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(54) **Title:** INTEGRATED TRANSACTION TERMINAL

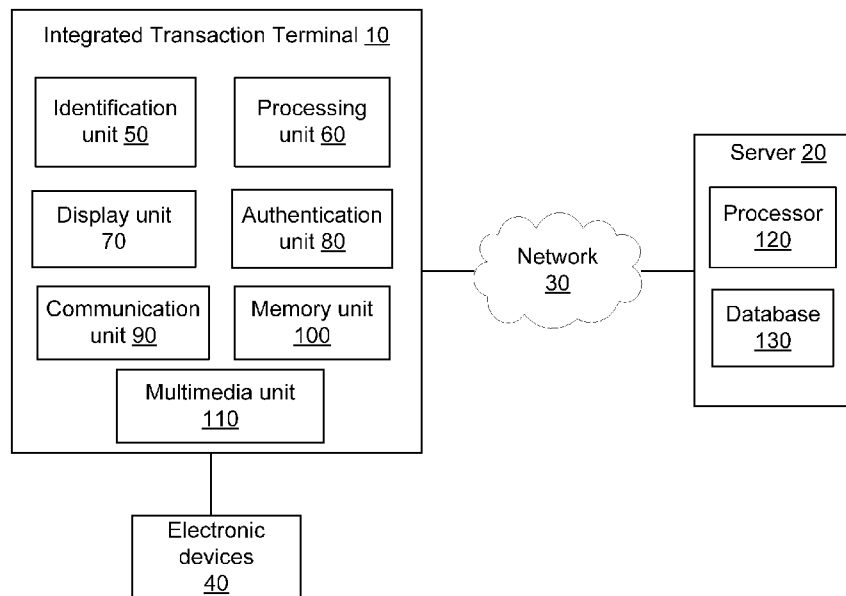


FIG. 1A

(57) **Abstract:** Embodiments of the present disclosure relate to system and method for facilitating electronic transactions on an in-
tegrated transaction terminal. In an embodiment, the integrated transaction terminal determined presence of users in a predetermined
area. Then, the user and the integrated transactional terminal are authenticated using biometric information, location information,
unique device identification etc. Finally, the payment is made by user without swiping of physical cards or other payment instru-
ments. The present disclosure related to frictionless payment method with multi- level authentication.

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“A SYSTEM AND METHOD FOR FACILITATING ELECTRONIC TRANSACTIONS ON INTEGRATED TRANSACTION TERMINAL”

CROSS-REFERENCE TO RELATED APPLICATION

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The present application claims priority to Indian patent application serial number 222/CHE/2013 filed on January 16, 2013., the entire contents of which are incorporated by this reference.

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TECHNICAL FIELD

The present disclosure relates to electronic data transactions. In particular, the present disclosure relates to performing frictionless financial transaction using an integrated transaction terminal.

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BACKGROUND

Current methodology for making payments includes electronic credit cards, debit cards, prepaid cards, gift cards, government benefit cards, etc., collectively called as electronic payment instruments. Credit and debit cards are payment methodologies which are normally allowed for payments to vendors through point of sale (POS) devices without the physical transfer of funds.

Current POS devices are normally provided with magnetic swipe card reader. The point of sales terminal reads the account information via the card swipe. The account information includes account number, expiration date etc. Further, the person using the POS device may verify a signature or a photo identification card, but relying on human diligence as a link in the authentication process of the person and the payment instrument has historically proven very weak for a number of reasons that are difficult or impossible to rectify. The present POS devices involve low security as information from the electronic payment instruments can be easily cloned and most key parameters like account number, expiry date, Card Verification Value (CVV) number, signature etc. are printed on the card. Fraud may easily arise in this model because the store clerk has limited means or motivation to accurately validate that the electronic payment instruments actually belongs to the card holder. Also, the user of POS device may misuse the details of the cards given to him. Also, carrying multiple cards becomes tedious and customer may sometimes forget to carry the cards.

Unauthorized customers may sometimes use electronic debit cards and credit cards, and the POS device provides no option to authenticate the user of the electronic debit and credit cards.

5 For these reasons, it is desirable to provide a payment system and methodology that permits payment of both large and small transaction amounts in a secure manner and which has fewer prerequisites for customers. Also, there is a need for effectively authenticating the electronic payment instruments during electronic transactions, mechanism to identify the rightful owner of the electronic payment
10 instrument, and also uniquely identify the devices, network and infrastructure and their location during the electronic transaction .

SUMMARY OF THE DISCLOSURE

15 The shortcomings of the prior art are overcome and many additional advantages are provided through the present disclosure. Additional features and advantages are realized through the techniques of the present disclosure. Other embodiments and aspects of the disclosure are described in detail herein and are considered a part of the claimed disclosure.

20 The payment system and method of the present disclosure facilitates a secured transaction by requiring authentication of the payment instruments, identity of the user and also uniquely identification of the devices, network and infrastructure used in the transaction.

25 In an embodiment, the present disclosure provides better security and better fraud management while performing transactions.

In an embodiment, the present disclosure relates to a method of facilitating
30 electronic transactions on an Integrated Transaction Terminal. The method comprises steps of determining one or more users to be in a predetermined location. Then, record of one of the one or more identified users is extracted and displayed on a display unit configured in the transaction terminal. The record comprises at least one of user unique identification, user payment instruments, and biometric information related to
35 the user and unique identification of the integrated transaction terminal. The one of the one or more identified users are selected using the extracted record. The payment

confirmation is then received from one of the one or more identified users through at least one of a motion or location capturing unit and a voice recording unit or a biometric recording unit configured in the transaction terminal. Then, the one of the one or more identified user is authenticated using biometric information, wherein the authentication is performed by an authentication module of the transaction terminal. The received payment confirmation from one of the one or more identified users is stored in a database and a communication channel is established between the transaction terminal and a server. Finally, the electronic transaction is conducted on the established communication channel using at least one of user payment instruments, unique integrated transaction terminal and user unique identification.

In one embodiment, the present disclosure relates to a system for facilitating electronic transaction on an Integrated Transaction Terminal. The system comprises an integrated transaction terminal comprising an identification unit configured to identify one or more users and their payment instruments to be in a predetermined location. The identification unit comprises at least one of NSC receiver, NFC receiver, GPS/AGPS receiver, input unit with or may comprises unique payment instrument identifier like magnetic swipe reader, contact and contact-less smart card reader, at least one form of barcode reader, and input unit etc. The integrated transaction terminal further comprises a processing unit configured to extract record of one of the one or more identified users, payment instrument, device identifier on a display unit configured to display the extracted record of one of the one or more identified users and a multimedia unit configured to capture and verify the user identity. The multimedia unit comprises at least one of voice recording unit, speaker, microphone and motion capturing unit, for example, video camera. Further, the system comprises an authentication unit configured to authenticate the one of the one or more identified users, wherein the authentication unit comprises at least one of encrypted barcode recognition unit, fingerprint recognition unit, iris recognition unit, face recognition unit and voice recognition unit. Also, the integrated transaction terminal comprises a communication unit configured to establish a communication channel between the transaction terminal and a server, wherein the communication unit comprising at least one of Wi-Fi, 3G, 4G, Ethernet and PSTN and a memory unit configured to store information. The system further comprises the server comprising a

processor communicatively connected to the processing unit of the transaction terminal to conduct electronic transaction and a database to store the information.

In one embodiment, the present disclosure relates to an integrated transaction terminal connected to a server for facilitating electronic transaction. The integrated transaction terminal comprises an identification unit configured to identify one or more users to be in a predetermined location. The identification unit comprises at least one of NSC receiver, NFC receiver and input unit. The integrated transaction terminal further comprises a processing unit configured to extract record of one of the one or more identified users, a display unit configured to display the extracted record of one of the one or more identified users, an authentication unit configured to authenticate the one of the one or more identified users, wherein the authentication unit comprises at least one of barcode reader, fingerprint reader, iris scanner, motion capturing unit, voice recording unit, a speaker and a microphone. Also, the integrated transaction terminal comprises a communication unit configured to establish a communication channel between the transaction terminal and a server, wherein the communication unit comprising at least one of Wi-Fi, 3G, 4G, Ethernet and PSTN and a memory unit configured to store information. The processing unit is configured to establish a communication channel with the server to conduct electronic transaction.

The aforementioned and other features and advantages of the disclosure will become further apparent from the following detailed description of the presently preferred embodiments, read in conjunction with the accompanying drawings. The detailed description and drawings are merely illustrative of the disclosure rather than limiting, the scope of the disclosure being defined by the appended claims and equivalents thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

The features of the present disclosure are set forth with particularity in the appended claims. The embodiments of the disclosure itself, together with further features and attended advantages, will become apparent from consideration of the following detailed description, taken in conjunction with the accompanying drawings. One or more embodiments of the present disclosure are now described, by way of

example only, with reference to the accompanied drawings wherein like reference numerals represent like elements and in which:

Fig. 1 illustrates a system for facilitating electronic transaction in accordance with an embodiment of the present disclosure;

Fig. 2A, 2B and 2C illustrate an identification unit, an input unit and communication unit of an integrated transaction terminal in accordance with an embodiment of the present disclosure;

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Fig. 3 illustrates a multimedia unit of an integrated transaction terminal in accordance with an embodiment of the present disclosure;

Fig. 4 illustrates an authentication unit of an integrated transaction terminal in accordance with an embodiment of the present disclosure;

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Figs. 5, 6 and 7 illustrate a flow-chart showing a method of facilitating electronic transaction in accordance with an embodiment of the present disclosure;

Fig. 8 illustrates an exemplary flow-chart showing a method of facilitating electronic transaction in a hospital environment accordance with an embodiment of the present disclosure; and

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Fig. 9 illustrates a detailed view of the system for facilitating electronic transaction in accordance with an embodiment of the present disclosure.

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The figures depict embodiments of the disclosure for purposes of illustration only. One skilled in the art will readily recognize from the following description that alternative embodiments of the structures and methods illustrated herein may be employed without departing from the principles of the disclosure described herein.

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DETAILED DESCRIPTION

The foregoing has broadly outlined the features and technical advantages of the present disclosure in order that the detailed description of the disclosure that follows may be better understood. Additional features and advantages of the disclosure will be described hereinafter which form the subject of the claims of the

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disclosure. It should be appreciated by those skilled in the art that the conception and specific embodiment disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present disclosure. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the disclosure as set forth in the appended claims. The novel features which are believed to be characteristic of the disclosure, both as to its organization and method of operation, together with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is to be expressly understood, however, that each of the figures is provided for the purpose of illustration and description only and is not intended as a definition of the limits of the present disclosure.

Fig. 1 illustrates a system for facilitating electronic transaction in accordance with an embodiment of the present disclosure. The system broadly comprises an integrated transaction terminal **10**, and a server **20** connected to the integrated transaction terminal **10** through a network **30**. The network **30** may comprise a public network e.g., the Internet, World Wide Web, etc. or private network e.g., local area network (LAN), etc. or combinations thereof e.g., a virtual private network, LAN connected to the Internet, etc. Furthermore, the network **30** need not be a wired network only, and may comprise wireless network elements including, but is not limiting to Wi-Fi, 3G, EDGE, as known in the art. The system also comprises one or more electronic devices **40** connectable to the integrated transaction terminal **10**. The integrated transaction terminal **10** is a device which communicates with the server **20** to facilitate electronic transaction. In an exemplary embodiment, the integrated transaction terminal **10** is present with merchant providing services to users. The integrated transaction terminal **10** can be used in establishments, including but not limited to, shops, restaurants, hospitals, college and schools. In addition, the integrated transaction terminal **10** can be portable, which shall be used to conduct transactions at the location of the customer during home delivery etc. Accordingly, the users can be customers in shops and restaurants, patients, guardian of patients in hospitals, students, parents and/or guardians of students in schools/colleges.

The integrated transaction terminal **10** can act as a conventional Point of Sale Device, or any portable electronic device including but not limited to a mobile phone, a tablet, a PDA. The portable electronic devices may or may not be connected to a dongle. In an embodiment, the dongle shall comprise the software for connecting to the server and carrying out the transaction. In an exemplary embodiment, the dongle can comprise keypad, at least one of NFC and NSC module, Magnetic Swipe Reader, smart card reader and USB. The dongle when connected to a portable electronic device can be used as an integrated transaction terminal for carrying out frictionless electronic transactions. The integrated transaction terminal **10** includes an identification unit **50**, a processing unit **60**, a display unit **70**, an authentication unit **80**, a communication unit **90**, a memory unit **100** and a multimedia unit **110**. Fig. 2C illustrates a block diagram of the communication unit **90**. The communication unit **90** includes but is not limited to the at least one of 3G/ 4G **240**, Ethernet **250**, Wi-Fi **260**, GPRS **270**, PSTN **280** and USB **290**. An example of the display unit **70** includes, but is not limited to a liquid crystal display (LCD). The electronic devices **40** include, but are not limited to mobile phones, smart card and Near Field Communication (NFC) card. Further, the server **20** comprises a computing unit, for example, a processor **120** to process payments in communication with the integrated transaction terminal **10** and a database **130** to store information including but not limited to user credentials, payment transaction details. For the purpose of convenience, the database **130** of the server **20** and memory unit **100** of the integrated transaction terminal **10** are alternatively termed as storage unit. An example of the storage unit includes, but is not limited to, a Random Access Memory (RAM). In some embodiments, the storage unit can refer to database **130** and in other embodiments, the storage unit can refer to memory unit **100**. Further, the term storage unit can be a machine-readable medium, which can be defined as a medium providing data to a machine to enable the machine to perform a specific function. All such medium must be tangible to enable the instructions carried by the medium to be detected by a physical mechanism that reads the instructions into the machine.

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Fig. 2A illustrates an identification unit **50** of the integrated transaction terminal **10** in accordance with an embodiment of the present disclosure. The identification unit **50** determines presence of one or more user in a predetermined location like an establishment. The identification unit **50** comprises a Near Sound

Communication (NSC) receiver **200**, a Near Field Communication (NFC) receiver **210**, an input unit **220**, and GPS/AGPS receiver **230**. As illustrated in Fig. 2B, The input unit **220** comprises unique payment instrument identifiers like magnetic swipe card reader **222**, barcode reader **224**, contact smart card reader **226**, and contactless smart card reader **228**. In an embodiment, user has an electronic device **40** with NSC application. When user enters a predetermined location, the NSC receiver **200** of identification unit **50** communicates with the NSC application of the electronic device **40** using sound waves. The NSC receiver **200** then identifies the user based on unique NSC identification of the electronic device **40**.

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In another embodiment, the user has an electronic device **40** with NFC application. The electronic device **40** with NFC application is tapped on the NFC receiver **210** of the integrated transaction terminal **10**. The integrated transaction terminal **10** establishes radio communication with the electronic device **40** and the user of the electronic device **40** is identified.

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In another embodiment, the user provides unique identification to be entered on the input unit **220** of the integrated transaction terminal **10**. As an example, the input unit **220** can be a keypad. For example, the keypad may be a tactile keypad, or QWERTY keypad, or Touch Screen keypad. The unique identification of the user includes but is not limiting to unique Identification Number, device ID of the user, telco ID, Mobile Subscriber Integrated Services Digital Network Number (MSISDN) number, mobile number and subscriber ID. Upon entering the unique identification on the input unit **220**, the user is identified by extracting record of the user.

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In addition, the user can be identified by at least one of barcode and fingerprint of the user using a barcode recognition unit **400** and a fingerprint recognition unit **410**. For example, when the user enters an establishment, the user provides an input of barcode printed on the electronic device **40** or displayed on screen of the electronic device **40**. The barcode recognition unit **400** identifies the user and extracts record of the user. Similarly, when the user enters an establishment, the user provides an input of fingerprint. The fingerprint recognition unit **410** identifies the user based on the input and extracts record of the user.

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In another embodiment, the user is identified with at least one of the Global Positioning System (GPS), Wi-Fi, Assisted Global Positioning System (AGPS). When the user enters a predetermined location, the identification unit **50** communicates with the electronic device **40** of the user using signals received from at least one of GPS, AGPS and Wi-Fi. The identification unit **50** then identifies the user based on the signals received from the electronic device **40**. In an exemplary embodiment, the GPS application in the electronic device **40** transmits GPS coordinates which are detected by the GPS/AGPS receiver **230** of the identification unit **50**. In another exemplary embodiment, the Wi-Fi application in the electronic device **40** transmits the range of the Wi-Fi network, which is detected by communication unit **90** of the integrated transaction terminal **10** etc.

Further, the user can be identified by a unique payment instrument identifier like card reader **222**, **226**, **228** or a barcode reader **224**. The card reader can be any reader including but not limiting to magnetic swipe card reader **222**, contact smart card reader **226** and contactless smart card reader **228** etc. When a user enters an establishment and arrives at the payment counter, the user can be identified using any of the devices being carried by the user like magnetic swipe cards, smart cards, electronic device comprising a unique barcode or payment instruments comprising a unique barcode etc.

Fig. 3 illustrates the multimedia unit **110** of the integrated transaction terminal **10** in accordance with an embodiment of the present disclosure. The multimedia unit **110** of the integrated transaction terminal **10** is configured to capture identity of a user. The multimedia unit **110** comprises a voice recording unit **300**, a speaker **310**, a microphone **320** and a motion capturing unit **330**. For example, the motion capturing unit **330** is a video camera.

Fig. 4 illustrates the authentication unit **80** of the integrated transaction terminal **10** in accordance with an embodiment of the present disclosure. The authentication unit **80** authenticates the users before initializing the payment transaction. Also, the authentication unit **80** authenticates the device of the merchant which receives the payment from the user, i.e. the integrated transaction terminal **10**. The authentication unit **80** can verify at least one of barcode assigned to the user, location of the user, fingerprint, IRIS, voice and face of the user. The authentication

unit **80** comprises a encrypted barcode recognition unit **400**, a fingerprint recognition unit **410**, a voice recognition unit **420**, an IRIS recognition unit **430**, a face recognition unit **440** and a device fingerprint unit **450**.

5 In an embodiment, the device fingerprinting unit **450** uses unique identification number of semiconductor chips in a device and generates a unique fingerprint number (also referred to as unique device ID) for the device. The server authenticates the transactions being carried out from the device using the generated unique device ID. Now, a general payment transaction scenario is explained, which
10 makes use of aforesaid modules. These modules work with each other to authenticate and approve the transaction. In the following paragraph inter-relation between these modules are explained with help of an exemplary embodiment. However, this embodiment should not be construed as limitation on the present disclosure. The process begins when the user visits the establishments like shops, restaurants etc for
15 the first time, the user is registered with the establishment. The registration comprises entering of the user details in the database **130** or the memory unit **100**. The details of the users including biometric information and other unique identification are stored in the database **130** or the memory unit **100**. The details can include but is not limiting to, name, mobile number, barcode and other unique identifications like MSISDN
20 number, telco number and subscription number. Further, the user details can also include biometric information including but not limited to face, IRIS, fingerprint, and voice. When a user enters a predetermined area or a location, the identification unit **50** determines the presence of the user. Once the presence of users is determined, the identification unit **50** communicates with the processing unit **60** of the integrated
25 transaction terminal **10** to extract the details of the determined users. The processing unit **60** either extracts the details of the determined users locally from the memory unit **100** of the integrated transaction terminal **10**. In the alternative, if the user details are not present in the memory unit **100**, the processing unit **60** extracts the details of the determined users remotely from the database **130** by communicating with the
30 server **20**. The processing unit **60** receives the details from at least one or memory unit **100** and the database **130** and displays the received data on the display unit **70** of the integrated transaction terminal **10**. Based on the requirement, one of the users is selected from the displayed list of users on the display unit **70**. In an embodiment, the input unit **220** in the identification unit **50** is used to select a user from the displayed

list of users. The input unit can be a keypad or a touch screen. Once the user is selected, payment confirmation is received from the user by the multimedia unit **110**. The confirmation can be a verbal confirmation or a pictorial confirmation of the user willing to make the payment. The multimedia unit **110** then transmits the confirmation to processing unit **60** which stores the confirmation in the memory unit **100** or the database **130**. Further, at least one type of unique identification of the user is captured using the multimedia unit **110** and/or the authentication unit **80**. The unique identification includes but is not limited to face, IRIS, voice, fingerprint, barcode etc. As soon as the unique identification is captured, the processing unit **60** receives the captured input and instructs the authentication unit **80** to compare the captured identification with information of user stored in at least one of the memory unit **100** and the database **130**. The authentication unit **80** performs the comparison and provides results. In addition, the authentication unit **80** authenticates the unique device ID and location ID of the device from which user makes the payment. Also, in an embodiment, the authentication unit **80** authenticates the unique device ID and location ID of the integrated transaction terminal **10** through which the payment is received from user. The location of the electronic device **40** and the integrated transaction terminal **10** is identified using GPS/AGPS receiver **230**. If the authentication is successful, the processing unit **60** establishes a communication channel with the server **20** and conducts transaction on the established communication channel. Additionally, the transaction details are stored in the database **130** by the processing unit **60**.

Figs. 5, 6 and 7 illustrate a flow-chart showing a method of facilitating electronic transaction in accordance with an embodiment of the present disclosure. As illustrated in **Fig. 5**, the user enters a predetermined area/location, for example, a shop, a restaurant etc at **step 500**. Then, the integrated transaction terminal **10** determines presence of the one or more users in the predetermined area at **step 502**. Upon determining the one or more users to be in the predetermined area, the record of the one or more users is extracted and displayed on the display unit **70** of the integrated transaction terminal **10** at **step 504**. In an embodiment, the display unit **70** displays name of the one or more users along with their photographs. When one of the one or more determined users is ready for payment, the user is identified using the photograph of the user displayed on the integrated transaction terminal **10** at **step 506**.

Upon identifying the user, payment confirmation is received from the identified user at **step 508**. In an embodiment, a verbal payment confirmation can be received from the user through the microphone **320** configured in the multimedia unit **110** and stored in storage unit using voice recording unit **300**. In another embodiment, photo of the user is captured using the motion capturing unit **330** and stored along with time stamp in the storage unit. The user is then authenticated using at least one biometric information of the user including but not limited to voice, face, fingerprint and IRIS at **step 510**. In an embodiment, at least one biometric information of the user is captured using devices including but not limited to voice recording unit **300**, motion capturing unit **330**, barcode recognition unit **400**, fingerprint recognition unit **410**, IRIS recognition unit **430**, and face recognition unit **440**. When at least one biometric information is captured, the information is automatically processed by the processing unit **60** of the integrated transaction terminal **10**. Upon detecting input of biometric information, the processing unit **60** compares the input biometric information with the biometric information stored in the storage unit. Upon comparison, the processing unit provides appropriate results. If the authentication is successful, a communication channel is established between the integrated transaction terminal **10** and the server **20** at **step 512** and transaction is conducted over the channel at **step 514**. Lastly, the transaction details are stored along with the payment confirmation in the database **130** of the server **20** at **step 516**.

Fig. 6 illustrates an exemplary method of facilitating electronic transaction in accordance with an embodiment of the present disclosure. As illustrated in **Fig. 6**, users enter a predetermined area at **step 600**. In this embodiment, the user has an electronic device **40** configured with NSC application at **step 602**. The NSC receiver **200** of the integrated transaction terminal **10** determines the presence of user based on unique NSC identification of the electronic device **40** at **step 604**. When the NSC identification of the user is matched with the NSC identification stored in the storage unit, the record of the user is extracted from the storage unit and displayed on the display unit **70** of the integrated transaction terminal **10** at **step 606**. In an embodiment, name and photo of the user is displayed on the display unit **70**. Then, a user wishing to make payment is selected from the one or more users displayed on the display unit **70** at **step 608**. Confirmation of payment is received from the selected user and stored in at least one of memory unit **100** or database **130** at **step 610**. In an

embodiment, a verbal payment confirmation can be received from the user through the microphone **320** configured in the multimedia unit **110** and stored in storage unit using voice recording unit **300**. In another embodiment, photo of the user is captured using the motion capturing unit **330** and stored along with time stamp in the storage unit. Upon receiving payment conformation, authentication of the user is performed using biometric information at **step 612**. The authentication is performed using at least one of a barcode recognition unit **400**, a fingerprint recognition unit **410**, a voice recognition unit **420**, an IRIS recognition unit **430** and a face recognition unit **440**. The user may be authenticated by matching at least one of face, fingerprint, voice, IRIS of the user and barcode associated with the user. In an exemplary embodiment, if the face and voice of the user has a 70% match with the face and voice of the user stored in the storage unit, then authentication is successful at **step 614**. If the authentication is successful, a communication channel is established, and transaction is conducted on the established channel at **step 616**. Finally, the transaction details are stored along with payment confirmation received from the user at **step 618**. In the alternative, if the matching index is less than 70% for any of the biometric information, then the payment is rejected by the integrated transaction terminal **10** at **step 620**. However, the merchant may opt to reject the transaction or accept the transaction manually at **step 622**. Accepting the transaction may however involve some risk as the user is not authenticated properly.

Fig. 7 illustrates an exemplary method of facilitating electronic transaction in accordance with an embodiment of the present disclosure. As illustrated in **Fig. 7**, user enters a predetermined area at **step 700**. In this embodiment, the user provides unique identification to the merchant. The unique identification is entered on the integrated transaction terminal **10** at **step 702**. In an exemplary embodiment, the unique identification can include but not limited a unique identification number, device ID of the user, telco ID, MSISDN number, mobile number and subscriber ID of the user. The integrated transaction terminal **10** extracts the record of the user based on the unique identification and displays the record on the display unit **70** of the integrated transaction terminal **10** at **step 704**. In an embodiment, name and photo of the user is displayed on the display unit **70**. Confirmation of payment is received from the selected user and stored in the storage unit. In an embodiment, a verbal payment confirmation can be received from the user through the microphone **320** configured in

the multimedia unit **110** and stored in storage unit using voice recording unit **300**. In another embodiment, photo of the user is captured using the motion capturing unit **330** and stored along with time stamp in the storage unit. The capturing of photo or recording the verbal payment confirmation ensures non-repudiation. The user cannot dispute, at later point of time, having conducted the transaction. Upon receiving payment confirmation, authentication of the user is performed using biometric information at **step 710**. The authentication is performed using at least one of a barcode recognition unit **400**, a fingerprint recognition unit **410**, a voice recognition unit **420**, an IRIS recognition unit **430** and a face recognition unit **440**. The user may be authenticated by matching at least one of face, fingerprint, voice, IRIS of the user and barcode associated with the user. In an exemplary embodiment, if the face of the user has at least 70% match with the face of the user stored in the storage unit, then authentication is successful at **step 712**. Also, if the fingerprint of the user has a 100% match with the fingerprint of the user stored in the storage unit, then authentication is successful. If the authentication is successful, a communication channel is established, and transaction is conducted on the established channel at **step 714**. Finally, the transaction details are stored along with payment confirmation received from the user at **step 716**. In the alternative, if the matching index is less than 70% for any of the biometric information, then the transaction is rejected by the integrated transaction terminal **10** at **step 718**. However, the merchant may opt to reject the transaction or accept the transaction manually at **step 720**. Accepting the transaction may however involve some risk as the user is not authenticated properly.

Fig. 8 illustrates an exemplary flow-chart showing a method of facilitating electronic transaction in a hospital establishment accordance with an embodiment of the present disclosure.

In this exemplary embodiment, when a patient visits hospital, the hospital provides a band with unique patient ID at **step 800**. This unique patient ID can be a unique barcode which is an example of user unique identification. When daily rounds are performed, the nurse scans the unique barcode on the band using the integrated transaction terminal **10** at **step 802**. Upon scanning the barcode, the record of the patient, i.e. patient history is displayed on the display unit **70** of the integrated transaction terminal **10**. Based on the patient record, appropriate medical tests are

prescribed by the nurse at **step 804**. In an embodiment, the processing unit **60** of the integrated transaction terminal **10** comprises an application to identify the medical tests required for different problems of patient. Once the medical tests are prescribed, the display unit **70** of the integrated transaction terminal **10** displays the amount for the prescribed tests at **step 806**. The patient then chooses to pay for the tests using at least one of mobile wallet, debit card, credit card etc at **step 808**. The patient details are then updated in the storage unit at **step 810** and an appointment is scheduled for the patient for taking medical tests at **step 812**.

Once the tests are taken, the doctor views the report of the patient on the integrated transaction terminal **10** at **step 814**. In an embodiment, the doctor uses the application in the processing unit **60** of integrated transaction terminal **10** to prescribe medicines at **step 816**. The integrated transaction terminal **10** displays total amount for the prescribed medicines on the display unit **70** at **step 818**. Again, the patient chooses to pay for the tests using at least one of mobile wallet, debit card, credit card etc at **step 820**. Upon payment, the medicines are delivered to the patient at **step 822**. Finally, the details of the patient are updated in the storage unit at **step 824**.

This exemplary embodiment allows the processing in hospitals to be simplified. The patient is not required to stand in queues for making payment, buying medicines, for medical tests etc. the doctors and nurses will come to patient room and finish all the procedures. Similarly, the method of the present invention can be applied to retail stores, restaurants and other establishments.

Fig. 9 illustrates a detailed view of the system for facilitating electronic transaction in accordance with an embodiment of the present disclosure. The figure illustrates all the components of the system for facilitating electronic transaction. In addition to the components illustrated in Fig. 1, the integrated transaction terminal **10** comprises a user space programming and configuration interface. The interface may include but is not limited to Java Virtual Machine (JVM) or similar Software Development Environment or Compiled Software or Interpreter environment, Application Programming Interface (API's), web server and messaging interface. The user space programming and configuration provides application for maintaining inventory and accounting ledger, and performing taxation and billing. Further, the

interface comprises application specific suites for different verticals including but not limited to grocery store, hospital, restaurant, campus management.

Further, for processing the payment, the integrated transaction terminal **10** comprises a payment acceptance interface. The interface comprises a magnetic slot reader, on which payments can be accepted by swiping debit cards, credit cards etc. The payment acceptance interface also provides for mobile payment. The mobile payment can be done by using 4G encrypted messaging, Internet, encrypted Short Messaging Service (SMS), General Packet Radio Service (GPRS) or mobile OTA-Wallet server.

This written description uses examples to disclose the invention, including the best mode, and also to enable any person skilled in the art to practice the invention, including making and using any devices or systems and performing any incorporated methods. The patentable scope of the invention is defined by the claims, and may include other examples that occur to those skilled in the art. Such other examples are intended to be within the scope of the claims if they have structural elements that do not differ from the literal language of the claims, or if they include equivalent structural elements with insubstantial differences from the literal languages of the claims.

Claims:

1. A method of facilitating electronic transactions on an Integrated Transaction Terminal, the method comprising steps of:
 - 5 determining one or more users to be in a predetermined location;
extracting record of one of the one or more determined users and displaying the extracted record on a display unit configured in the transaction terminal, wherein the record comprises at least one of user unique identification, user payment instruments, and biometric information related to the user;
 - 10 identifying the one of the one or more determined users using the extracted record;
receiving payment confirmation from one of the one or more identified users through at least one of a motion capturing unit and a voice recording unit configured in the transaction terminal;
 - 15 authenticating the one of the one or more identified user using biometric information and unique device ID and location ID of the user, wherein the authentication is performed by an authentication module of the transaction terminal;
authenticating the unique device ID and location ID of the integrated transaction terminal by the authentication module of the integrated transaction terminal;
 - 20 storing the received payment confirmation from one of the one or more identified users in a database and establishing a communication channel between the transaction terminal and a server; and
 - 25 conducting the electronic transaction on the established communication channel using at least one of user payment instruments and user unique identification.
2. The method as claimed in claim 1 further comprising storing the electronic transaction corresponding to the stored payment confirmation on at least one
30 of a memory unit of the Integrated Transaction Terminal and the database.
3. The method as claimed in claim 1, wherein identifying the one or more users is performed by at least one of Near Sound Communication (NSC), Near Field
35 Communication (NFC), Global Positioning System (GPS), Assisted Global

Positioning System (AGPS), card reader, barcode reader and manually using unique identification of the user.

4. The method as claimed in claim 1, wherein the record is extracted from at least one of an electronic device, memory unit of the transaction terminal and database of the transaction server.
5. The method as claimed in claim 1, wherein authenticating the one of the one or more identified users comprises:
 - 10 capturing biometric information of the one of the one or more identified users in the transaction terminal; and
 - comparing the captured biometric information with the extracted record of the one of the one or more identified users.
- 15 6. The method as claimed in claim 1, wherein authenticating the one of the one or more identified users comprises:
 - identifying the unique device ID and location ID of the device of the user;
 - 20 verifying the identified unique device ID and location ID of the device of the user.
7. The method as claimed in claim 1, wherein authenticating the integrated transaction terminal comprises:
 - 25 identifying the unique device ID and location ID of the integrated transaction terminal;
 - verifying the identified unique device ID and location ID of integrated transaction terminal.
8. The method as claimed in claim 1, wherein the biometric information is selected from at least one of voice data, fingerprint, user image and iris image of the user.
- 30 9. The method as claimed in claim 1, wherein the user unique identification is selected from a group comprising unique Identification Number, device ID of the user, telco ID, MSISDN number, mobile number and subscriber ID.
- 35

10. The method as claimed in claim 1, wherein the communication channel between the transaction terminal and the server is established using at least one of WiFi, GPRS, 3G, 4G, USB, Ethernet and Public Switching Transmission Network (PSTN).
- 5 11. The method as claimed in claim 1, wherein storing the confirmation from the one of the one or more identified users comprises at least one of recording voice of the user and capturing an image of the user with date and time during the payment confirmation.
- 10 12. The method as claimed in claim 1, wherein the transaction terminal transmits offer and discount information to the users based on behaviour of the users and transactions carried out by the users.
- 15 13. A system for facilitating electronic transaction on an Integrated Transaction Terminal, said system comprising:
an integrated transaction terminal comprising:
an identification unit configured to identify one or more users to be in a predetermined location, wherein the identification unit
20 comprises at least one of NSC receiver, NFC receiver, GPS/AGPS receiver, and input unit;
a processing unit configured to extract record of one of the one or more identified users;
a display unit configured to display the extracted record of one
25 of the one or more identified users, wherein the display unit enables user of the Integrated Transaction Terminal to visually identify the one or more user identity;
a multimedia unit configured to capture user identity, wherein the multimedia unit comprises at least one of voice recording unit,
30 speaker, microphone and motion capturing unit wherein the motion capturing unit is configured as one of camera and face recording unit;
an authentication unit configured to authenticate the one of the one or more identified users and the integrated transaction terminal ,
35 wherein the authentication unit comprises at least one of encrypted

barcode recognition unit, fingerprint recognition unit and iris recognition unit, face recognition unit ,voice recognition unit and device fingerprint unit;

5 a communication unit configured to establish a communication channel between the transaction terminal and a server, wherein the communication unit comprising at least one of WiFi, GPRS, 3G, 4G, Ethernet, USB and PSTN; and

a memory unit configured to store information,
the server comprising:

10 a processor communicatively connected to the processing unit of the transaction terminal to conduct electronic transaction; and
a database to store the information.

14. The system as claimed in claim 13, wherein the transaction terminal is
15 communicatively connected to an electronic device, said electronic device is associated with a user.

15. The system as claimed in claim 14, wherein the electronic device comprises at least one of smart card, NFC card and mobile phone.

20 16. The system as claimed in claim 13, wherein a mobile phone with a dongle is configured to function as the Integrated transaction terminal, wherein the mobile phone comprises the authentication unit, the processing unit, the display unit, the multimedia unit, a keypad interface and a memory unit,
25 wherein the dongle comprises the identification unit, input unit and the communication unit.

17. The system as claimed in claim 13, wherein information comprises at least one of list of users identified, record of user, and data relating to the electronic
30 transaction.

18. The system as claimed in claim 13, wherein the input unit comprises unique payment instrument identifiers selected from at least one of magnetic swipe card reader, barcode reader, chip card reader, contact smart card reader, and
35 contactless smart card reader.

19. The system as claimed in claim 13, wherein the input unit is a keypad unit of the integrated transaction terminal.
- 5 20. The system as claimed in claim 13, wherein the integrated transaction terminal is configured to perform as Point of Sale (POS) device.
21. An integrated transaction terminal connected to a server for facilitating electronic transaction, the integrated transaction terminal comprises:
- 10 an identification unit configured to identify one or more users to be in a predetermined location;
- a processing configured to extract record of one of the one or more identified users;
- a display unit configured to display the extracted record of one of the
- 15 one or more identified users;
- a multimedia unit configured to capture user identity, wherein the multimedia unit comprises at least one of voice recording unit, speaker, microphone and motion capturing unit;
- an authentication unit configured to authenticate the one of the one or
- 20 more identified users and the integrated transaction terminal, wherein the authentication unit comprises at least one of encrypted barcode recognition unit, fingerprint recognition unit and iris recognition unit, device fingerprint unit, face recognition unit and voice recognition unit;
- a communication unit configured to establish a communication channel
- 25 between the transaction terminal and a server, wherein the communication unit comprising at least one of WiFi, GPRS, 3G, 4G, Ethernet, USB and PSTN;
- and
- a memory unit configured to store information,
- wherein the processing unit is configured to establish a communication
- 30 channel with the server to conduct electronic transaction.
22. The integrated transaction terminal as claimed in claim 21 comprises at least one of NSC receiver, NFC receiver, GPS receiver, AGPS receiver, and input unit for inputting the unique identification of the user.

23. The integrated transaction terminal as claimed in claim 22, wherein the input unit comprises unique payment instrument identifiers selected from at least one of magnetic swipe card reader, barcode reader, contact smart card reader, and contactless smart card reader.
24. The integrated transaction terminal as claimed in claim 22, wherein the input unit is a keypad unit of the integrated transaction terminal.
25. The integrated transaction terminal as claimed in claim 21, wherein a mobile phone with a dongle is configured to function as the Integrated transaction terminal, wherein the mobile phone comprises the authentication unit, the processing unit, the display unit, the multimedia unit, a keypad interface and a memory unit, wherein the dongle comprises the identification unit, input unit and the communication unit.
26. The integrated transaction terminal as claimed in claim 21 is assigned with unique device ID
27. The integrated transaction terminal as claimed in claim 21, wherein the display unit is selected from at least one of Liquid Crystal Display (LCD), Light Emitting Diode display (LED), and Organic Light Emitting Diode (OLED) .
28. The integrated transaction terminal as claimed in claim 21 is a portable device.

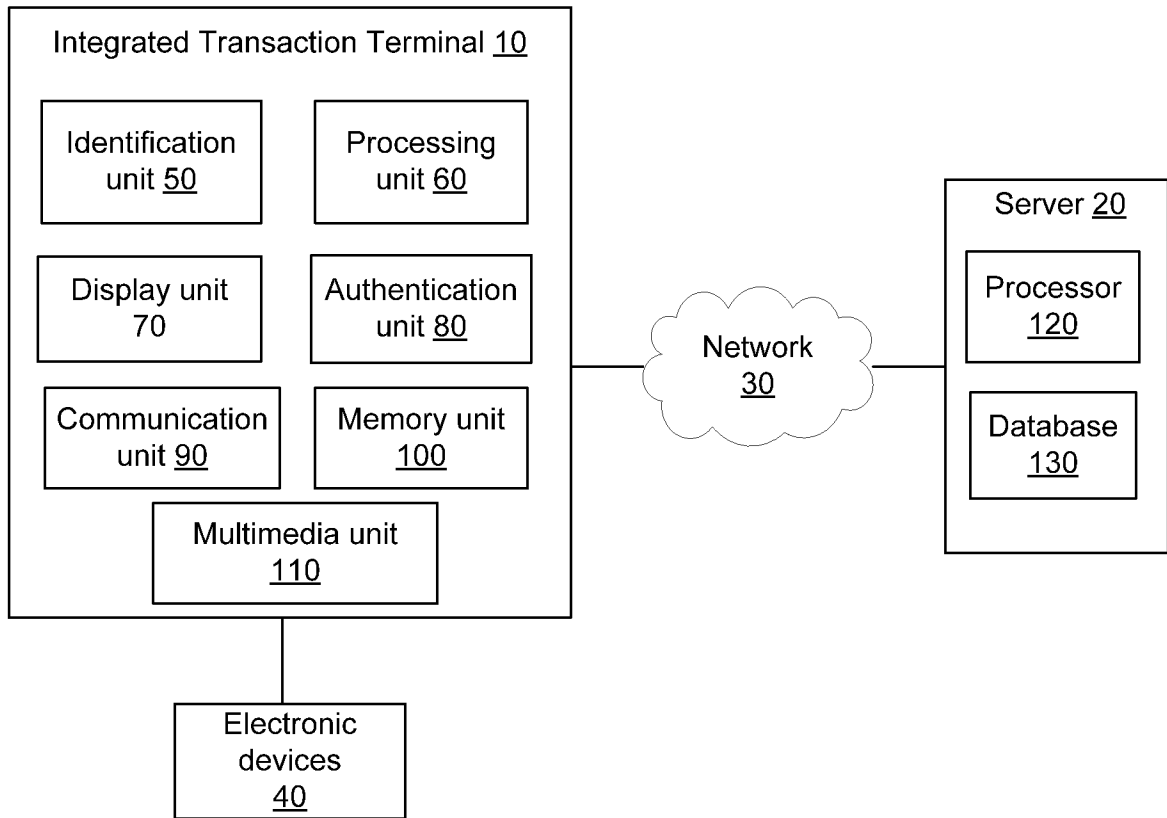


FIG. 1A

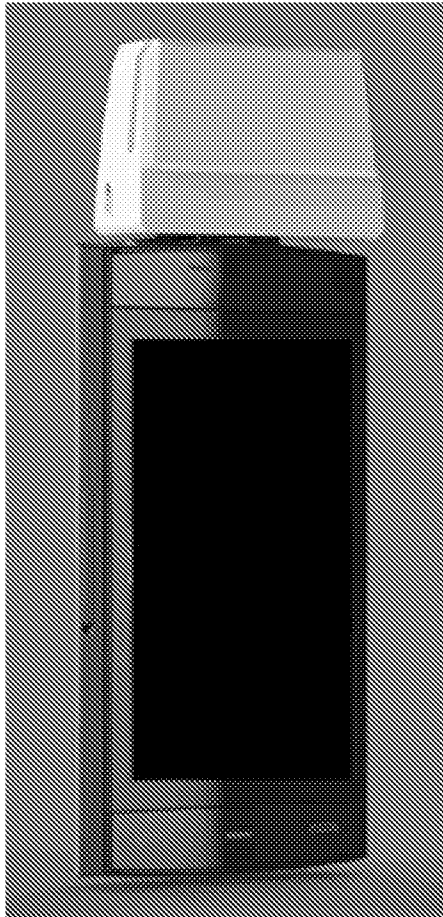


FIG. 1B

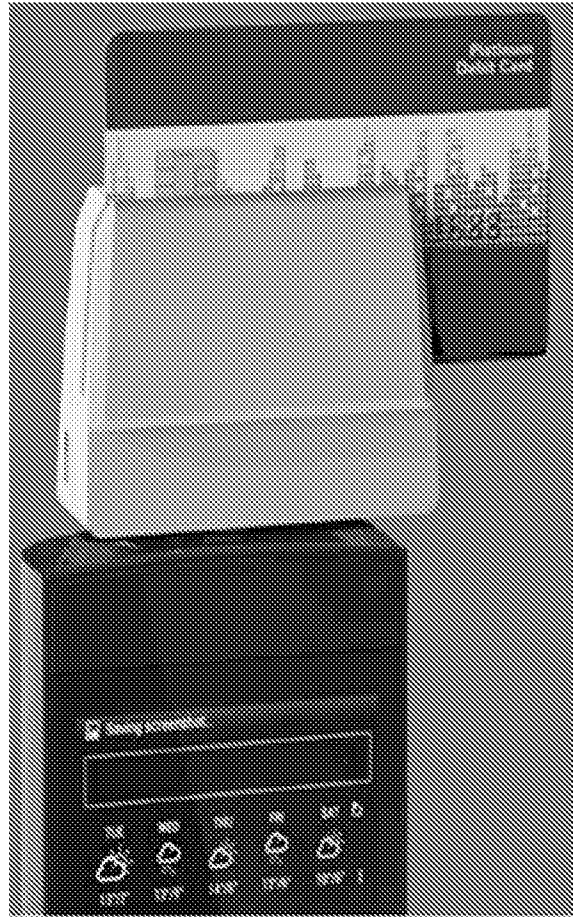


FIG. 1C

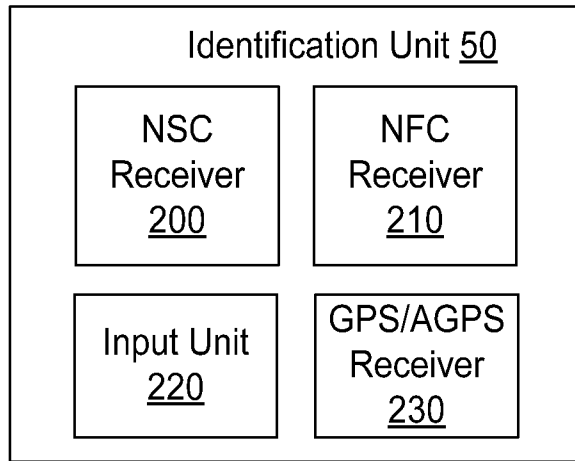


FIG. 2A

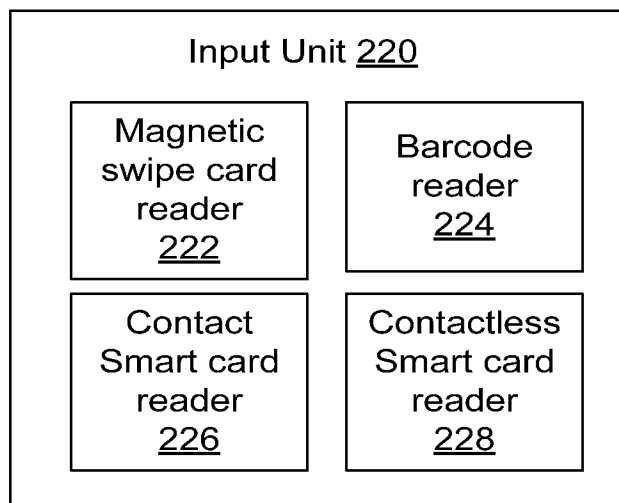


FIG. 2B

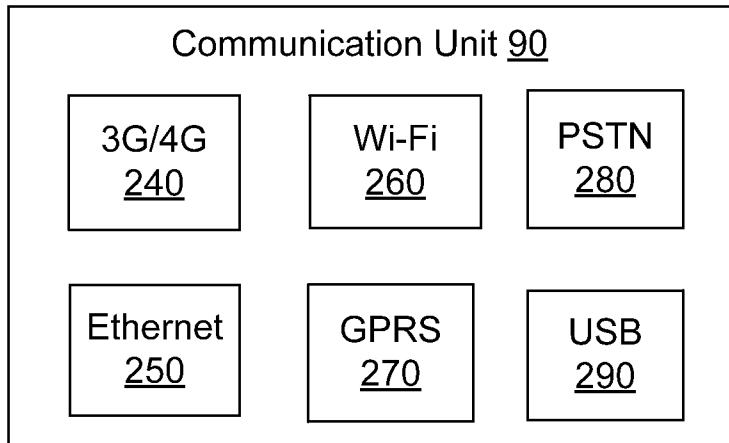


FIG. 2C

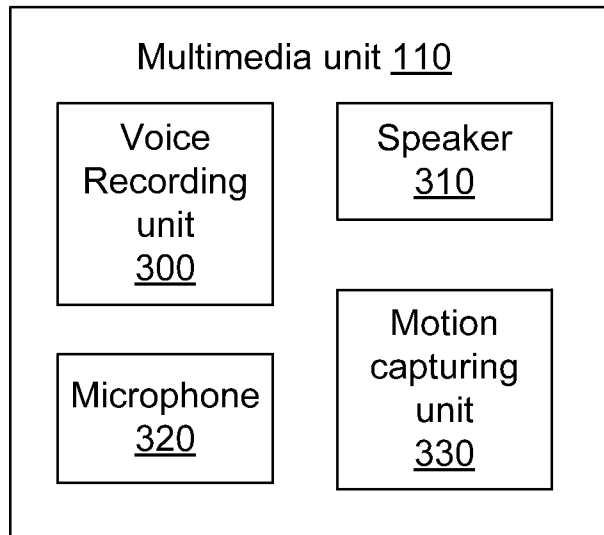


FIG. 3

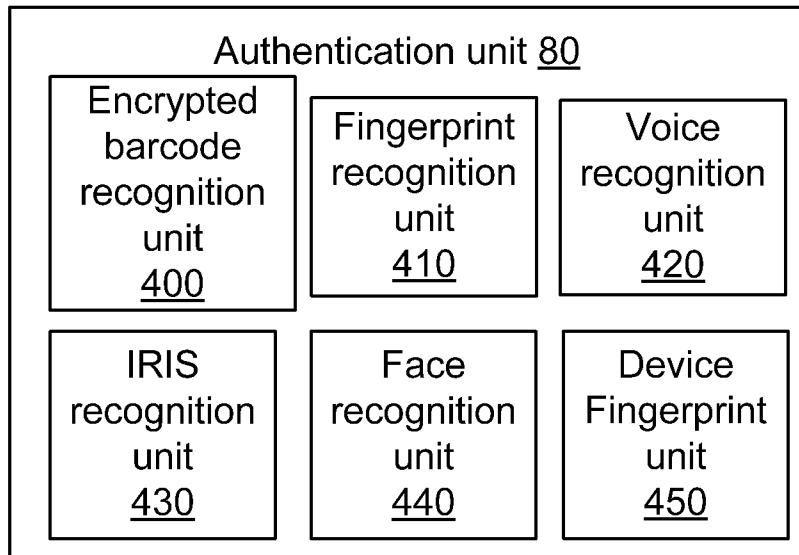


FIG. 4

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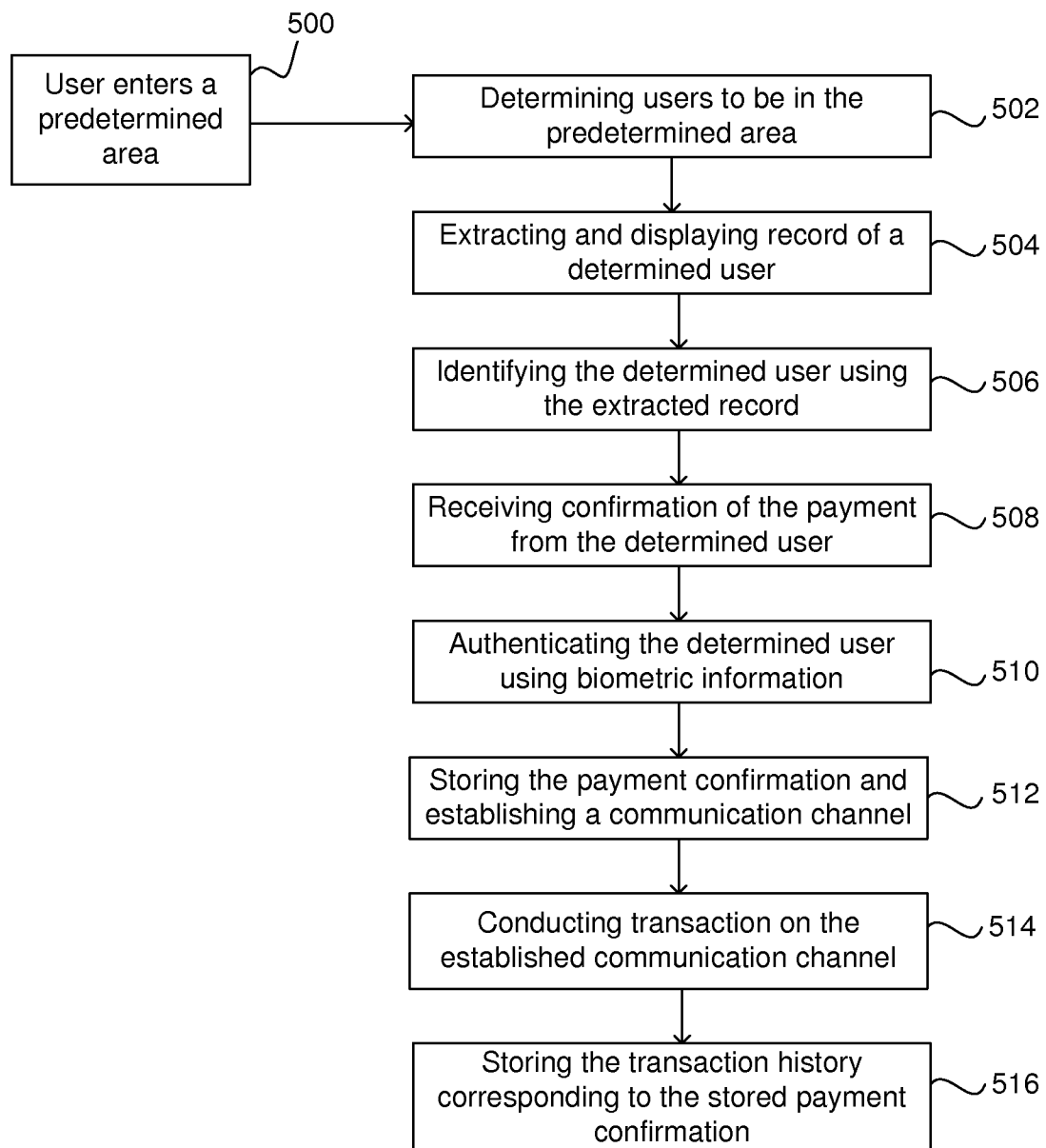


FIG. 5

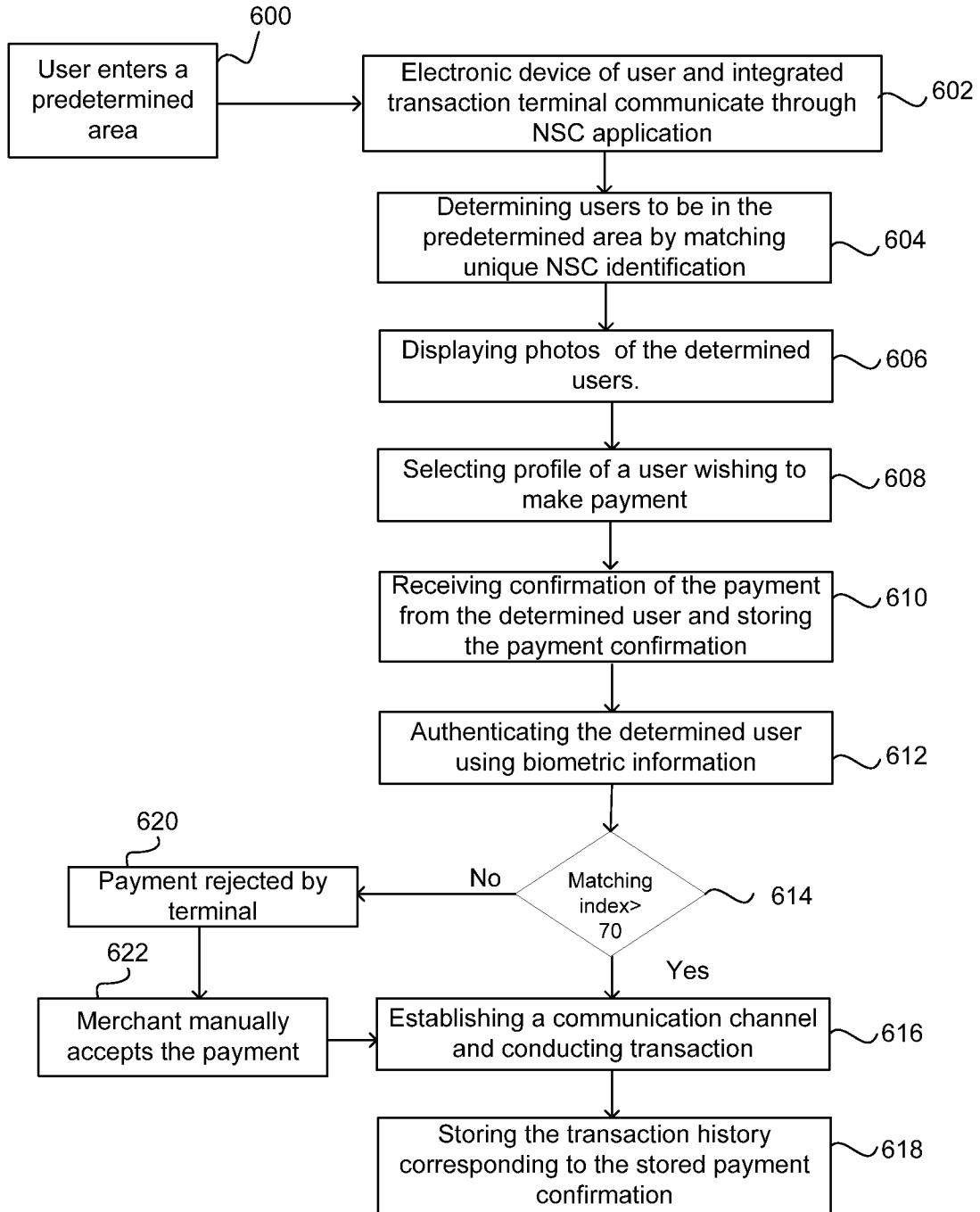


FIG. 6

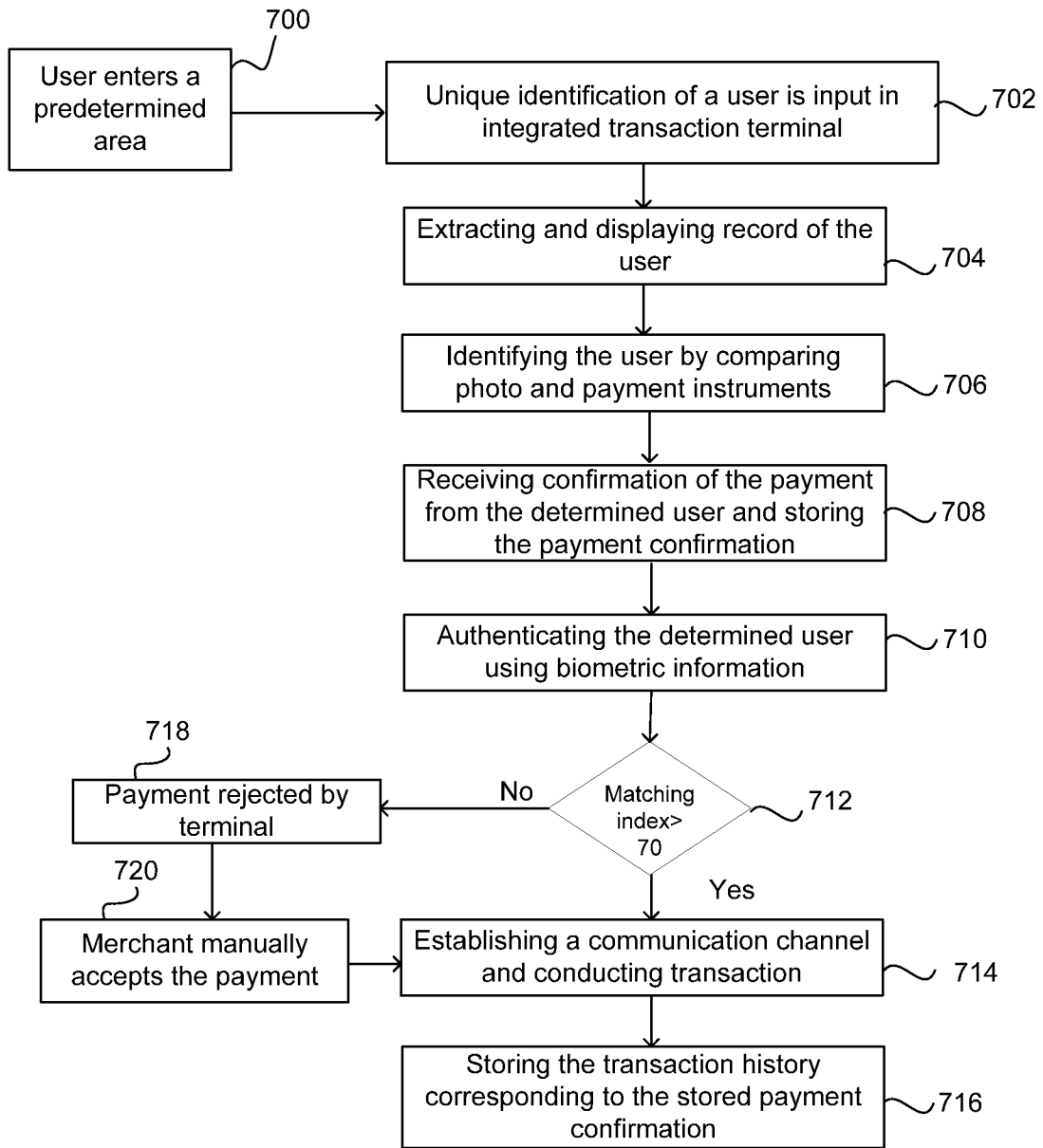


FIG. 7

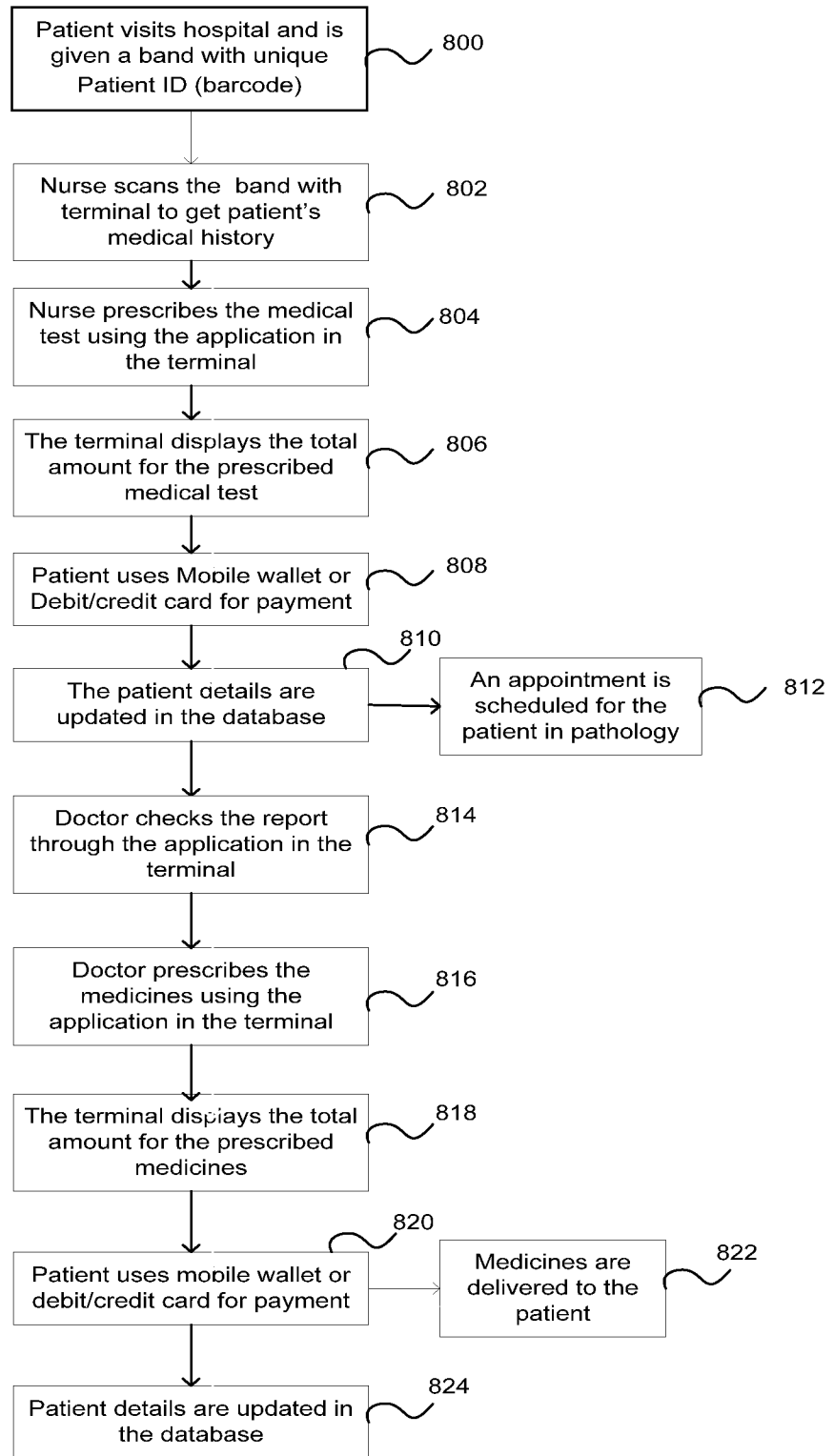


FIG. 8

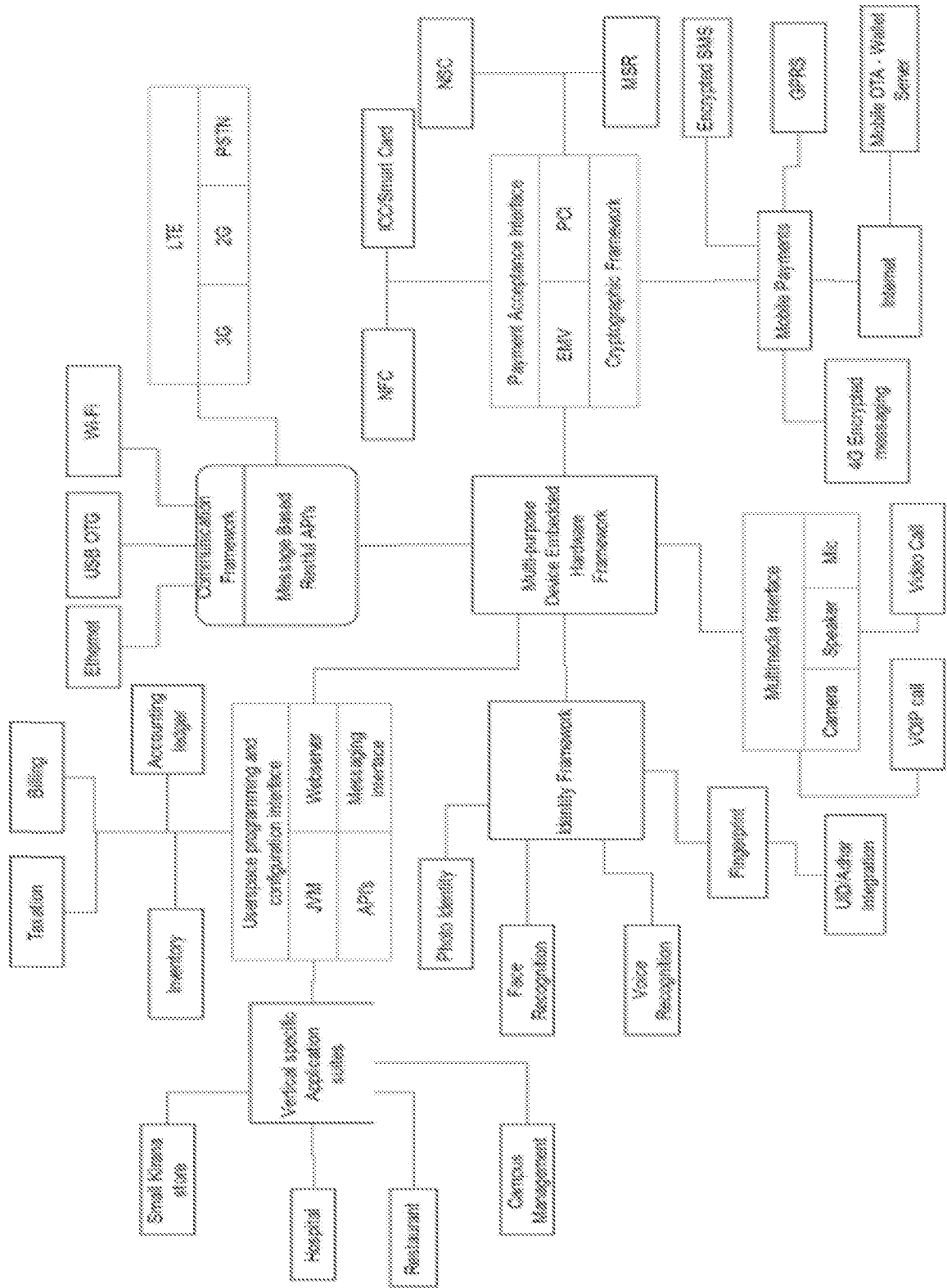


FIG. 9

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2013/060053

A. CLASSIFICATION OF SUBJECT MATTER
 INV. G06Q20/32 G06Q20/20 G06Q20/40
 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

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 practicable, search terms used)
 EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/037479 A1 (UNIVERSAL SECURE REGISTRY LLC [US]; WEISS KENNETH P [US]) 22 March 2012 (2012-03-22) the whole document	1-28
X	US 2012/090038 A1 (PACELLA DANTE [US] ET AL) 12 April 2012 (2012-04-12) abstract; figures 1-5,8 paragraphs [0011] - [0058], [0067] - [0072]	1-28
X	US 2012/079581 A1 (PATTERSON BARBARA E [US]) 29 March 2012 (2012-03-29) the whole document	1-28
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"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</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 19 February 2014	Date of mailing of the international search report 27/02/2014
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Aguilar, José María
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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2013/060053

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2013/006848 A1 (KUTTUVA AVINASH [US]) 3 January 2013 (2013-01-03) paragraphs [0030], [0032], [0094], [0103] - [0104], [0128], [0171] -----	1-28
X	US 2005/269402 A1 (SPITZER THOMAS N [US] ET AL) 8 December 2005 (2005-12-08) the whole document -----	1-28
A	US 2012/123868 A1 (BRUDNICKI DAVID [US] ET AL) 17 May 2012 (2012-05-17) the whole document -----	1-28
A	US 2012/130889 A1 (LYONS GARRY [IE] ET AL) 24 May 2012 (2012-05-24) paragraphs [0047], [0106], [0182] -----	1-28

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2013/060053

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US 2012130889 A1	24-05-2012	NONE	
