should be defined by the technical spirit of the appended claims.

【Industrial Applicability】

Exemplary embodiments relate to a system, method and computer program for preventing inappropriate expense processing using a personal card, and more particularly, to technology that prevents inappropriate expense processing by automatically collecting cancelled payments of the payments made by executives and employees of a company using personal cards for the purpose of business expenses.

CLAIMS

1. A system for preventing inappropriate expense processing using a personal card, comprising:

a user device of a personal card user, wherein the user device is configured to receive payments of a personal card issued in the name of the individual user from a card company server, receive input of selection information of the user designating payment to submit for expense processing among the personal card payments received from the card company server and recipient information to receive the payment to submit, and transmit at least one payment selected to submit for expense processing from the personal card payments based on the selection information; and

a management service server connected to the user device via a network to allow communication, and configured to receive the at least one payment selected based on the selection information and the recipient information from the user device, and store the at least one received payment for expense processing by an expense processing clerk corresponding to the recipient information,

wherein the at least one payment and information associated with cancelled payment is obtained by the user device from the card company server by a scrapping or electronic data interchange method using account information or card information of the user,

the user device includes a memory into which a predetermined application is loaded, and is further configured to further receive cancelled personal card payments periodically from the card company server in the absence of a user input for receiving the cancelled payment by operation of the application, compare the cancelled personal card payments with the at least one payment transmitted to the management service server, and transmit, to the management service server, the information associated with cancelled payment of the at least one payment transmitted to the management service server,

the reception and transmission of the cancelled personal card payments is automatically performed by the application without displaying a process of receiving and transmitting the cancelled personal card payments on the user device,

the management service server includes a user database in which a plurality of user information and relationship information between users is stored, and is further configured to

transmit a related user list of the user generated based on the relationship information to the user device, wherein the management service server does not store the account information and the card information associated with the personal card of the user, compare the at least one payment stored for expense processing with the information associated with cancelled payment, and update the at least one payment stored in the management service server to delete the cancelled payment from the at least one stored payment, and

the recipient information includes selection information of one or more users in the related user list.

2. A management service server for preventing inappropriate expense processing using a personal card, the management service server connected to one or more user devices of a personal card user via a network to allow communication, comprising:

a user database in which a plurality of user information and relationship information between users is stored;

a receiving unit configured to receive, from a first user device of the personal card user, at least one payment selected to submit for expense processing based on selection information of the user inputted in the first user device among personal card payments in the name of the individual user received by the first user device from a card company server, and recipient information to receive the at least one payment, and further receive information associated with cancelled payment of the at least one payment from the first user device;

a storing unit configured to store the at least one payment received by the receiving unit for expense processing by an expense processing clerk corresponding to the recipient information, and provide the at least one payment to a second user device of the expense processing clerk; and

a cancellation history managing unit configured to compare the at least one payment stored in the storing unit with the information associated with cancelled payment, and update the at least one payment stored in the storing unit to delete the cancelled payment from the at least one stored payment,

wherein the receiving unit is further configured to transmit a related user list of the user generated based on the relationship information of the user database to the first user device,

the recipient information includes selection information of one or more users in the related user list,

the at least one payment and the information associated with cancelled payment is obtained by the first user device from the card company server by a scrapping or electronic data interchange method using account information or card information of the user,

the management service server does not store the account information and the card information associated with the personal card of the user, and

the receiving unit is further configured to receive the information associated with cancelled payment from an application running on the first user device to periodically receive the cancelled payment from the card company server automatically in the absence of a user input for receiving the cancelled payment and transmit the cancelled payment.

3. The management service server for preventing inappropriate expense processing using a personal card according to claim 2, wherein the cancellation history managing unit is further configured to provide the second user device of the expense processing clerk with a report on a cancellation history of the at least one payment submitted for expense processing.

4. A user device for use by a personal card user, connected to a management service server via a network to allow communication, the user device comprising:

a memory into which a predetermined application is loaded;

a communication unit configured to store account information or card information of the user associated with a card issued in the name of the individual user, receive personal card payments from a card company server by a scrapping or electronic data interchange method using the account information or the card information, and receive a related user list of the user from the management service server;

a display unit configured to display the personal card payments and the related user list; and

an input unit configured to receive input of selection information of the user designating payment to submit to the management service server for expense processing among the personal card payments received from the card company server and recipient

information to receive the payment to submit, based on the personal card payments displayed on the display unit,

wherein the related user list is generated based on relationship information between users stored in a user database of the management service server, and the recipient information includes selection information of one or more users included in the related user list,

the communication unit is further configured to transmit at least one payment selected to submit based on the selection information and the recipient information to the management service server so that the at least one payment is stored in the management service server and expense processing is performed by an expense processing clerk corresponding to the recipient information, and to further receive cancelled personal card payments periodically from the card company server by a scrapping or electronic data interchange method using the account information or the card information in the absence of a user input for receiving the cancelled payment by operation of the application, compare the cancelled personal card payments with the at least one payment transmitted to the management service server, and transmit, to the management service server, information associated with cancelled payment of the at least one payment transmitted to the management service server to delete the cancelled payment from the payment stored in the management service server, and

the reception and transmission of the cancelled personal card payments is automatically performed by the application without displaying a process of receiving and transmitting the cancelled personal card payments on the user device.

5. A method for preventing inappropriate expense processing using a personal card, comprising:

receiving, by a management service server connected to one or more user devices of a personal card user via a network to allow communication, at least one payment from a first user device of the personal card user, the at least one payment selected to submit for expense processing based on selection information of the user inputted in the first user device among personal card payments received by the first user device from a card company server;

receiving, by the management service server, recipient information to receive the at

least one payment from the first user device;

storing, by the management service server, the at least one payment in the management service server for expense processing by an expense processing clerk corresponding to the recipient information;

receiving, by the management service server, information associated with cancelled payment of the at least one payment from the first user device;

comparing, by the management service server, the at least one payment stored in the management service server for expense processing with the information associated with cancelled payment, and updating the at least one payment stored in the management service server to delete the cancelled payment from the at least one payment stored in the management service server; and

providing, by the management service server, the at least one payment stored in the management service server to a second user device of the expense processing clerk,

wherein the at least one payment and the information associated with cancelled payment is obtained by the first user device from the card company server by a scrapping or electronic data interchange method using account information or card information of the user,

the management service server includes a user database in which a plurality of user information and relationship information between users is stored, and does not store the account information and the card information associated with the personal card of the user,

the receiving the information associated with cancelled payment comprises receiving the information associated with cancelled payment from an application running on the first user device to periodically receive the cancelled payment from the card company server automatically in the absence of a user input for receiving the cancelled payment and transmit the cancelled payment,

before the receiving the one or more recipient information, the method further comprises transmitting, by the management service server, a related user list of the user generated based on the relationship information in the user database to the first user device, and

the recipient information includes selection information of one or more users in the related user list.

6. The method for preventing inappropriate expense processing using a personal card according to claim 5, further comprising:

providing the second user device of the expense processing clerk with a report on a cancellation history of the at least one payment submitted for expense processing.

7. A method for preventing inappropriate expense processing using a personal card, comprising:

receiving, by a user device of a personal card user connected to a management service server via a network to allow communication and including a memory into which a predetermined application is loaded, payments of a personal card issued in the name of the individual user from a card company server by a scrapping or electronic data interchange method using account information or card information of the user;

receiving, by the user device, a related user list of the user from the management service server;

displaying the personal card payments and the related user list on the user device;

receiving, by the user device, input of selection information of the user designating payment to submit to the management service server for expense processing among the personal card payments received from the card company server and recipient information to receive the payment to submit, based on the personal card payments and the related user list displayed on the user device;

transmitting, by the user device, at least one payment selected to submit based on the selection information and the recipient information to the management service server so that the at least one payment is stored in the management service server and expense processing is performed by an expense processing clerk corresponding to the recipient information;

receiving, by the user device, cancelled personal card payments from the card company server by a scrapping or electronic data interchange method using account information or card information of the user; and

comparing, by the user device, the cancelled personal card payments with the at least one payment transmitted to the management service server, and transmitting, to the management service server, information associated with cancelled payment of the at least one

payment transmitted to the management service server to delete the cancelled payment from the payment stored in the management service server,

wherein the related user list is generated based on relationship information between users stored in a user database of the management service server, and the recipient information includes selection information of one or more users included in the related user list,

the receiving the information associated with cancelled payment comprises receiving, by an application running on the user device, the cancelled payment periodically from the card company server in the absence of a user input for receiving the cancelled payment, and

the transmitting the information associated with cancelled payment to the management service server is automatically performed by the application without displaying a process of receiving and transmitting the cancelled payment on the user device.

8. A computer program recorded in a computer-readable recording medium for executing the method for preventing inappropriate expense processing using a personal card according to any of claims 5, 6 and 7 in combination with hardware.