



(51) International Patent Classification:
G06Q 10/00 (2006.01)

(21) International Application Number:
PCT/IE2010/000015

(22) International Filing Date:
18 March 2010 (18.03.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2009/0205 19 March 2009 (19.03.2009) IE

(71) Applicant (for all designated States except US): **GENESIS AUTOMATION LIMITED** [IE/IE]; Fourth Floor, The Atrium, Blackpool Retail Park, Blackpool, Cork (IE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **O'HANLON, Noel** [IE/IE]; "Kingsley", Menloe Gardens, Blackrock, Cork (IE). **CUMMINS, Shea** [IE/IE]; 40 West Road, East Wall, Dublin 3 (IE). **O'HANLON, Roy** [IE/IE]; "Pacelli", Blackrock Road, Cork (IE). **DALY, Jack** [IE/IE]; 22 Glanmire Park, Glanmire Court, Glanmire, County Cork (IE). **O'HANLON, David** [IE/IE]; Compass Hill, Kinsale, County Cork (IE).

(74) Agents: **O'BRIEN, John, A.** et al.; c/o John A. O'Brien & Associates, Third Floor, Duncairn House, 14 Carysfort Avenue, Blackrock, County Dublin (IE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: AN INVENTORY CONTROL SYSTEM

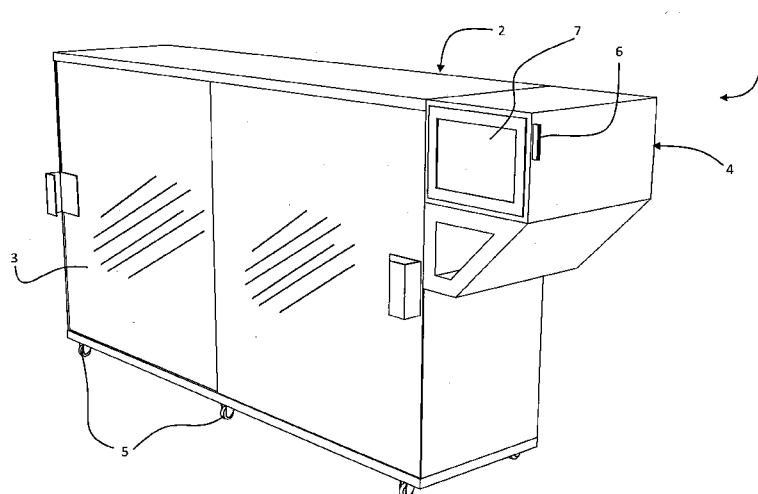


Fig. 1

(57) Abstract: An inventory control system comprises plurality of local storage units (1), each having a lockable inventory container (2) and an access controller (4) to control physical access by persons to the inventory container according to access control criteria. The controller (4) records identity of persons accessing the inventory container (2), and it has an inventory interface (7) with a touch screen and software for automatically receiving codes of items inserted into and removed from the inventory container. A data update function transmits inventory data updates and a wide area network central server (22) receives inventory data updates and records them to a database, to process said data, and to generate inventory control outputs. User inputs to the controller (4) identify the person, and the database records a person's identity as captured by access control inputs.

"An Inventory Control System"INTRODUCTION

5 The invention relates to management of inventory, particularly for environments such as factories or office buildings.

WO2009024751 describes an inventory control system with multiple storage locations.

GB2404049 describes a stock ordering and reconciliation system for retailers and distributors.

10 US5608643 describes a system for managing multiple dispensing units.

In manufacturing industry the management of inventory items which are not direct consumables is very important to both reduce costs and to ensure that items are available when and where needed. This is also true of supplies for other environments such as hospitals, schools, and
15 offices. Heretofore, companies have not given enough attention to such inventory management because of a perception is that it is too complex and varied in nature for automation.

The invention is therefore directed towards achieving improved automation in control of such inventory, and/or improved supply chain management for distributed locations.

20

SUMMARY OF THE INVENTION

According to the invention, there is provided an inventory control system comprising:

25 a plurality of local storage units, each storage unit comprising:

a lockable inventory container,

an access controller adapted to control physical access by persons to the inventory container according to access control criteria,

a memory for recording identity of persons accessing the inventory container,

30 an inventory interface for automatically receiving codes of items inserted into and removed from the inventory container, and

a data update function adapted to transmit inventory data updates; and

a wide area network central server adapted to receive inventory data updates and record it to a database, to process said data, and to generate inventory control outputs.

- 2 -

In one embodiment, the access controller comprises an access control interface at the container for capturing data concerning persons removing items, and wherein the container comprises a lock and a lock controller, and said controller provides access in response to an input at the access control interface, and wherein said input identifies the person, and the database records a person's identity as captured by access control inputs.

In one embodiment, the lock has a default locked position. In one embodiment, the lock is a magnetic lock.

In one embodiment, the inventory interface comprise a touch screen operated by the access controller, the access controller being programmed to generate menus for user recording of product removal data and product delivery data.

In one embodiment, the inventory interface comprises a machine reader for reading product codes for automatic capture of product data in combination with touch screen user inputs.

In one embodiment, the machine reader comprises a bar-code reader.

In one embodiment, the kiosk comprises an inventory database and is programmed to track movement of inventory items and to associate inventory movements with persons.

In one embodiment, the controller comprises means for wirelessly transmitting updates to the database.

In one embodiment, the data update function is adapted to automatically transmit updates in real time.

In one embodiment, the controller is located so that the inventory control database is only accessible when the container has been opened.

In one embodiment, the kiosk has a solar power supply.

In one embodiment, the container is mobile.

- 3 -

In one embodiment, the data update function is adapted to use a mark-up language file to transmit an update to the server.

In one embodiment, the data update function is adapted to compress the mark-up language files.

5

In one embodiment, the data update function is adapted to use a mobile network protocol for transmitting data updates.

10

In one embodiment, the system comprises a local area server linked with a plurality of local storage units, said local area server is adapted to maintain a database of all inventory data generated by the kiosks with which it communicates, and wherein the local area server is adapted to transmit updates to the central server.

15

In one embodiment, the local area server replicates the local storage unit database.

In one embodiment, the server database has a structure comprising a business object layer with objects in the object oriented paradigm for communication with applications, a logic layer for data validation, and a data access layer for database updating.

20

In one embodiment, the local storage unit data update function is adapted to monitor wireless network signal strength and to manage a short message queue with update data, and to transmit the messages when signal strength is sufficient.

DETAILED DESCRIPTION OF THE INVENTION

25

Brief Description of the Drawings

30

The invention will be more clearly understood from the following description of some embodiments thereof, given by way of example only with reference to the accompanying drawings in which:-

Fig. 1 is a perspective view of a kiosk of an inventory management system of the invention;

- 4 -

Fig. 2 is a diagram illustrating software architecture of a controller of the kiosk;

Fig. 3 is a perspective view of a hand-held device for user communication with the kiosk;

5 Figs. 4(a) and 4(b) show user interfacing at a touch screen of the controller of the kiosk;

Fig. 5 is a diagram illustrating the major components in a system of the invention;

10 Fig. 6 is a flow diagram illustrating interaction between distributed parts of the system;

Fig. 7 is a flow diagram illustrating kiosk operations in one embodiment;

Fig. 8 is a flow diagram illustrating kiosk and LAN server set-up;

15 Fig. 9 is a flow diagram illustrating interaction between multiple kiosks and a LAN server;

Fig. 10 is a diagram showing communication between a kiosk, a LAN server, and a WAN server;

20 Figs 11 and 12 show kiosk database management;

Fig. 13 shows the kiosk database structure;

25 Fig. 14 shows communication sessions for database updating; and

Figs. 15 to 19 inclusive are representations of sample system outputs.

Description of the Embodiments

30

Referring to Fig. 1 an inventory management system comprises a local unit or kiosk 1 having a housing 2 with lockable sliding glass doors 3 locked by a magnetic lock. A controller 4 is mounted at a side of the housing 2, and the housing is on casters 5. The unit 1 may be referred to

- 5 -

as a "kiosk", and there is typically more than one in a system. The controller 4 comprises a touch-screen interface 7 and a security card reader 6. Its software architecture is shown in Fig. 2.

5 As shown in Fig. 3, a hand-held user interface 10 has a touch screen 11 for remote access. This is particularly convenient for a system having multiple units 1 distributed at a particular location, such as around a factory.

10 At a hardware level, the kiosk 1 comprise a PC, the touch screen 7, the outer housing 2, a GSM modem, an uninterruptible power supply (UPS), and a door controller and door release card reader. It also comprises a USB-to-serial adapter, and a standard keyboard wedge scanner (Blue Tooth / Wired). At a software level it comprises a SQL database, door control software, front end software functions, and a data updater system.

15 As shown in Figs. 4(a) and 4(b) the controller 4 can generate on the touch screen 7 simulated keypads, and there is a manually-written signature window for access control. These features can be provided on the kiosk screen 7 and/or on the hand-held device 20.

The complete system further comprises additional kiosks 1 and a central server.

20 In one example, the housing 2 stores items of inventory such as utility cleansing chemicals or tools. By satisfying access criteria such as security card reading, PIN input, and/or hand-written signature a user can open the door 3 to retrieve an inventory item when the controller 4 opens the lock.

25 As it is being removed it is scanned by a barcode scanner (not shown) and so its removal is automatically recorded. Likewise, a used item may be returned with barcode scanning and a user input to indicate that it is being returned. In some embodiments a closed circuit TV captures video of removal of an item, - image capture being automatically triggered by door opening. The system relies on trust to the extent that it depends on the user scanning the item as it is being
30 removed and possibly returned (if it is not a consumable). However, there is little chance of this trust being breached because the user is required to satisfy the access control criteria and so the controller 4 has a record of the users who accessed the storage area and of the time. Also, because some of the kiosks have a hidden security camera users will typically not wish to risk theft. Accordingly, the invention achieves comprehensive control over a wide range of inventory

- 6 -

items without need for manning of the storage area and without need for the storage area to be physically configured for the particular items being stored.

5 The controller 4 uses mobile communications and access control on site to record and transmit removal of stock to a remote central server of the system 1. The latter allows visibility and control of the units 1 via a Web interface. This allows the activities of users in kiosk-controlled locations to be recorded and allows subsequent analysis online.

10 The controller 4 provides a GUI to the user to 'self serve' stock from the kiosk and to assign it to a usage department and user. Stock levels and transaction history are maintained locally on the controller 4 and at set intervals they are transmitted to the central server. The transmission of the data is via secure FTP, in XML format that is compressed to improve transmission speeds.

15 The software and communication circuits of the controller 4 also have the ability to update its records with new or amended data. It does this by periodically collecting new data such as stock records and barcode information from the central server via FTP (File Transfer Protocol). The controller 4 is an offsite system that transmits changes made locally to the central server and receives by wireless communication changes made on the online server and applies them locally.

20 The controller 4 monitors and controls user access to the kiosk housing 2 by software running on a SQL server database. This software captures and communicates information about time of item entry, time of item exit, and if the door has been opened or closed and by whom.

25 In another embodiment, the system can be applied on a room basis instead of a kiosk. This is a major benefit of the invention, not being limited to a particular storage arrangement. In a still further embodiment the storage space is of the vertical lift carousel type, providing a very large storage area per unit of floor space occupied.

30 Fig. 5 shows an overall system 15, having a kiosk terminal 20, a local area server (LAN) 21, and a remote wide area server (WAN) 22 with which it communicates via a mobile network 25. The WAN server 22 provides remote access to data via a user's PC or mobile device 23. Such access can provide reports s illustrated for example in Figs. 15 to 19.

Referring also to Fig. 6, a typical transaction follows the process route below.

- 7 -

- User "swipes" door release card and gains access. Depending on access control configuration access may additionally require a hand-written signature on the screen 7 and/or a security code entry.
- Controller 4 records the user entry and prepares the kiosk for an imminent transaction.
- 5 - User requisitions or returns stock using the controller 4.
- User completes transaction and leaves the kiosk. Controller 4 records the door close.
- Controller now opens the GSM modem and transmits a compressed XML file representing the transaction to the online server via FTP.
- The controller 4 now checks to see, if on-line, if there are any updates available for its
- 10 core database or software patches. If so, it downloads them and deploys them.

The online system is a dedicated server which provides the following functionality.

- FTP server to kiosk 1 for transmission of data and file updates.
- Main online server database (SQL database).
- 15 - Web Server for the online Web site, allowing access – controlled access to transaction data.
- Web service provider. This allows external sources to update and receive data from the online server. An example is a desktop application.
- Kiosk control and monitoring.
- 20 - Automated emailing.
- Kiosk harvester, see below.

The kiosk harvester is a function that executes on the central server and that periodically processes the XML data received by it. It processes it by decompressing the XML file and

25 validating data and saving it to a database. The files received by the harvester include stock profile changes, transactions, new/amended users, signature images, door access log, error log, and database backup files.

The harvester process includes making data edits, creating XML files and compressing them

30 ready for kiosk collection.

The files transmitted by the harvester include new/amended stock, new/amended barcodes, new/amended stock profiles, new/amended kiosk users, new/amended unit of measure, stock images, vendor details and adjustment transactions.

The Web Service provides a facility to third party applications to pass/receive data from the on-line server. The function of the Web Service is to provide a single point of entry to the database to verify user credentials and ensure that the security and integrity of the system is maintained.

5

There is desktop access to online system using the Web Service to provide a user with the ability to edit data locally on their own machine and pass data amendments up to the server via the Web service. The desktop can allow for any data adjustment required.

10 Fig 7 shows operations at the kiosk in which the controller requests confirmation of identification and then proceeds with the process as detailed. The process route can be configured according to the situation but in its basic form it identifies the user, performs a task and records activity. It has the flexibility to cater for situations where security access is required and is not required.

15

Referring to Fig. 8 the LAN system model is a configuration where a kiosk or multiple kiosk systems exists and they are managed by a local area server. The local area server function is to feed and receive information to the kiosk system. It also provides a GUI to the user to allow manipulation of the kiosk specific or system specific. The local database is encrypted and an
20 updater service of the terminal 20 communicates with the LAN 21. The kiosk terminal 20 is connected to the LAN server 21 via a TCP/IP network, as shown also in Fig. 5. The kiosk terminal 20 communicates with the LAN server 21 via a service running on the terminal 20 and a service running on the LAN server 21. This service takes care of synchronisation of data amendments to both the LAN server 21 database and the kiosk local database.

25

The LAN server 21 also has an integration service where third party systems such as SAP can update directly data in the LAN server 21. This has the effect of updating the database.

Fig. 9 shows an arrangement where there are multiple kiosk terminals 30 feeding data and
30 receiving data from a central LAN server 31. A LAN server database 32 is a copy of each kiosk database, in which the information is split by kiosk identification. The system is designed in such a way that the kiosk machines 30 can run independently to the LAN server 31. If the LAN server 31 is down each kiosk machine will continue operations until the LAN server is available.

- 9 -

Fig 10 shows a setup to a WAN server 50 where a kiosk 51 can communicate with a LAN server 52 and subsequently the LAN server 52 or a kiosk 51 may communicate with the WAN server 50 directly. The WAN server 50 runs a Web Service to receive communications and synchronise with a LAN server 52 or with a kiosk 51 for and data amendments and transactions. Once synchronisation is complete a confirmation message is sent to the LAN server 52 or kiosk 51. The WAN 50 server performs several important tasks including sending receiving any new data amendments relating to the kiosks 51 and the LAN servers 52, deploying software updates when needed, deploying database updates, and providing secure location for online access to the system data.

Referring to Fig. 11, a kiosk terminal database 60 is a mirror copy of the online LAN server database 61 except that the LAN online server database stores multiple sets of kiosk terminal information but separates them by a unique ID field. In this way the synchronisation is specific to a kiosk terminal or an element of the LAN server 52 or the WAN online server 50. Changes in either database are replicated to the other in the service synchronisation.

Fig 12 shows how the kiosk 50 communicates with either a LAN server 52 or a WAN servers 50. The service is optimised for security, speed and encryption. The service on the terminal 51 communicates with the LAN/WAN server service, agreeing an encryption method and synchronizing database changes to each other.

Referring to Fig. 13 the WAN 50 server database access is designed to facilitate indirect access to the underlying data. This involves displaying or editing data on screen or via an application, passing through several layers. These layers do several tasks.

- Separate the database from the applications
- Ensure the data is secure and hidden from attack.
- Validate data in and out of the system.
- Make integrating with the database easier.

A GSM connection system is designed to allow the system communicate with WAN servers using a GSM modem and to cope with the sometimes intermittent nature of GSM communications. The system is self-correcting and to the point where it will shut the system down is instructed to do so or if it has reached a consecutive failure count set by the system administrator.

- 10 -

Referring to Figs. 15 to 19 various reports can be generated by the server, as illustrated. These include “dashboard”-type reports for multiple locations showing each location’s performance at a glance. Multiple locations are monitored in real time, and changes/additions can be made individually or globally to each location.

5

The system is also equipped to integrate with third party ERP systems and automated carousel systems. The online server allows designated users access the collected data, make changes and transmit back to the local devices.

10 The machine also has the ability to update its records with new or amended data. It does this by periodically collecting new data such as stock records, barcode information from the online server via FTP. The result is an offsite system that transmits changes made locally to the online server and collects changes made on the online server and applies locally.

15 The harvester periodically processes the XML data received into the online server. It decompresses the file, validates and processes the data, and updates it to the database.

The updates include stock profile changes, transactions, new/amended users, signature images, door access log, error log, and database backup files.

20

For outgoing data the harvester generates XML files and compresses them. Such files include, new/amended stock, new/amended barcodes, new/amended stock profiles, new/amended machine users, new/amended unit of measure, stock images, vendor details, and adjustment transactions.

25

The function of the Web Service is to provide a single point of entry to the central database to verify user credentials and ensure the security and integrity of the system is maintained.

30 A desktop administration function uses the Web Service to provide a user with the ability to edit data locally on their own machine and pass data amendments up to the server via the Web service. The desktop function can allow for any data adjustment required.

It will be appreciated that the invention provides for comprehensive management of inventory items, particularly where the volumes are small and they are not directly part of raw materials for

- 11 -

a manufacturing process. It achieves a large degree of automation to provide advantages as set out below as seen by the user, because of the underlying technical functionality:

– Detailed web-based reporting:

Easy to read “dashboard” reports are available to the company supervisors including:

- 5 • Stock use by department and individual;
- Stock days remaining for each part;
- Red Flag items. Approaching stock-out situation warning automatically sent by email/text message;
- Red Flag history;
- 10 • Top ten users by name, how much stock they each retrieved in monetary value;
- Comparison of top ten users against average spend of the whole department/area;
- Usage versus budget.

All reports are web-based and are accessed by user name and password. Reports are in real-time and so provide the most up to date information.

15

– Easy to read “dashboard” reports:

Web-based “dashboard” reports can be accessed by logging on to the website with a username and password. From there, all kiosks can be managed, minimum stock levels adjusted, and reports generated. Dashboard reports enable one to see the status of all the kiosks on the premises, from a single location, eliminating the overhead of combining several reports and spread sheets from each individual terminal manually. Personnel can instantly see on the touch screen the real-time status of each location. A single screen, for example, can display up to ten different kiosk locations. A simple dashboard icon indicates each location.

25

– Robust System Integration & Customization:

The system covers a comprehensive range of vendor stock movements and requirements. Additionally, the controller is programmed to allow script customization of the graphical user interface (GUI) and its operation. The controller includes a software development kit for developers, allowing full safe control over data. This allows the system to integrate with many stock/financial systems.

30

The invention is not limited to the embodiments described but may be varied in construction and detail.

Claims

1. An inventory control system comprising:

- 5 a plurality of local storage units (1), each storage unit comprising:
a lockable inventory container (2),
an access controller (4) adapted to control physical access by persons to the
inventory container according to access control criteria,
a memory for recording identity of persons accessing the inventory container,
10 an inventory interface (6) for automatically receiving codes of items inserted into
and removed from the inventory container, and
a data update function adapted to transmit inventory data updates; and
a wide area network central server (50) adapted to receive inventory data updates and
15 record it to a database, to process said data, and to generate inventory control outputs.
2. An inventory control system as claimed in claim 1, wherein the access controller (4)
comprises an access control interface (7) at the container for capturing data concerning
persons removing items, and wherein the container comprises a lock and a lock
20 controller, and said controller provides access in response to an input at the access control
interface (6, 7), and wherein said input identifies the person, and the database records a
person's identity as captured by access control inputs.
3. An inventory control system as claimed in claim 2, wherein the lock has a default locked
25 position.
4. An inventory control system as claimed in claim 3, wherein the lock is a magnetic lock.
5. An inventory control system as claimed in any preceding claim, wherein the inventory
30 interface comprise a touch screen (7) operated by the access controller (4), the access
controller being programmed to generate menus for user recording of product removal
data and product delivery data.

- 13 -

6. An inventory control system as claimed in any preceding claim, wherein the inventory interface (6) comprises a machine reader for reading product codes for automatic capture of product data in combination with touch screen user inputs.
- 5 7. An inventory control system as claimed in claim 6, wherein the machine reader comprises a bar-code reader.
8. An inventory control system as claimed in any preceding claim, wherein the kiosk comprises an inventory database and is programmed to track movement of inventory
10 items and to associate inventory movements with persons.
9. An inventory control system as claimed in any preceding claim, wherein the controller comprises means for wirelessly transmitting updates to the database.
- 15 10. An inventory control system as claimed in claim 9, wherein the data update function is adapted to automatically transmit updates in real time.
11. An inventory control system as claimed in any preceding claim, wherein the controller is located so that the inventory control database is only accessible when the container has
20 been opened.
12. An inventory control system as claimed in any preceding claim, wherein the kiosk has a solar power supply.
- 25 13. An inventory control system as claimed in any preceding claim, wherein the container (2) is mobile.
14. An inventory control system as claimed in any preceding claim, wherein the data update function is adapted to use a mark-up language file to transmit an update to the server.
- 30 15. An inventory control system as claimed in any preceding claim, wherein the data update function is adapted to compress the mark-up language files.

- 14 -

16. An inventory control system as claimed in any preceding claim, wherein the data update function is adapted to use a mobile network protocol for transmitting data updates.
- 5 17. An inventory control system as claimed in any preceding claim, wherein the system comprises a local area server (52) linked with a plurality of local storage units (51), said local area server (52) is adapted to maintain a database of all inventory data generated by the kiosks (51) with which it communicates, and wherein the local area server (52) is adapted to transmit updates to the central server.
- 10 18. An inventory control system as claimed in claim 17, wherein the local area server (52) replicates the local storage unit database.
- 15 19. An inventory control system as claimed in any preceding claim, wherein the server database has a structure comprising a business object layer with objects in the object oriented paradigm for communication with applications, a logic layer for data validation, and a data access layer for database updating.
- 20 20. An inventory control system as claimed in any of claims 9 to 19, wherein the local storage unit data update function is adapted to monitor wireless network signal strength and to manage a short message queue with update data, and to transmit the messages when signal strength is sufficient.
- 25 21. A computer readable medium comprising software code for performing operations of an inventory control system of any preceding claim when executing on a digital processor.

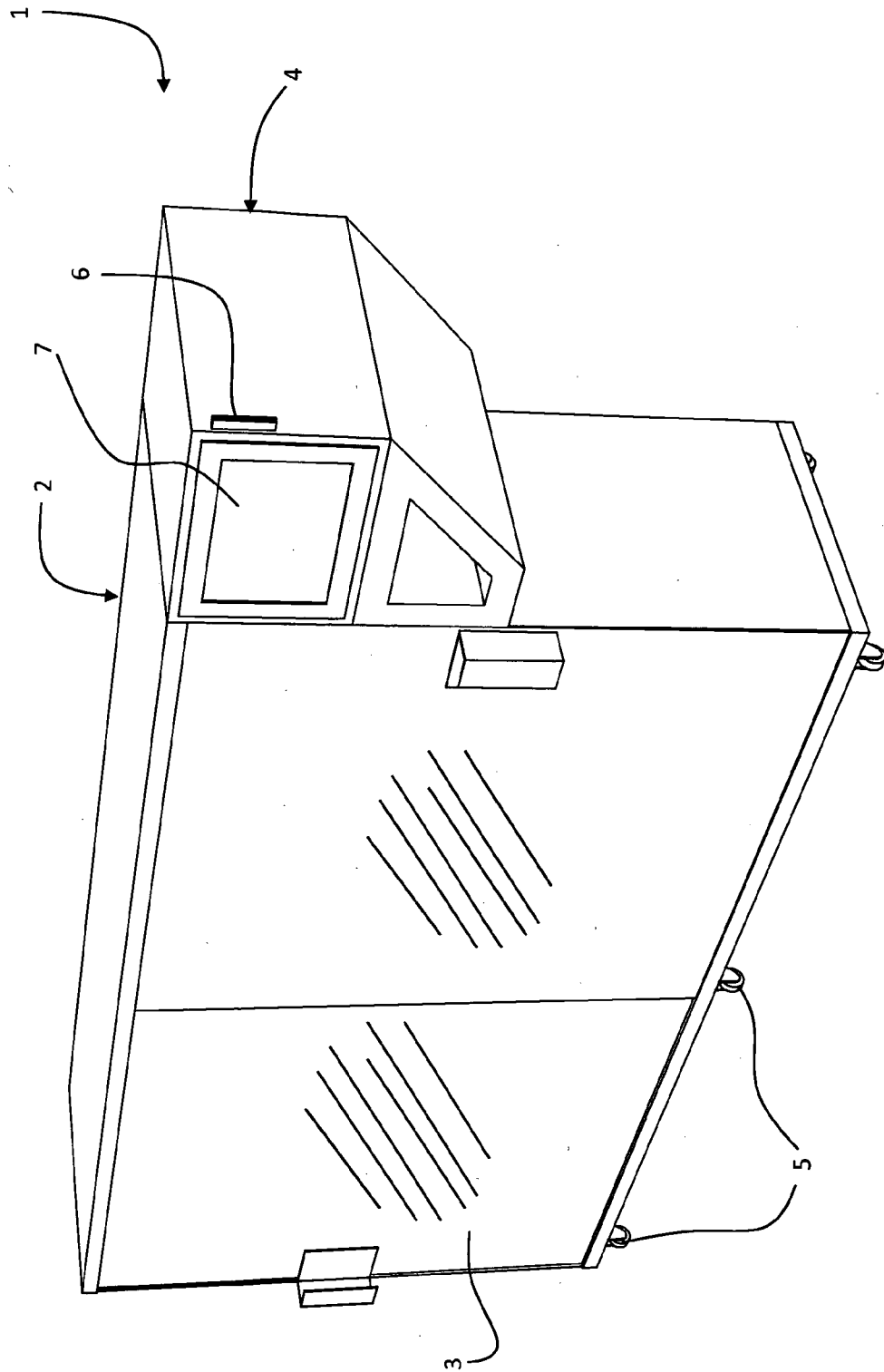


Fig. 1

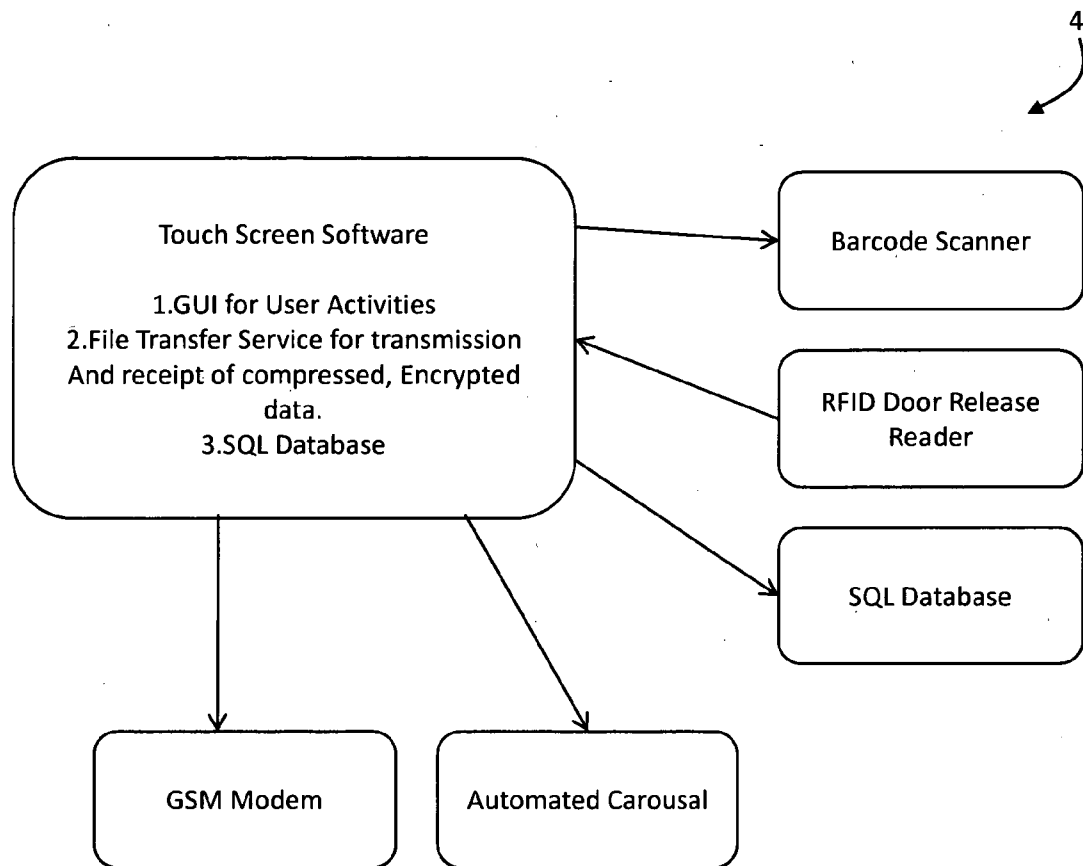


Fig. 2

3/16

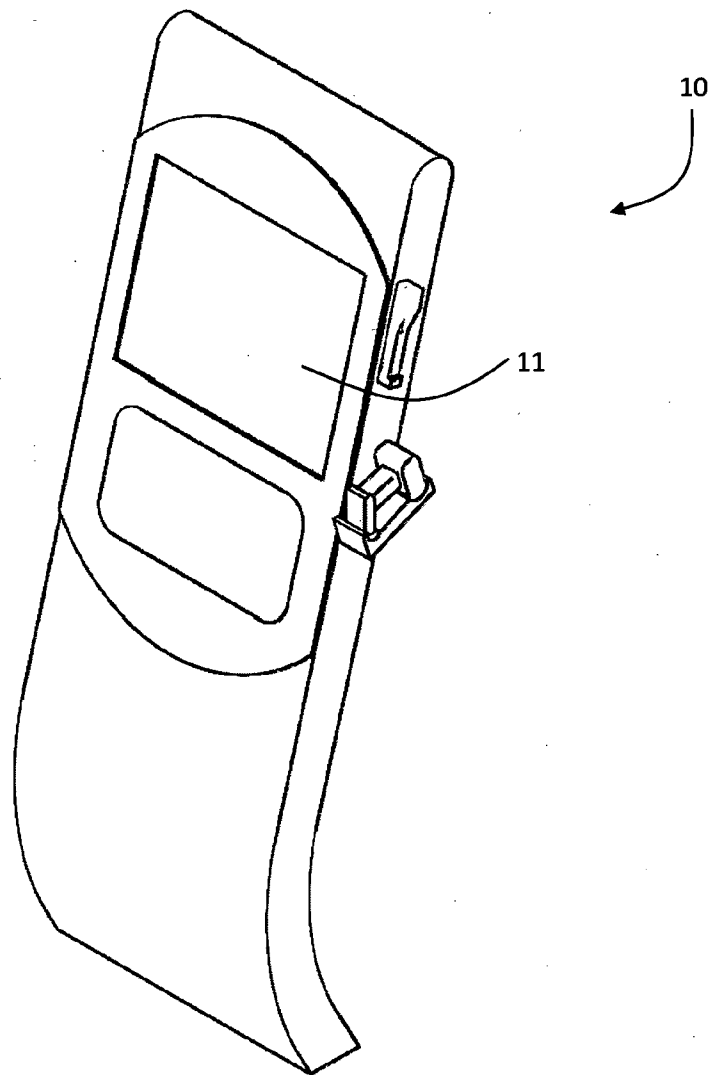


Fig. 3

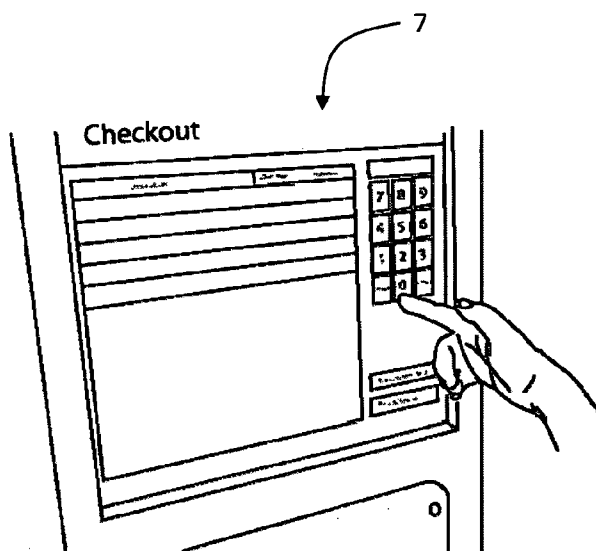


Fig. 4(a)

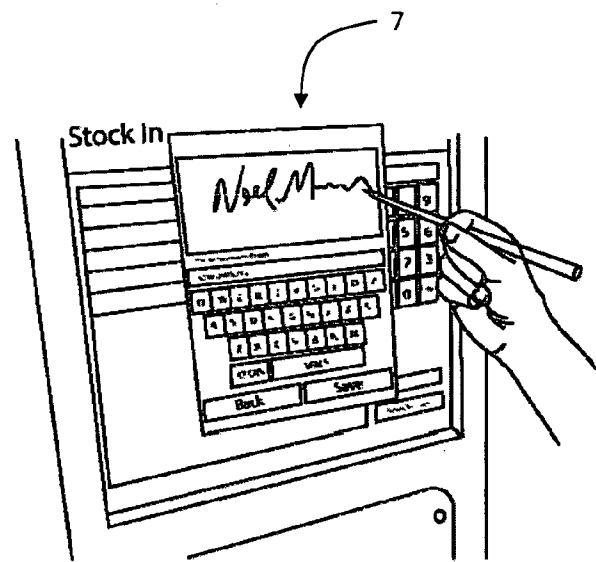


Fig. 4(b)

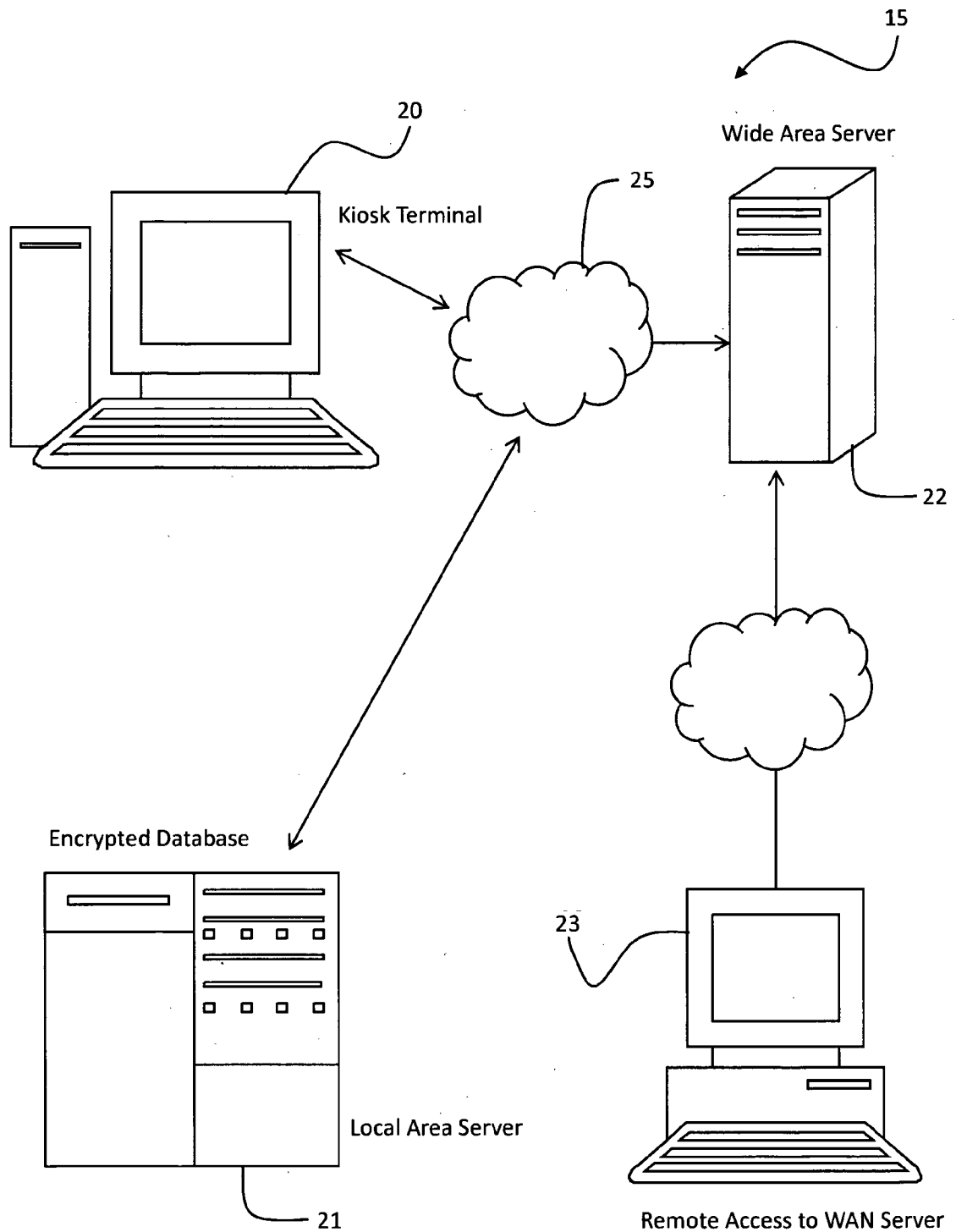


Fig. 5

5/16

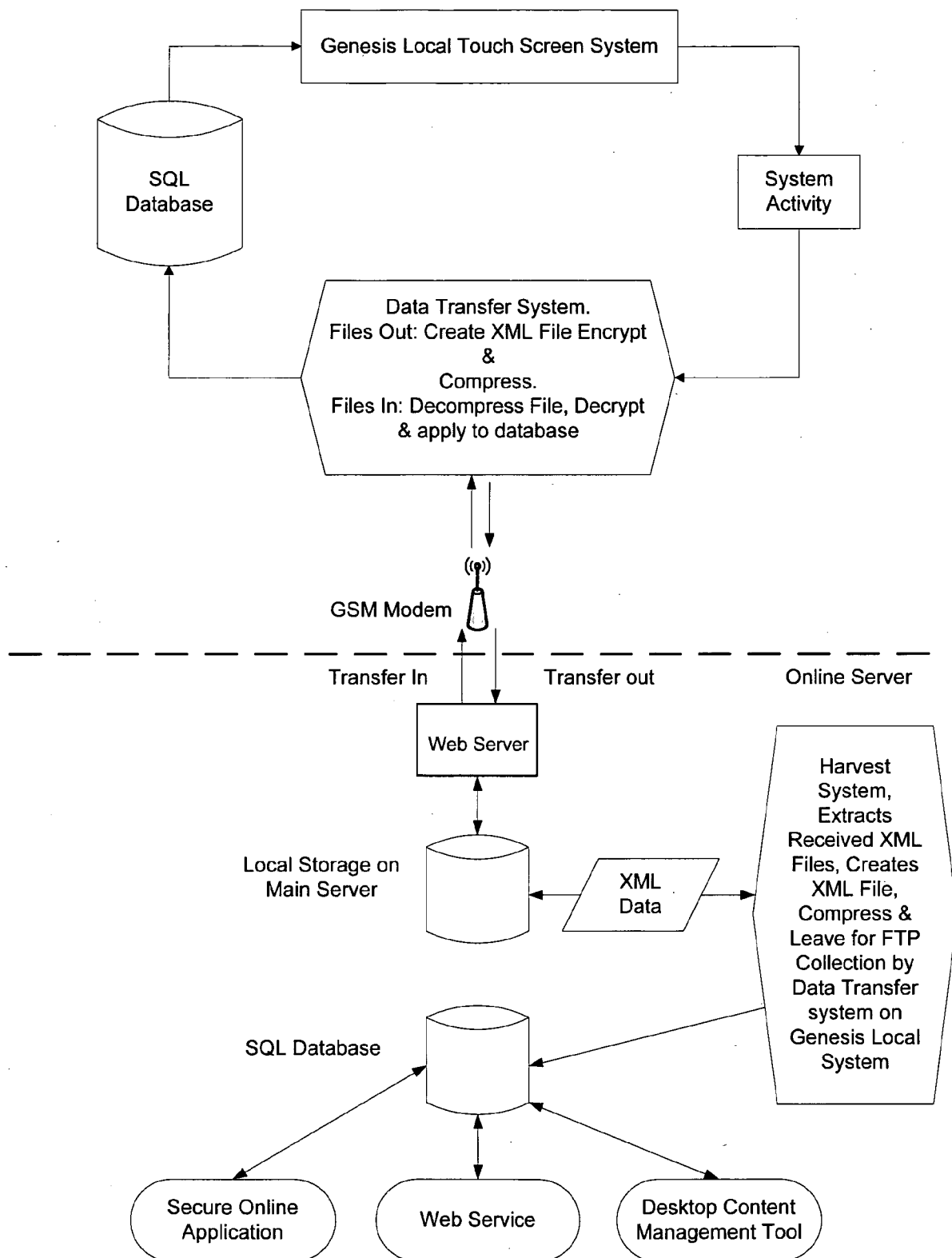


Fig. 6

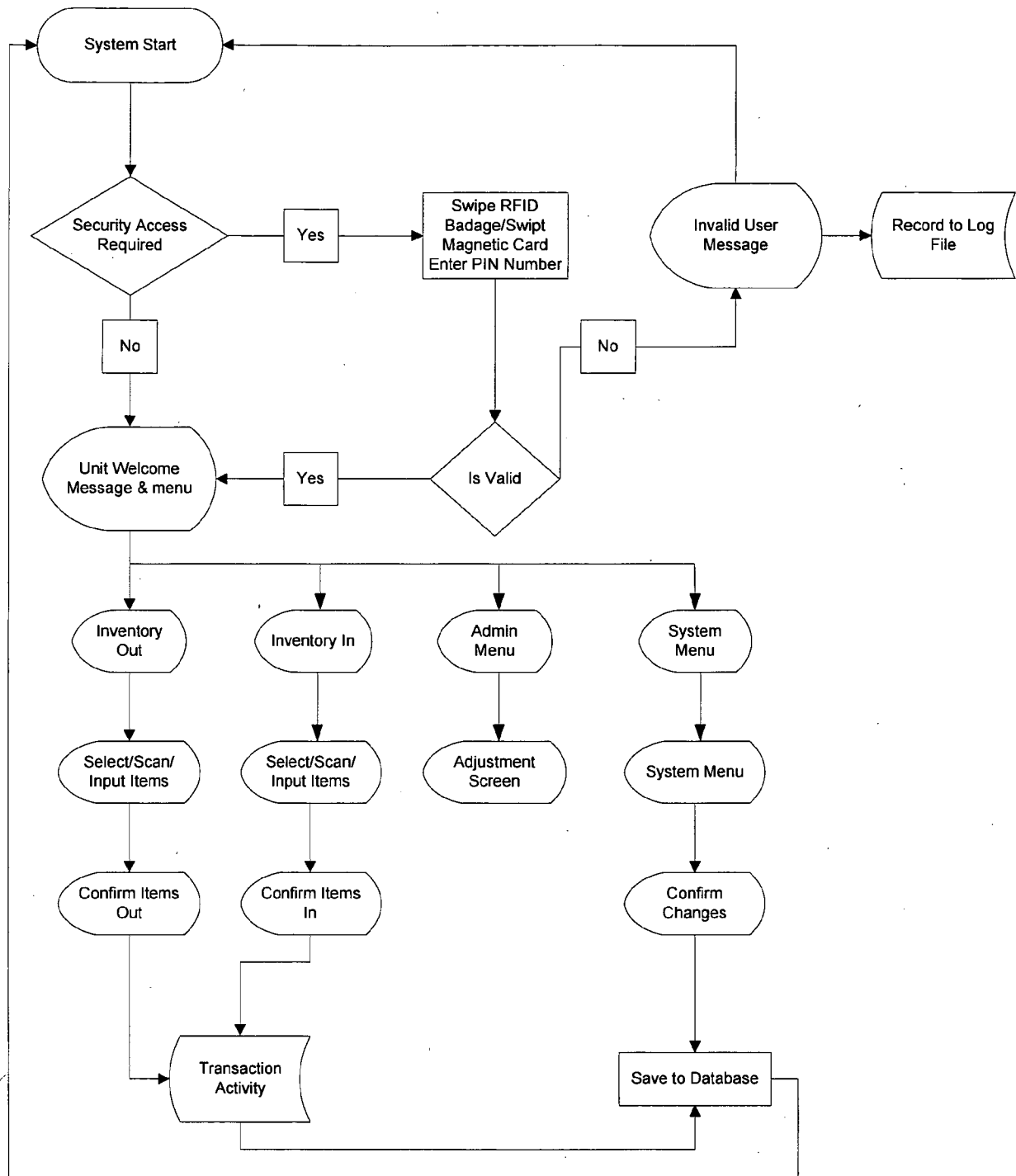


Fig. 7

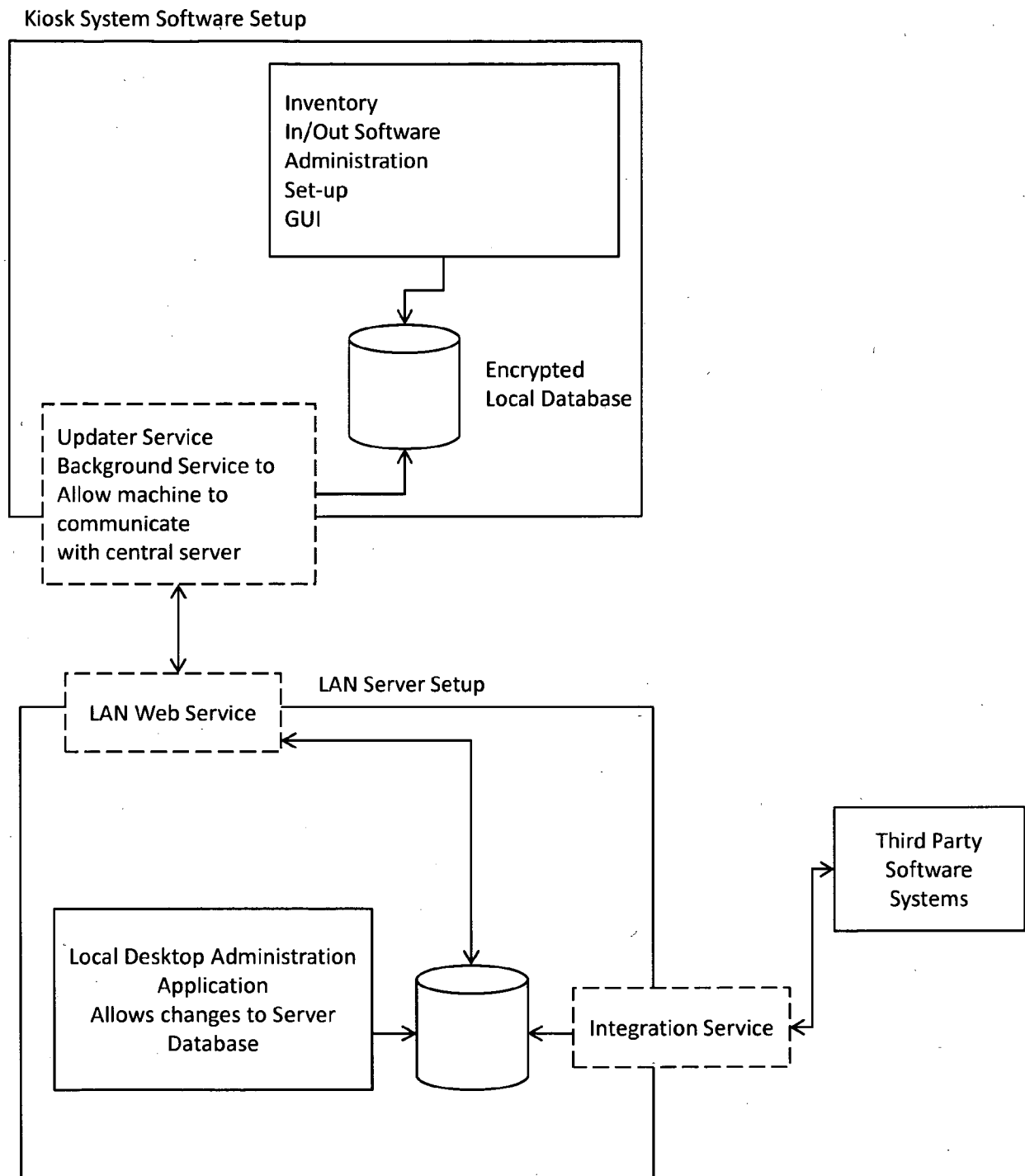


Fig. 8

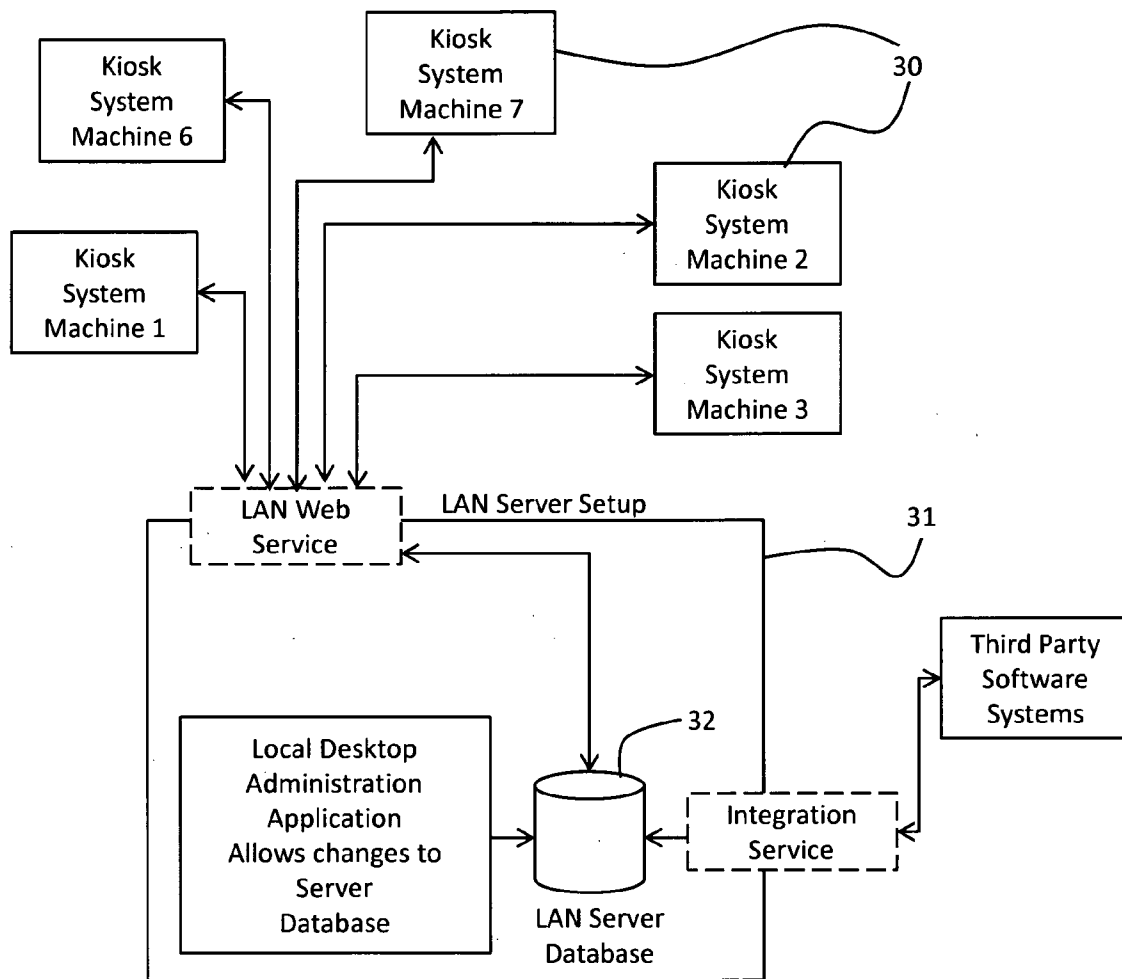


Fig. 9

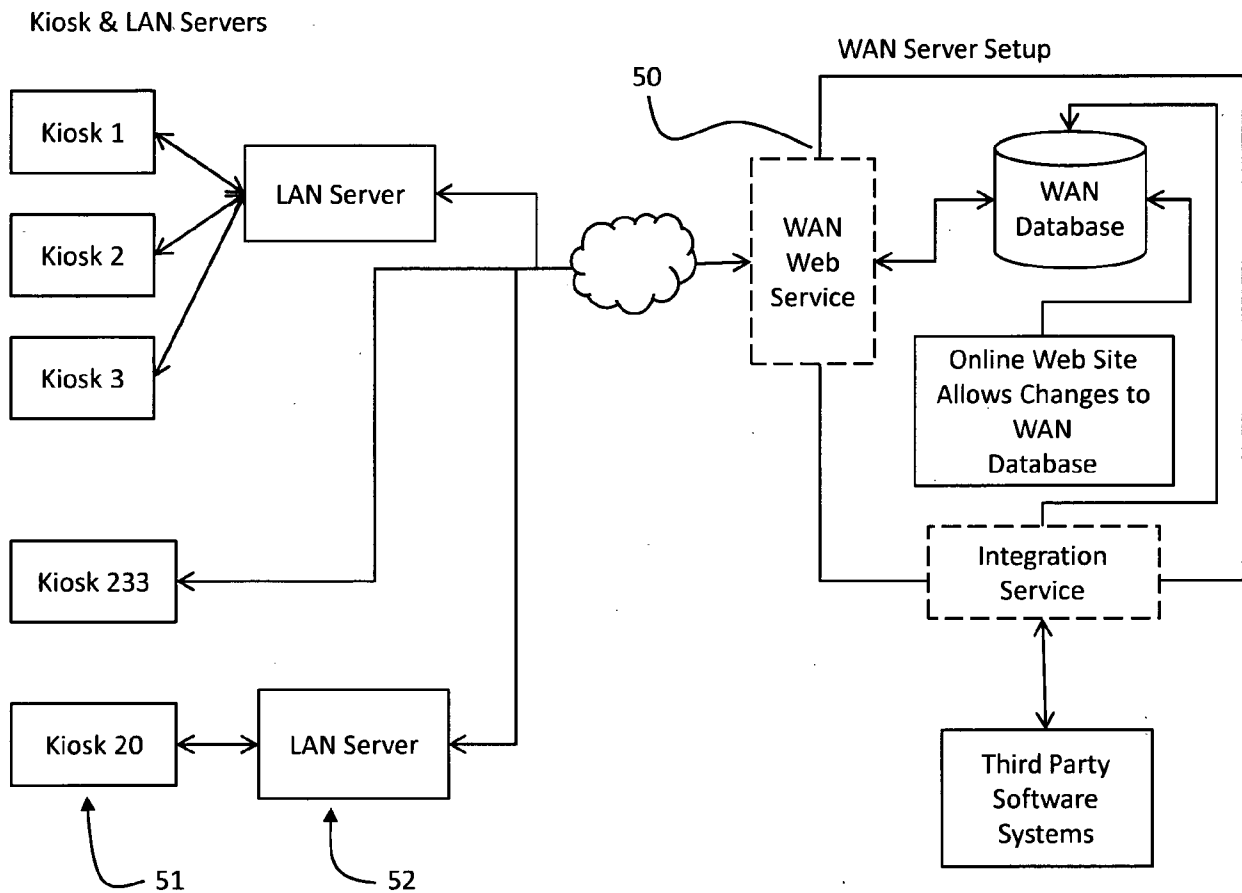


Fig. 10

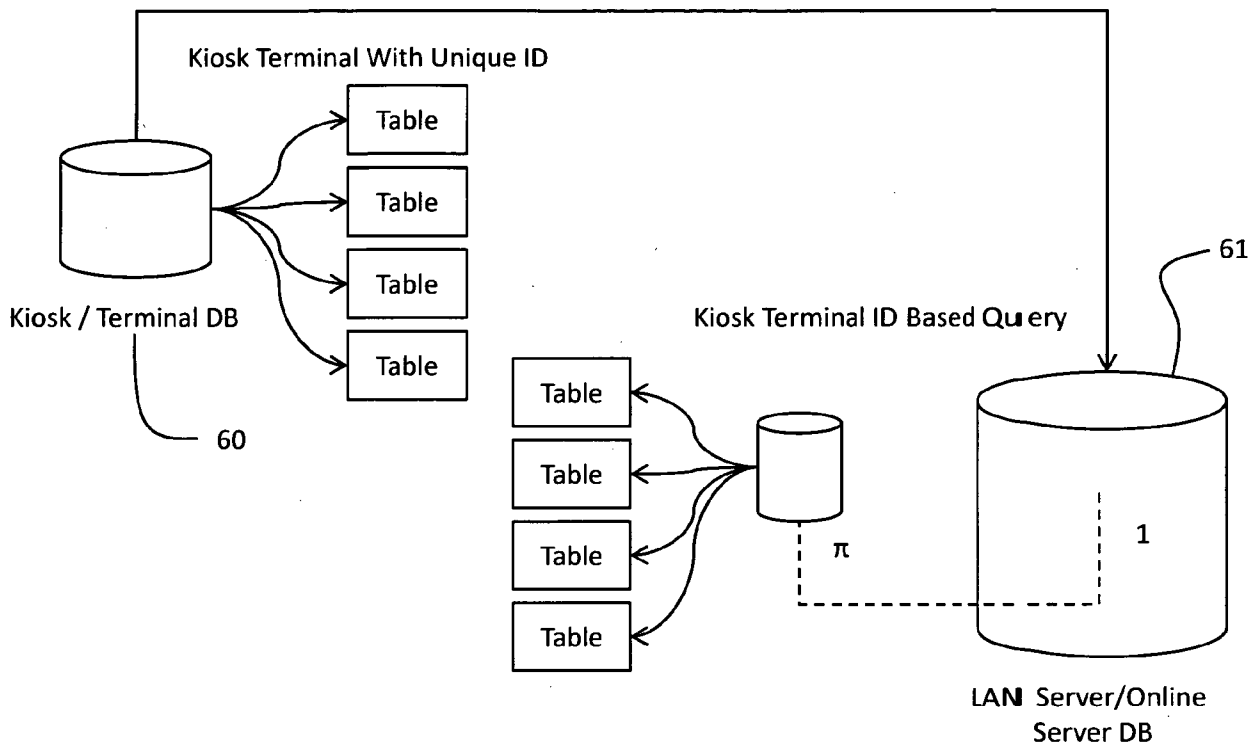


Fig. 11

11/16

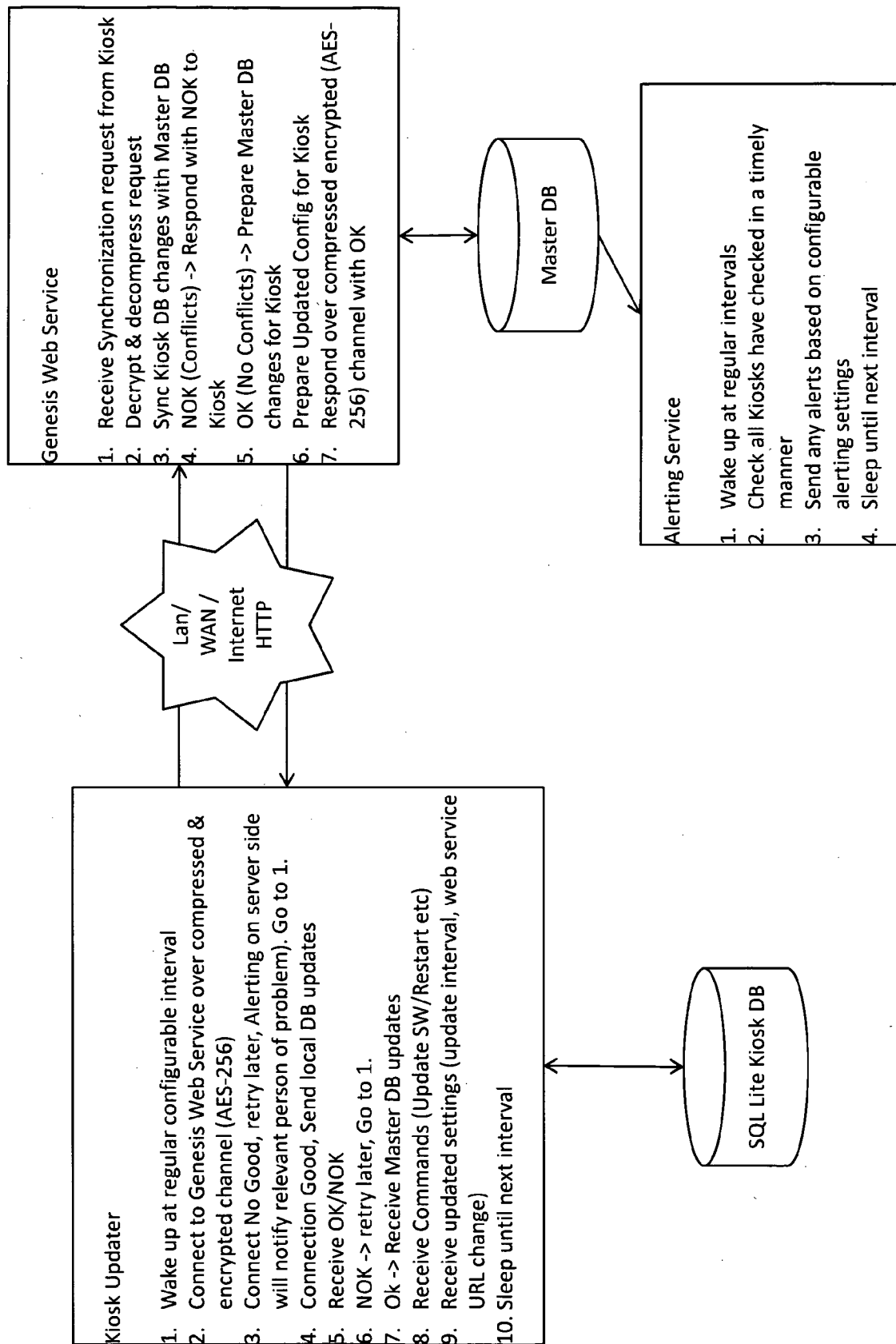


Fig. 12

12/16

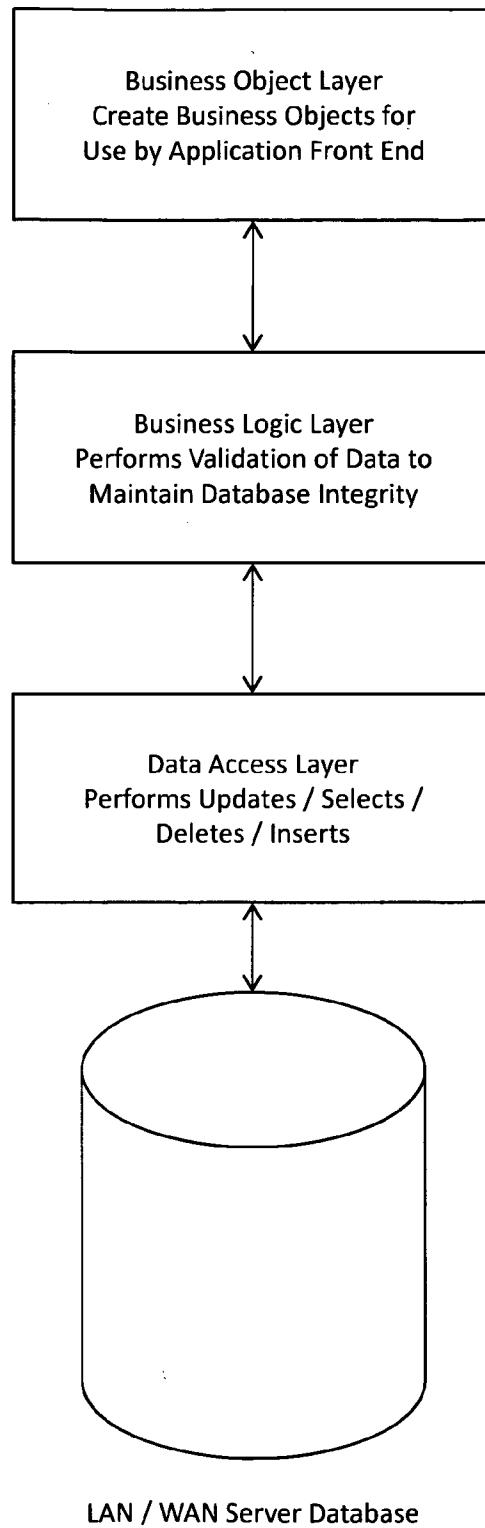


Fig. 13

13/16

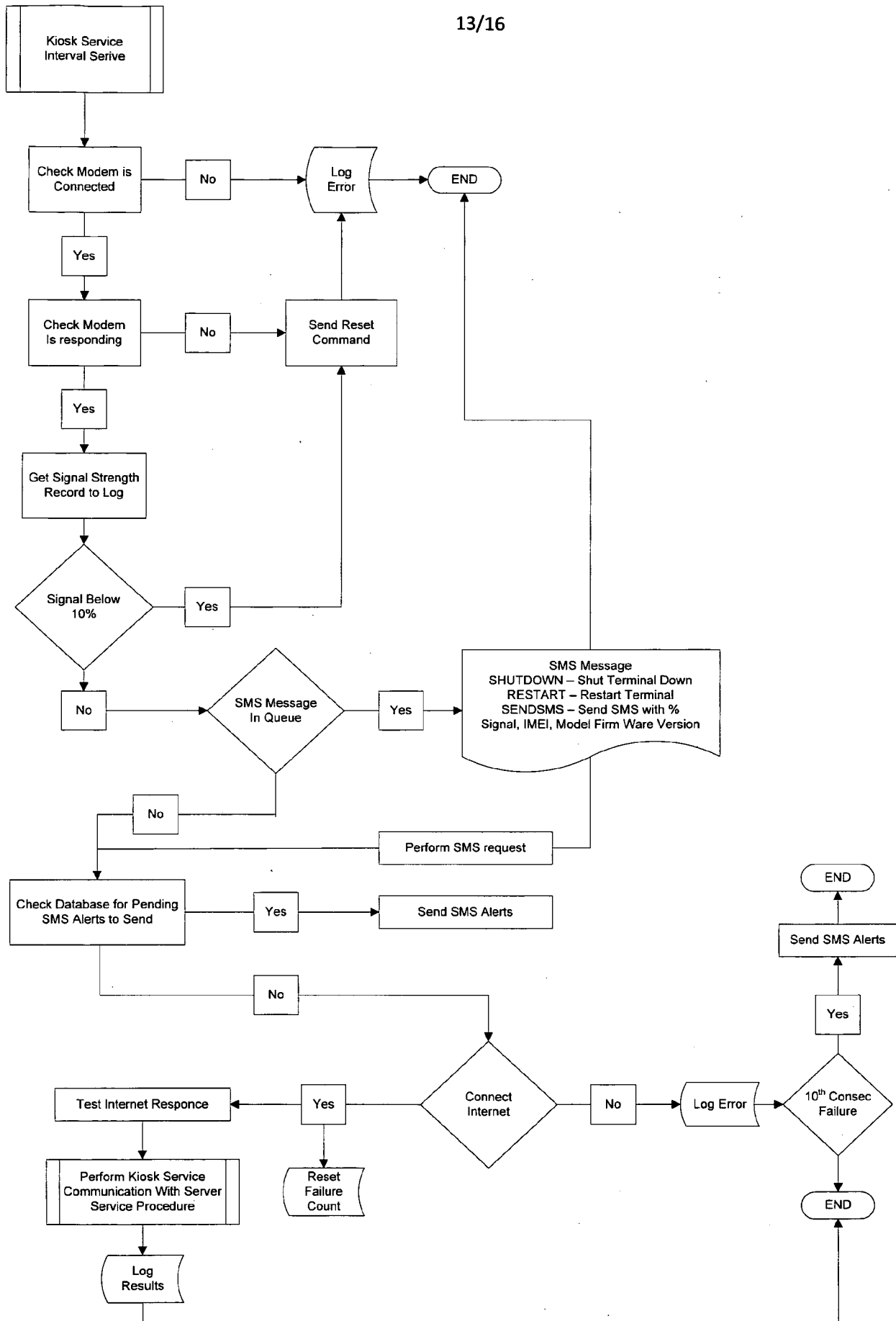


Fig. 14

14/16

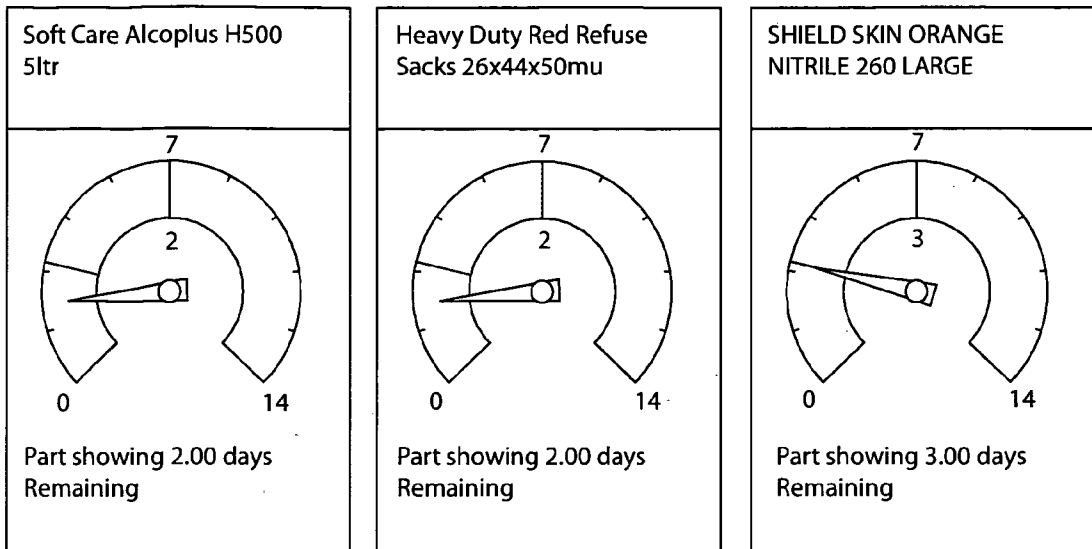
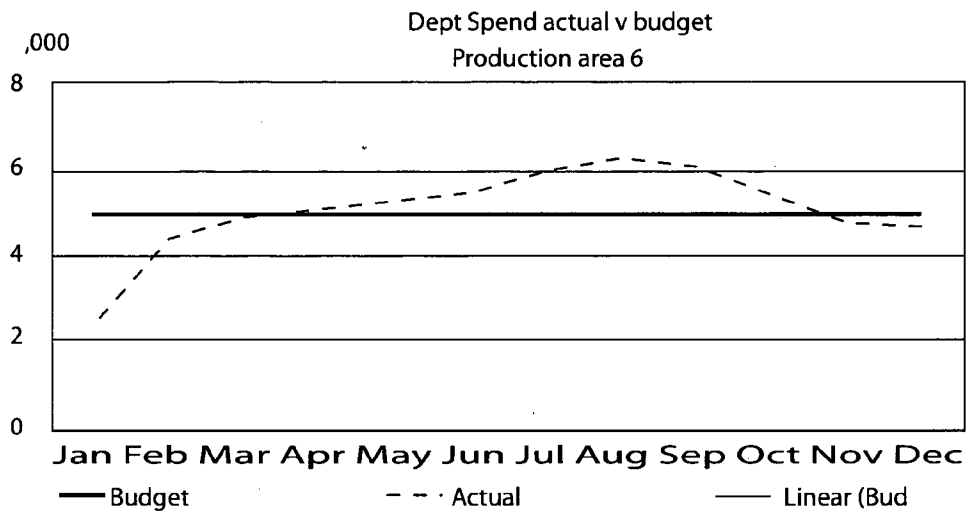


Fig. 15



Graphical analysis of dept. spend
User department Spent

Fig. 16

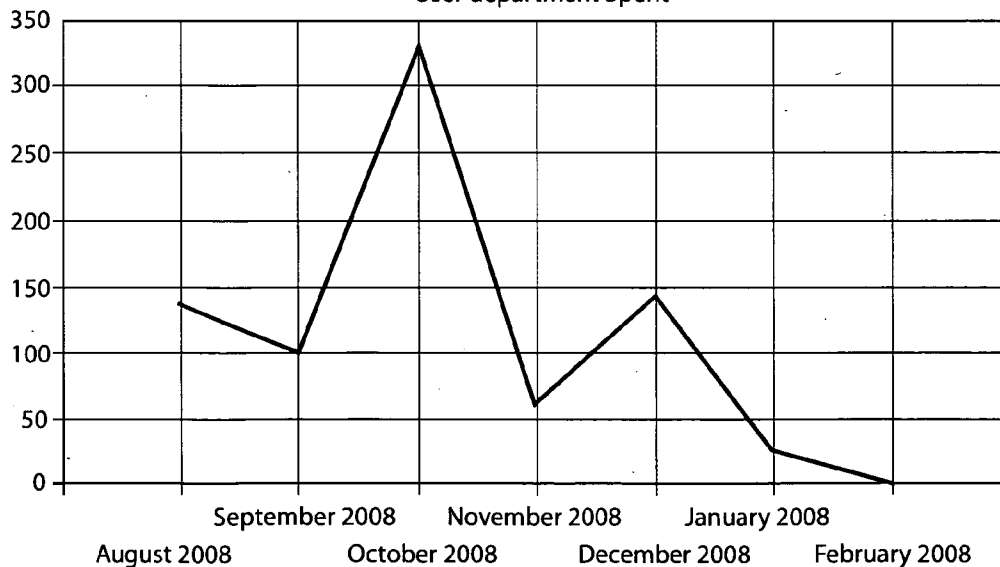
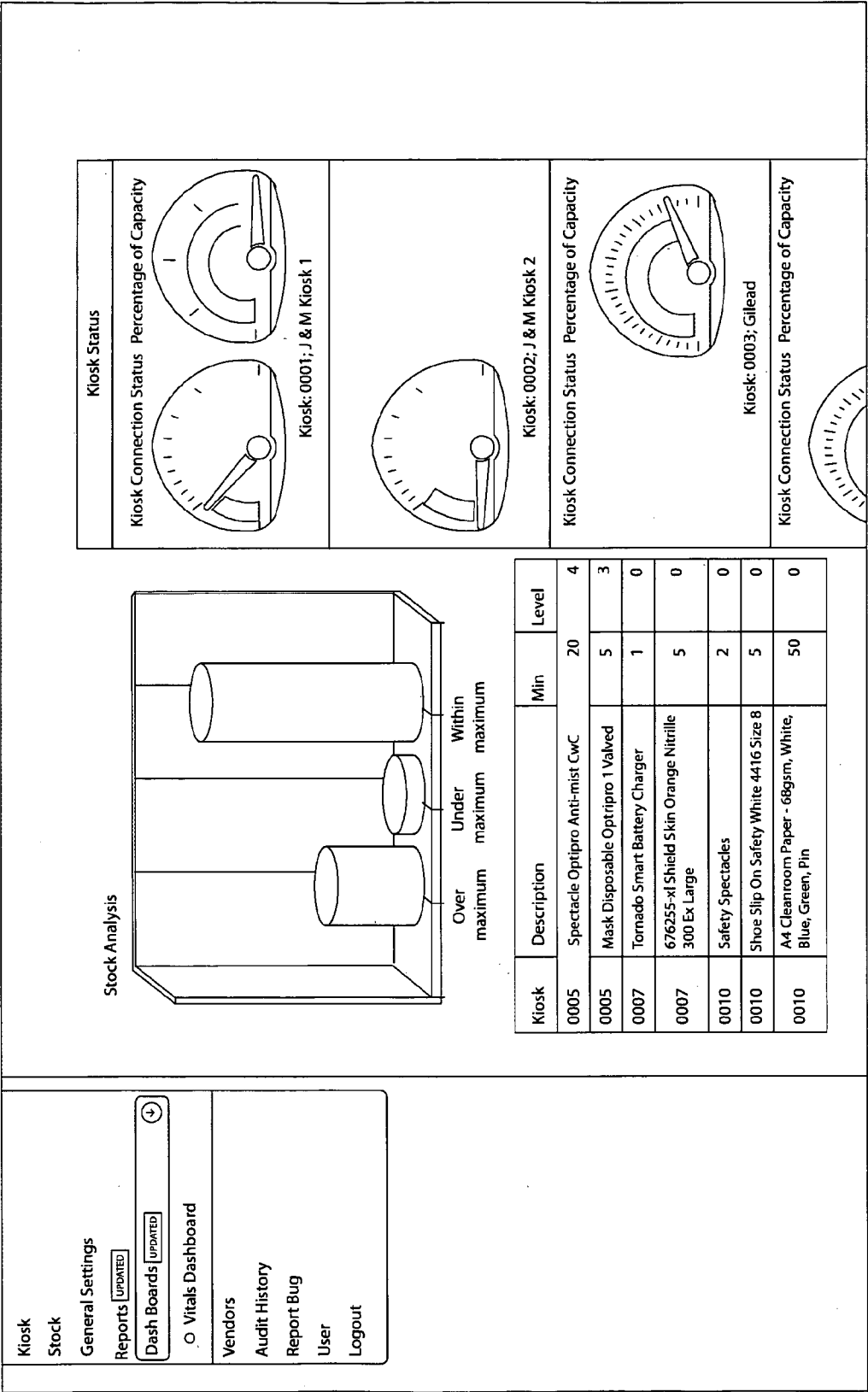


Fig. 17



Kiosk	Description	Min	Level
0005	Spectacle Optipro Anti-mist CwC	20	4
0005	Mask Disposable Optipro 1 Valved	5	3
0007	Tornado Smart Battery Charger	1	0
0007	676255-xl Shield Skin Orange Nitrille 300 Ex Large	5	0
0010	Safety Spectacles	2	0
0010	Shoe Slip On Safety White 4416 Size 8	5	0
0010	A4 Cleanroom Paper - 68gsm, White, Blue, Green, Pin	50	0

Fig. 18

Customers **UPDATE**

Suppliers

Kiosk

Stock

General Settings

Reports

Usage Analysis

Opening Closing Qtys

Opening Closing Value

Kiosk Access and Activity **NEW**

Stock Valuation by Location

Red Flag items

Monthly usage Analysis **NEW**

Stock Report

Kiosk transaction Chart

Dash Boards

Vendors

Report Bug

Logout

Kiosk Access and Activity

Select Kiosk

Date From

01-02-2009

Date To

03-02-2009

Kiosk Number	Door Accessed	User	Processed	Minutes in Kiosk	No of Line Items
0004	03/02/2009 15:38:16	Ruairi O'Shea 7		0	
0011	03/02/2009 13:04:11	Robert IPT		0	
0011	03/02/2009 12:56:28	Mai Madigan	03/02/2009 12:57:25	1	1
0011	03/02/2009 12:56:21	John Neville		0	
0011	03/02/2009 12:51:19	John Madigan		0	
0001	03/02/2009 12:40:39	Colman Carrol 8		0	
0001	03/02/2009 12:40:38	Colman Carrol 8		0	
0001	03/02/2009 15:38:16	Colman Carrol 8		0	
0001	03/02/2009 13:04:11	Colman Carrol 8		0	
0001	03/02/2009 12:56:28	Colman Carrol 8		0	
0011	03/02/2009 12:56:21	Robert IPT	03/02/2009 12:10:36	13	1
0011	03/02/2009 12:51:19	Robert IPT	03/02/2009 12:05:24	8	27
0011	03/02/2009 12:40:39	Jim Shiels	03/02/2009 11:57:35	6	1
0011	03/02/2009 15:38:16	Jim Shiels	03/02/2009 11:56:06	5	4
0011	03/02/2009 13:04:11	Robert IPT	03/02/2009 11:35:26	8	3
0011	03/02/2009 12:56:28	John Madigan		0	
0004	03/02/2009 12:56:21	Ruairi O'Shea 7	03/02/2009 09:28:08	3	2
0001	03/02/2009 12:40:38	Colman Carrol 8	03/02/2009 09:10:50	1	1
0001	03/02/2009 12:56:28	Colman Carrol 8		0	
0011	02/02/2009 12:56:21	Noel Cronin	02/02/2009 16:29:35	2	3

Page 1 of 2 (38 items)

Export to PDF

Export to XLS

Export to RTF

Export to CSV

Fig. 19

INTERNATIONAL SEARCH REPORT

International application No

PCT/IE2010/000015

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

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)

EP0-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 6 198 391 B1 (DEVOLPI DEAN R [US]) 6 March 2001 (2001-03-06) the whole document	1-21
X	US 2004/111335 A1 (BLACK CHARLES RONALD [US] ET AL) 10 June 2004 (2004-06-10) the whole document	1-21
X	US 2006/224472 A1 (MAY JEROME E [US]) 5 October 2006 (2006-10-05) the whole document	1-21
X	WO 2009/029909 A1 (SEEONIC INC [US]; GRIMLUND PETER [US]; FELDMAN HARLEY [US]; DREWLO KEN) 5 March 2009 (2009-03-05) the whole document	1-21
	----- -/--	

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"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)

"O" document referring to an oral disclosure, use, exhibition or other means

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

"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

"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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search

14 June 2010

Date of mailing of the international search report

23/06/2010

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

Pastore, Edoardo

INTERNATIONAL SEARCH REPORT

International application No

PCT/IE2010/000015

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 2005/033695 A1 (MINOWA MASAHIRO [JP]) 10 February 2005 (2005-02-10) the whole document	1-21
X	US 5 832 464 A (HOUVENER ROBERT C [US] ET AL) 3 November 1998 (1998-11-03) the whole document	1-21

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IE2010/000015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6198391	B1	06-03-2001	NONE
US 2004111335	A1	10-06-2004	NONE
US 2006224472	A1	05-10-2006	NONE
WO 2009029909	A1	05-03-2009	CA 2697684 A1 05-03-2009 US 2009146800 A1 11-06-2009
US 2005033695	A1	10-02-2005	JP 2005056333 A 03-03-2005
US 5832464	A	03-11-1998	AU 702919 B2 11-03-1999 AU 5677196 A 29-11-1996 BR 9608305 A 09-05-2000 CA 2220414 A1 14-11-1996 CN 1183186 A 27-05-1998 EP 0824815 A1 25-02-1998 JP 11509015 T 03-08-1999 WO 9636148 A1 14-11-1996 US 5657389 A 12-08-1997 US 5790674 A 04-08-1998