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(54) Title: A REMOTE BANKING SYSTEM AND METHOD THEREOF

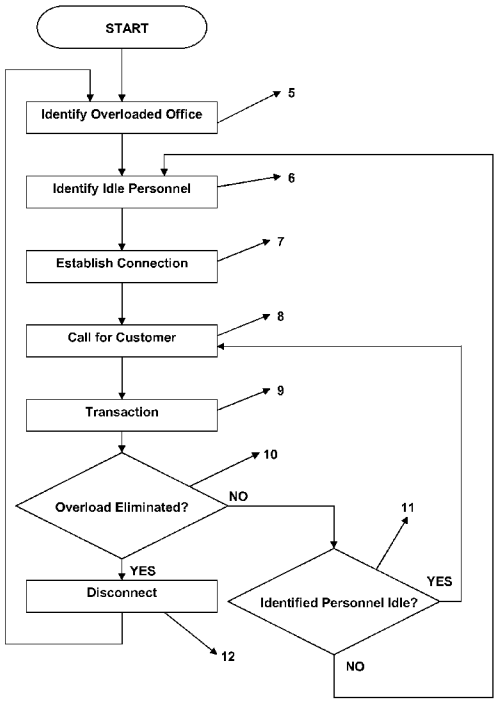

Figure 2

(57) Abstract: Present invention comprises remote banking system and method of remote banking systems, which optimizes the utilization of remote terminals (4) and personnel terminals (1) by using workload and/or customer rate information of bank branches in which remote terminals (4) and personnel terminals (1) are located. For this purpose, the system of the present invention comprises a central means (3) which gathers the workload information of bank branches; identifies idle personnel in bank branches and establishes connections between personnel terminals (1) of idle personnel and remote terminals (4) in order to optimize and equally distribute workload of branches. In this manner, the serving time of bank branches is minimized and efficient usage of labour is determined.

DESCRIPTION

A REMOTE BANKING SYSTEM AND METHOD THEREOF

Technical Field

Present invention is related to a remote banking system and method in which the system comprises a remote banking terminal.

Prior Art

With the help of technological improvements in digital systems and communication technologies, effective audio/visual communication and secure communication have become a widely available opportunity.

With the help of communication technologies, the concept of "remote bank terminal" is developed, which enables remote service of a bank employee to a customer, which is residing at a far away location from the bank employee, using audio/visual communication.

The remote bank terminals are almost capable of all transaction, those used to be performed by bank cashiers using usual safes and computers. This enables to use remote terminals as "emergency bank cashiers", wherein a customer may be served remotely in case.

However, the problem of the management of remote terminals in terms of assigning an employee has arisen. Employing extra personnel in case of use of remote terminals means extra labor for banks; hence this case is not desirable.

In the prior art document WO2010056215A1, a system and method is described in which, a remote terminal recognize presence of a customer and connects to a call center to perform bank transactions. This system and method enables use of labor in the call center also for remote terminals. However, as interactive banking is also a popular system, call center personnel may as well be occupied and overloaded. In this case, it is not desirable that the workload of remote terminals is added to workload of ordinary call center.

In the magazine ABA banking journal which is published on August 2010, a method is described in which, customer uses a remote terminal, chooses a specific bank employee to handle his transactions and the employee is connected to remote terminal. Said method determines the advantage of working with a specific employee for a user. However, the workload of employees in this scenario is unpredictable; hence the method is not reliable in terms of efficiency.

Brief Description of the Invention

Remote banking system and method of remote banking system are comprised within present invention. The system of present invention comprises a central means which identifies workload of bank branches and idle personnel and establishes connections between the remote terminals and personnel terminals of idle personnel. In this manner, central means optimizes the utilization of labour and workload of branches and minimizes the serving time of branches. The method of present invention defines the optimization of the workload within the system of present invention.

In accordance with description, the scope of the present invention is described as; “a remote banking system which comprises at least one remote terminal (4) that is capable of performing bank transactions and a personnel terminal (1) which is located in at least a bank branch and is used to connect to a remote terminal (4) to perform transactions remotely, **characterized in that** it further comprises a central means (2) which identifies work load and customer rate of bank branch, identifies an idle employee by getting information from the bank branch and establishes a remote connection between a personnel terminal (1) and a remote terminal (4)” and “a remote banking method for a remote banking system comprising at least a personnel terminal (1) and at least a remote terminal (4), characterized in that it comprises the steps of; identification of an overloaded bank branch (5); identification of an employee in an another bank branch and is not busy (6); establishing a connection between a personnel terminal (1) of the identified employee and a remote terminal (4) in the overloaded bank branch (7); calling for a customer to perform a transaction using the remote terminal (8) and performing a transaction (9) by the employee that is connected to remote terminal (4) by communicating the customer in another bank branch using audio and/or visual devices on personnel terminal (1) and remote terminal (4).

Object of the Invention

The object of the present invention is to develop a remote banking system and method.

Another object of the present invention is to develop a remote banking system and method, which enables management of connection of units comprised by the system.

Another object of the present invention is to develop a remote banking system and method, which determines workload of bank branches and bank employees.

Another object of the present invention is to develop a remote banking system and method, which optimizes the workload of bank branches and bank employees.

Another object of the present invention is to develop a remote banking system and method, which maximizes the efficiency of a labor of a bank.

Another object of the present invention is to develop a remote banking system and method, which minimizes the serving time of a bank to a customer.

Brief Description of the Drawings

Figure 1 shows an embodiment of the remote banking system.
Figure 2 shows a flow diagram of a remote banking system operation.
Figure 3 shows a block diagram of a personnel terminal
Figure 4 shows a front view of a remote terminal

The reference numbers as used in figures may possess the following meanings;

Personnel terminal	(1)
Queuing device	(2)
Central means	(3)
Remote terminal	(4)
Identifying an overloaded branch	(5)
Identifying an idle personnel	(6)

Establishing connection	(7)
Calling for customer	(8)
Making transaction	(9)
Checking overload	(10)
Checking personnel load	(11)
Disconnecting terminal	(12)
Monitor	(13)
Computer	(14)
Pointing device	(15)
Keyboard	(16)
Microphone	(17)
Speaker	(18)
Camera	(19, 25)
Smartcard reader	(20)
Credit card reader	(21)
Keypad	(22)
Smart pen	(23)
Scanner	(24)
Screen	(26)
Cash Slot	(27)
Printer	(28)

Detailed Description of the Invention

Present invention describes a remote banking system in which bank employee can serve a customer to make a transaction using a personnel terminal (1) and a remote terminal (4).

An exemplary block diagram of a banking system developed by the present invention is given in figure 1. The banking system comprises at least a personnel terminal (1) which is used to make bank transactions and at least a remote terminal (4) which is used to perform a transaction by a remotely connection between a personnel terminal (1).

The personnel terminal (1) is a terminal that is connected to a banking system and is capable of performing bank transactions and connecting a remote terminal (4) to perform banking transactions remotely via said remote terminal (4).

The remote terminal (4) is a device that is used to handle transactions and serve a customer by the control of an employee that is connected to remote terminal (4) via a personnel terminal (1).

The system may comprise at least a central means (3) which is connected to personnel terminals (1) and remote terminals (4) of all bank branches. Central means (3) identifies work load and customer rate of bank branches, identifies idle employee by getting information and establishes a remote connection between a personnel terminal (1) located in a bank branch and a remote terminal (4) located in any bank branch. Managing said connection by central means (3) enable extra labor in an under-loaded bank branch to be employed to handle transactions that is to be performed via a remote terminal (4) in an overloaded bank branch, wherein local employee is not adequate to serve customers in time.

The system may further comprise at least a queuing device (2) that is connected to central means (3). The queuing devices (2) in the prior art are employed to direct customers to bank personnel in order to manage the queue in accordance with their priority and type of transaction. The system in the present invention utilizes queuing devices (2) to identify the workload of a bank branch. In this manner, central means (3) is able to obtain workload of several bank offices and optimizes utilization of personnel to appropriate remote terminals (4).

An embodiment of a personnel terminal is given in figure 3. The personnel terminal (1) is preferably a computer or a thin client that can be both used for local transactions and is capable of remotely connecting a remote terminal (4). An exemplary diagram of a personnel terminal (1) is given in figure 3. For audio/visual communication to the remote terminal (4), the personnel terminal (1) may comprise at least a camera (19), at least a microphone (17) and an audio output device (18) (i.e. speaker, headphone or earphone). Preferably, the personnel terminal (1) may comprise a videophone (not shown on figures) in order to handle audio/visual communication. For the employee to use the terminal (1), the terminal may also comprise input devices such as a keyboard (16) and a pointing device (15) (i.e. mouse). The terminal (1) may also comprise a monitor (13) as an output device. All components of the terminal (1) are connected to a control unit (14) (i.e. main

hardware of a computer in comprising a CPU, RAM, ROM, Hard-drive etc.), wherein the control unit (14) is connected to a communication network to connect to banking systems.

The remote terminal (4) is a device, capable of receiving a remote connection and performing bank transactions. An exemplary front view of a remote terminal (4) is given in figure 4. Preferably, remote terminal (4) comprises at least one cash slot (27) that is capable of ejecting and/or receiving cash. The cash slot (27) may be capable of working with either paper money or coin. The remote terminal (4) preferably comprises at least a cash identification unit (not shown in figures) and/or at least a cash safe (not shown in figures). For audio/visual communication, the remote terminal (4) may comprise at least a screen (26), a camera (26), a microphone (not shown on figure) and/or an audio output device (i.e. a speaker, a headphone, a earphone) (not shown in figures). The remote terminal (4) may comprise at least a videophone (not shown on figures), which comprises a screen (26), a camera (26), a microphone and an audio output device.

Preferably, the remote terminal (4) comprises at least a printer (28) and/or a scanner (24) so that it is possible to print out a document such as a bank receipt and/or acquire a digital copy of a printed document. For instance, an identity card of a customer can be scanned and recognized by the remote terminal (4) using the scanner (24) and the digital copy determined by scanner (24) can be used by the bank.

In a further embodiment of the present invention, the remote terminal (4) may comprise a graphic input device (23) such as a “smart-pen”, which can be used to digitize a hand-writing. Using a “smart-pen”, sign of a customer can be determined while using a remote terminal (4).

The remote terminal (4) may comprise several input and security interfaces known from Automatic Teller Machines (ATMs) such as smart card reader (20), a credit card reader (21) and/or a keypad (22). The interfaces can be used for transactions done by the remote terminal (4).

The present invention further comprises a remote banking method of which a flow chart is given in figure 2. Within the remote banking system described with the present invention, an overloaded bank branch, which cannot serve customers in time due to lack of labor is identified (5). Then, an employee that is not busy serving a customer in any branch is

identified (6) and personnel terminal (1) present in the branch of the employee. As the employee is identified, a connection is established (7) between the personnel terminal (1) of the identified employee and a remote terminal (4) in the overloaded bank branch. A customer (8) is preferably called for to perform the transaction using the remote terminal (4). The transaction is performed (9) by the employee that is connected to remote terminal (4) by communicating the customer in another bank branch using audio and/or visual devices on personnel terminal (1) and remote terminal (4). As the transaction is performed (9), the workload of the branch which comprises the remote terminal (4) is preferably checked (10). If the overload is eliminated, the personnel terminal (1) is disconnected (12) from the remote terminal (4). If the overload is not eliminated, remote terminal (4) continues to operate. However, the employee that is employed to operate remote terminal (4) may need to perform transactions in the branch the employee is located. For this reason, it is preferably checked whether the employee is still idle (11) and can handle a further transaction remotely. If the employee is still idle so that he/she can perform another transaction via remote terminal (4), another customer is called for (8) to the remote terminal (4) to perform a transaction. If the employee is not idle anymore, another employee that is idle at the time is identified (6) and the newly identified employee is connected to remote terminal (4) to perform transaction.

Using the method described above, all remote terminals (4) and available employees are continuously matched and connected so the labor is used effectively all the time and the time to serve to a customer is minimized.

The employee that is directed to use a remote terminal (4) can be any employee that has a personnel terminal (1). In this way, not only bank cashiers but, other employees such as bank center employees and call center personnel may also be employed to use a remote terminal (4) to perform a transaction. Furthermore, a remote terminal (4) and a personnel terminal (1) may be located in the same bank branch. In this manner, the utilization of remote terminal (4) can be extended in order for instance to perform transactions of disabled people without any location constraint or secure personnel by determining a separation between a personnel office and pay-desks.

A further exemplary scenario can be described within the method described above. The bank branch “A” has 10 employees, all serving as bank cashiers, and 10 remote terminals

(4). The bank branch “B” has 40 employees and 2 remote terminals (4). The bank branch “C” has 20 employees and 15 remote terminals (4).

For a time being, all the bank cashiers in branches “A”, “B” and “C” are busy and the branch “A” has 25 customers waiting in the queue; the branch “B” has 10 customers waiting in the queue; on the other hand, branch “C” has 40 customers waiting in the queue.

For stated situation, while the workload of branch “A” is about 250 %, workload of branch “C” is 200%. On the other hand, the branch “B” has 75% extra labor that is idle. Conclusively it is obvious that while the branches “A” and “C” are overloaded, branch “B” is under-loaded for the time being. Within the system and method of present invention, 10 employees of branch “B” are connected to remote terminals (4) of branch “A”. Hence the workload of branch “A” is decreased to 125%. If 12 other employees of branch “B” are connected to remote terminals (4) of branch “C”, the workload of branch “C” is decreased to approximately 125%. Employing 32 employees for remote terminals (4), branch “B” has 8 employees serving locally. The workload of branch “B” is increased to 125% and in the end, the serving efficiency maximized and workload is equally distributed between bank branches.

Within the system and method of the present invention, management of remote terminals (4) is determined ensuring the optimization of usage of labor of bank branch. This optimization minimizes the serving time of a bank and distributes the workload of bank independent of time and place.

CLAIMS

1. A remote banking system which comprises at least one remote terminal (4) that is capable of performing bank transactions and a personnel terminal (1) which is located in at least a bank branch and is used to connect to a remote terminal (4) to perform transactions remotely, **characterized in that** it further comprises a central means (3) which identifies work load and customer rate of bank branch, identifies an idle employee by getting information from the bank branch and establishes a remote connection between a personnel terminal (1) and a remote terminal (4).

2. A remote banking system according to claim 1 characterized in that it further comprises at least a queuing device (2) that is connected to central means (3) and identifies the workload of a bank branch.

3. A remote banking system according to claim 1 characterized in that personnel terminal (1) comprises at least one camera (19).

4. A remote banking system according to claim 1 characterized in that personnel terminal (1) comprises at least one microphone (17).

5. A remote banking system according to claim 1 characterized in that personnel terminal (1) comprises at least one audio output device (18).

6. A remote banking system according to claim 1 characterized in that personnel terminal (1) comprises a videophone.

7. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises at least one cash slot (27) that is capable of ejecting and/or receiving cash.

8. A remote banking system according to claim 6 characterized in that remote terminal (4) comprises at least one cash slot (27) that is capable of working with paper money.

9. A remote banking system according to claim 6 characterized in that remote terminal (4) comprises at least one cash slot (27) that is capable of working with coin.

10. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises at least one cash identification unit.

11. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises at least one cash safe.

12. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises a camera (26).

13. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises a microphone.

14. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises an audio output device.

15. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises a videophone.

16. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises at least a printer (28).

17. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises a scanner (24).

18. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises a graphic input device (23)

19. A remote banking system according to claim 1 characterized in that said graphic input device (23) is a smart pen which is used to digitize a hand-writing.

20. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises a smart card reader (20).

21. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises a credit card reader (21).

22. A remote banking system according to claim 1 characterized in that remote terminal (4) comprises a keypad (22).

23. A remote banking method for a remote banking system, which comprises at least one remote terminal (4) that is capable of performing bank transactions and a personnel terminal (1) which is located in at least a bank branch and is used to connect to a remote terminal (4) to perform transactions remotely, characterized in that the method comprises the steps of;

- identification (5) of an overloaded bank branch;
- identification (6) of an idle employee in any bank branch;
- establishing a connection (7) between a personnel terminal (1) of the identified employee and a remote terminal (4) in the overloaded bank branch and
- performing a transaction (9) by the employee that is connected to remote terminal (4) by communicating the customer in any bank branch using audio and/or visual devices on personnel terminal (1) and remote terminal (4).

24. A remote banking method according to claim 23 characterized in that the method further comprises the steps of;

- checking workload (10) of the branch which comprises the remote terminal (4);
- disconnecting (12) the personnel terminal (1) from the remote terminal (4) if an overload is eliminated;
- if the overload is not eliminated, checking whether the identified employee is still idle to handle a further transaction remotely (11);
- performing another transaction if the employee is idle (9);
- if the employee is no idle, identifying another employee that is idle at the time (6) and
- connecting identified second employee to remote terminal (4).

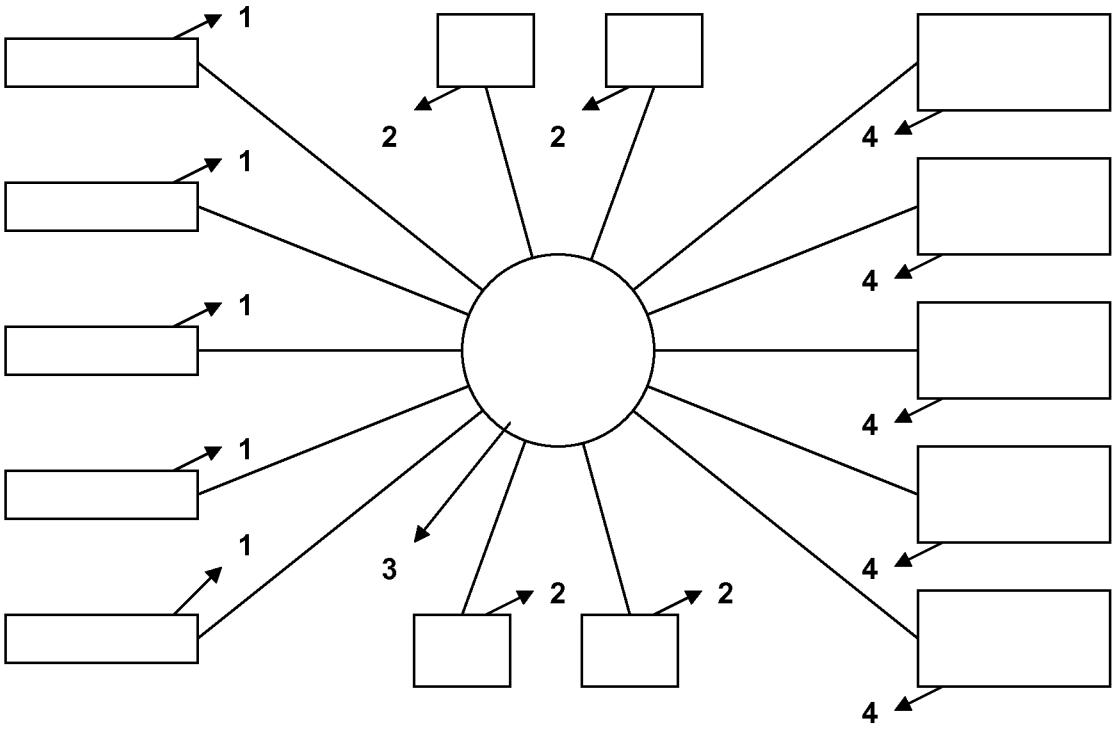

Figure 1

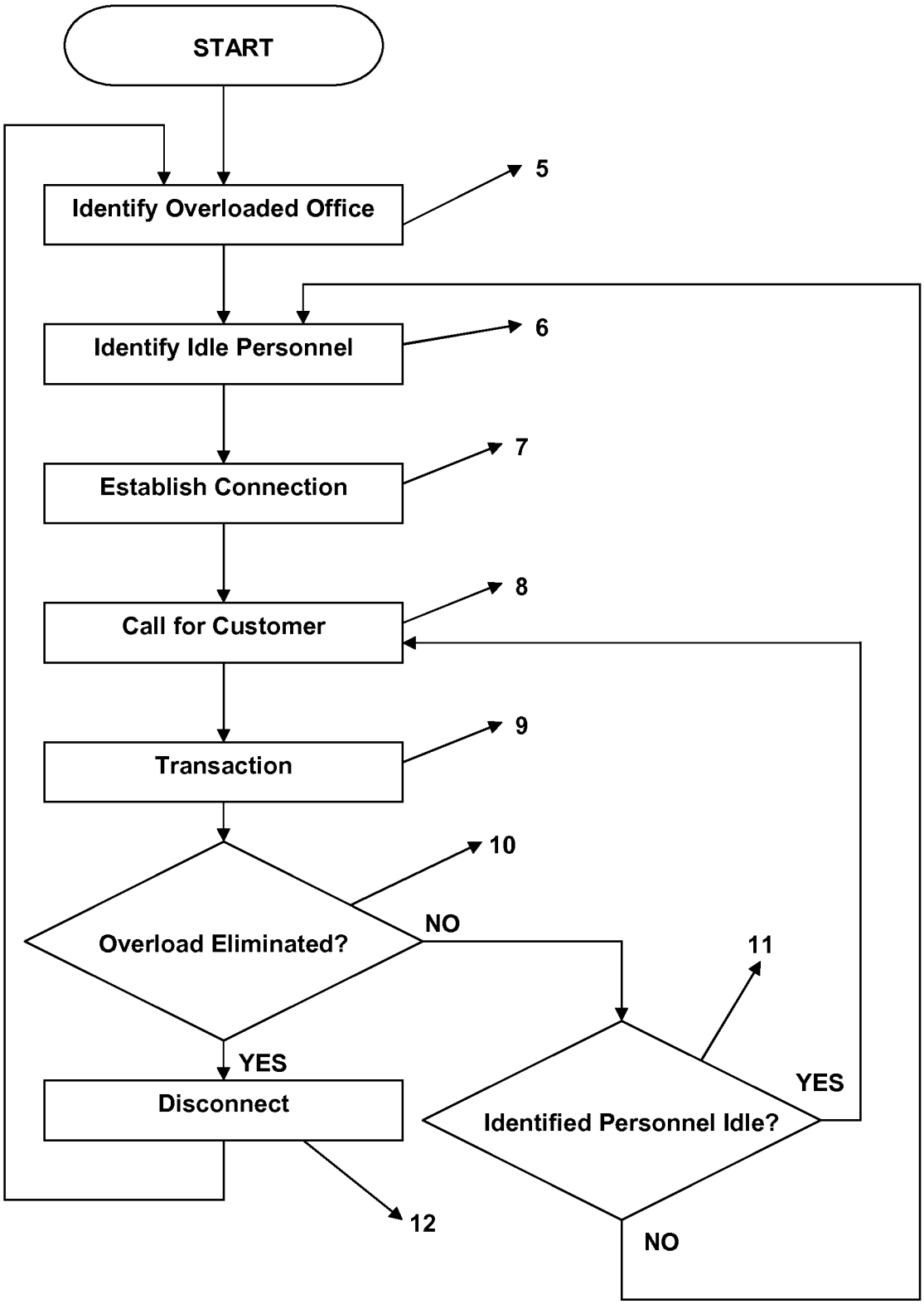
START
Identify Overloaded Office
5
Identify Idle Personnel
6
Establish Connection
7
Call for Customer
8
Transaction
9
Overload Eliminated?
10
NO
YES
Disconnect
12
Identified Personnel Idle?
11
YES
NO

Figure 2

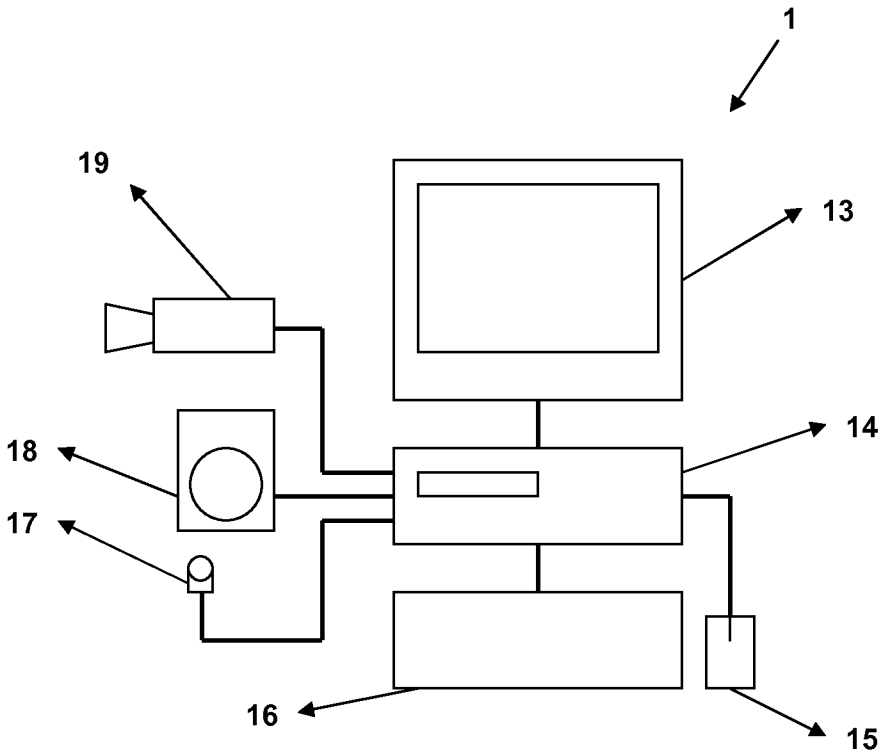

Figure 3

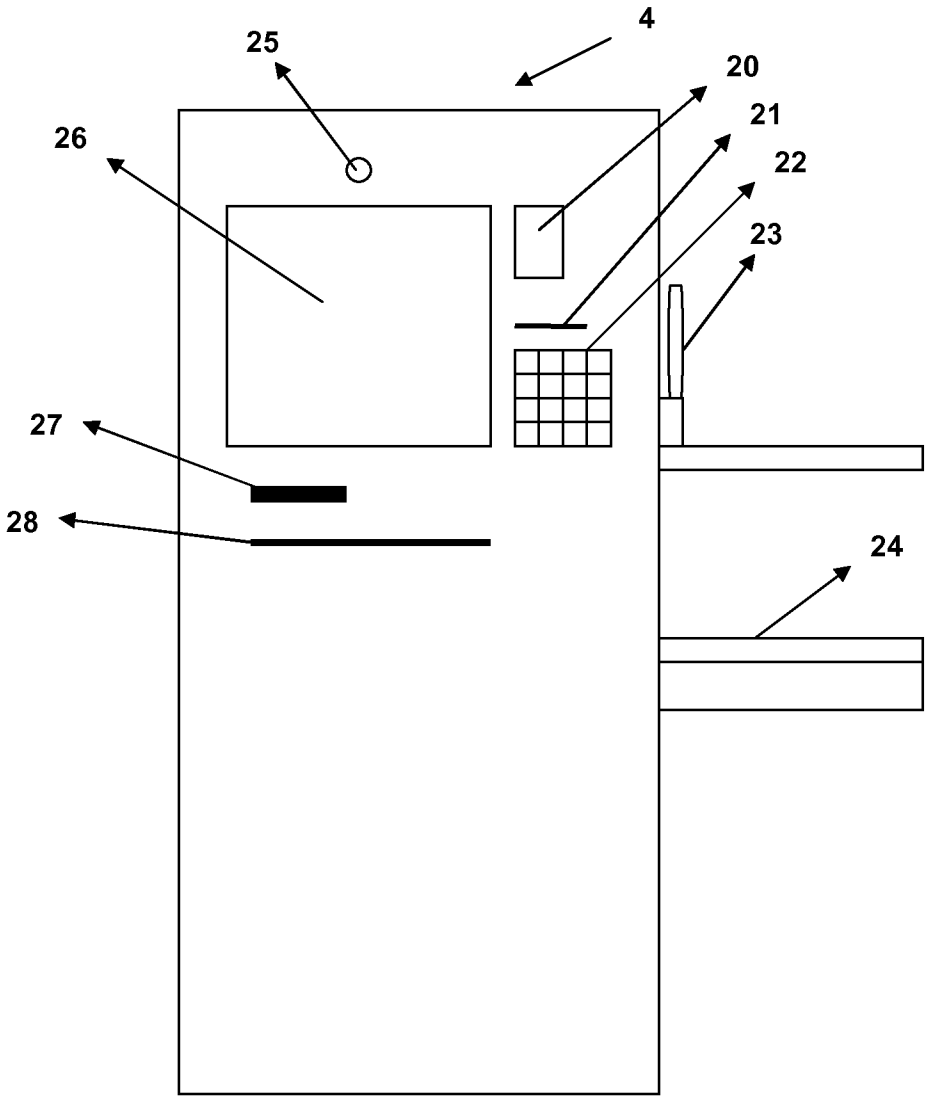

Figure 4

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2010/070400

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06Q10/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G06Q H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 774 663 A (RANDLE WILLIAM M [US] ET AL) 30 June 1998 (1998-06-30) column 4 - column 10 figures 1,2	1-24
X	WO 98/44714 A1 (COSMOCOM INC [US]) 8 October 1998 (1998-10-08) page 2 page 10 - page 17 figure 1	1-24
A	WO 2010/056215 A1 (FINTEK FINANSAL TEKNOLOJI HIZM [TR]; ARABACI ILKER [TR]) 20 May 2010 (2010-05-20) the whole document	1-24

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

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"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
22 July 2011	01/08/2011

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Spitaler, Thomas

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2010/070400

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5774663 A	30-06-1998	NONE	
WO 9844714 A1	08-10-1998	AT 509466 T	15-05-2011
		AU 744357 B2	21-02-2002
		AU 6587398 A	22-10-1998
		CA 2285905 A1	08-10-1998
		EP 0976237 A1	02-02-2000
		JP 2001519101 A	16-10-2001
		JP 4297881 B2	15-07-2009
		JP 2005245022 A	08-09-2005
		JP 2007221834 A	30-08-2007
		US 6614783 B1	02-09-2003
		US 6046762 A	04-04-2000
WO 2010056215 A1	20-05-2010	NONE	