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(54) SYSTEM AND METHOD FOR MONITORING RETAIL STORE PERFORMANCE

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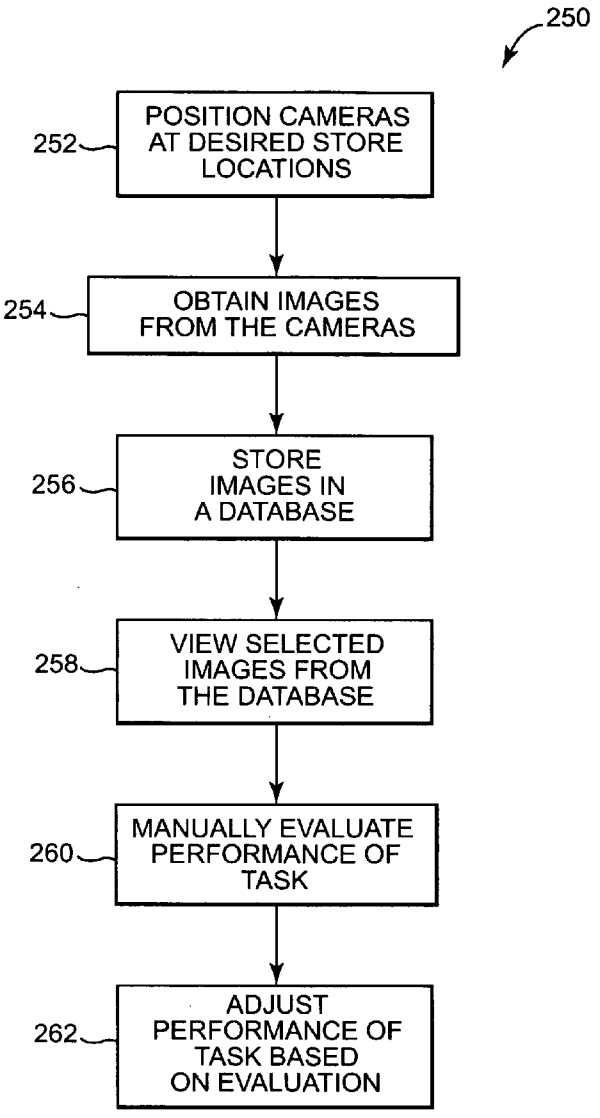
(57) **ABSTRACT**

A system for monitoring the performance of at least one task associated with operation of a retail store. The system includes at least one monitoring device positioned and adapted to provide images of at least one location within the retail store, with each image showing at least one factor related to performance of the at least one task. A controller is adapted to obtain and store images from the at least one monitoring device. An interface is adapted to enable a user to selectively view stored images and to manually analyze the at least one factor shown in the viewed images to evaluate the performance of the at least one task.



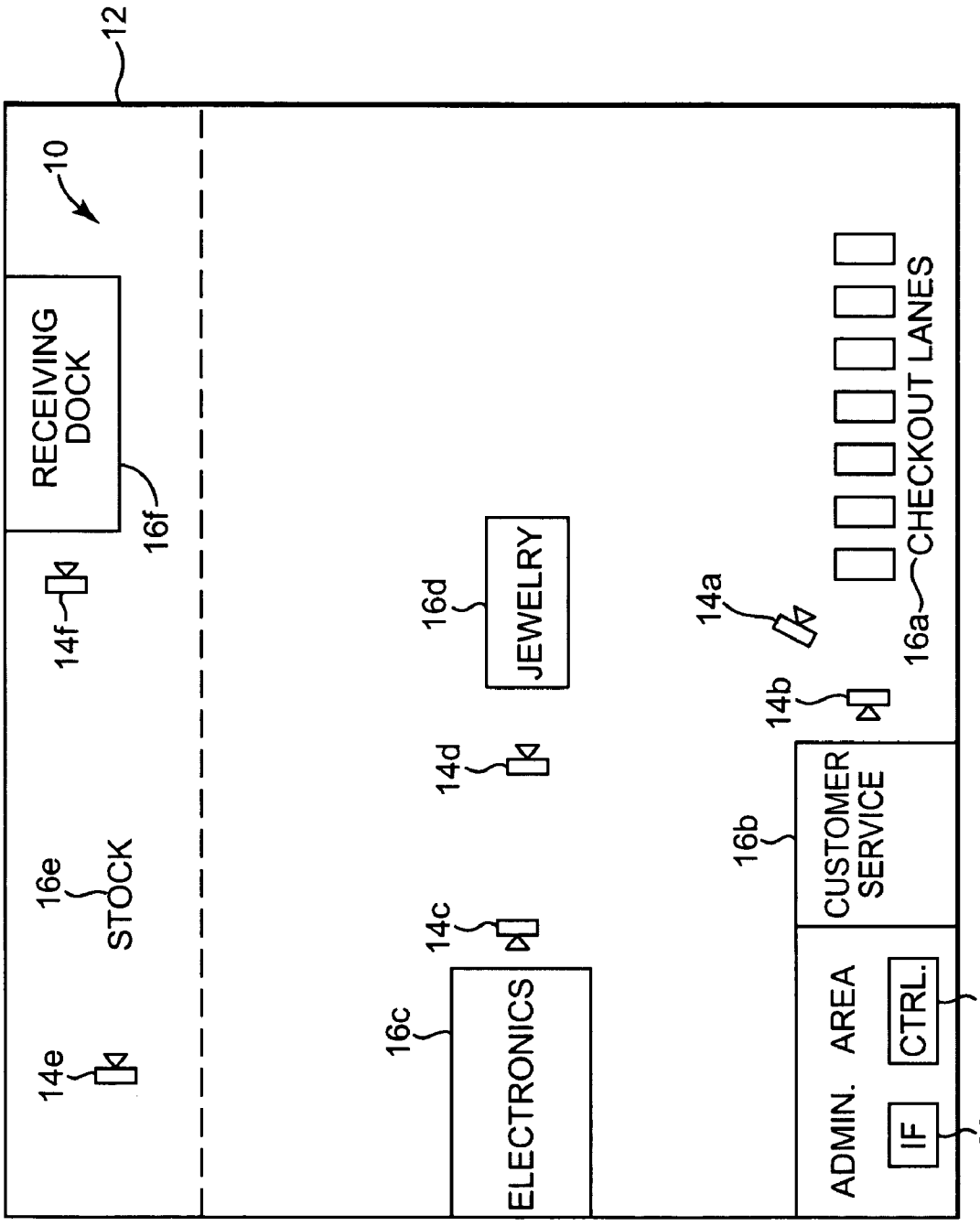

12
10
RECEIVING DOCK
16f
14f
16e
STOCK
14e
16d
JEWELRY
14d
14c
16c
ELECTRONICS
14a
16a
CHECKOUT LANES
14b
16b
CUSTOMER SERVICE
ADMIN. AREA
CTRL.
18
IF
20

Fig. 1

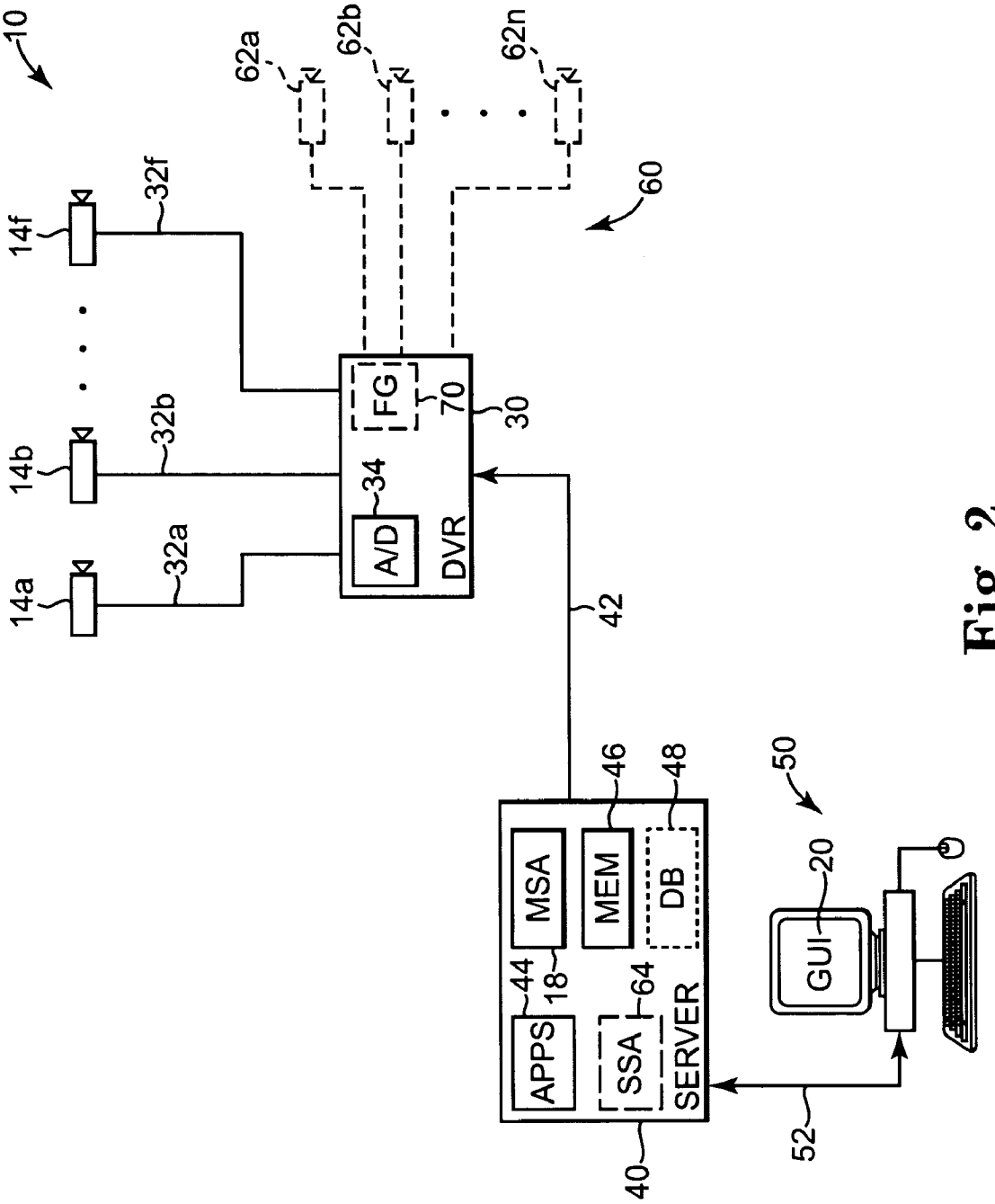

10
62a
62b
62n
60
14f
32f
14b
32b
14a
32a
FG
70
30
34
A/D
DVR
42
46
48
50
MSA
MEM
DB
GUI
20
44
18
64
APPS
SSA
SERVER
40
52

Fig. 2

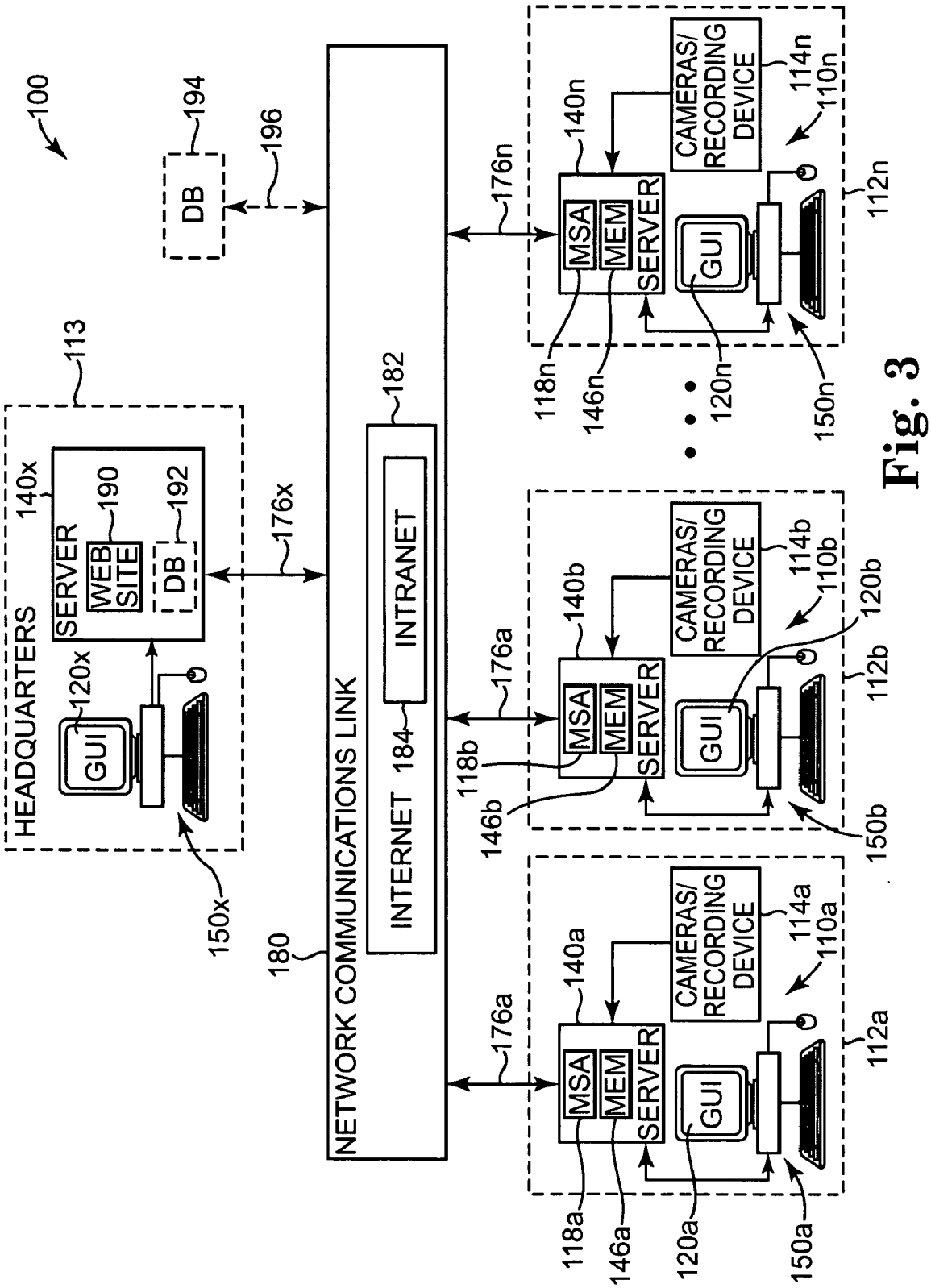

100
DB
194
196
NETWORK COMMUNICATIONS LINK
180
INTERNET
182
INTRANET
184
HEADQUARTERS
113
SERVER
140x
WEB SITE
190
DB
192
GUI
120x
150x
176x
176n
140n
MSA
MEM
SERVER
CAMERAS/ RECORDING DEVICE
114n
110n
112n
118n
146n
120n
150n
176a
140b
114b
110b
112b
118b
146b
120b
150b
140a
114a
110a
112a
118a
146a
120a
150a

Fig. 3

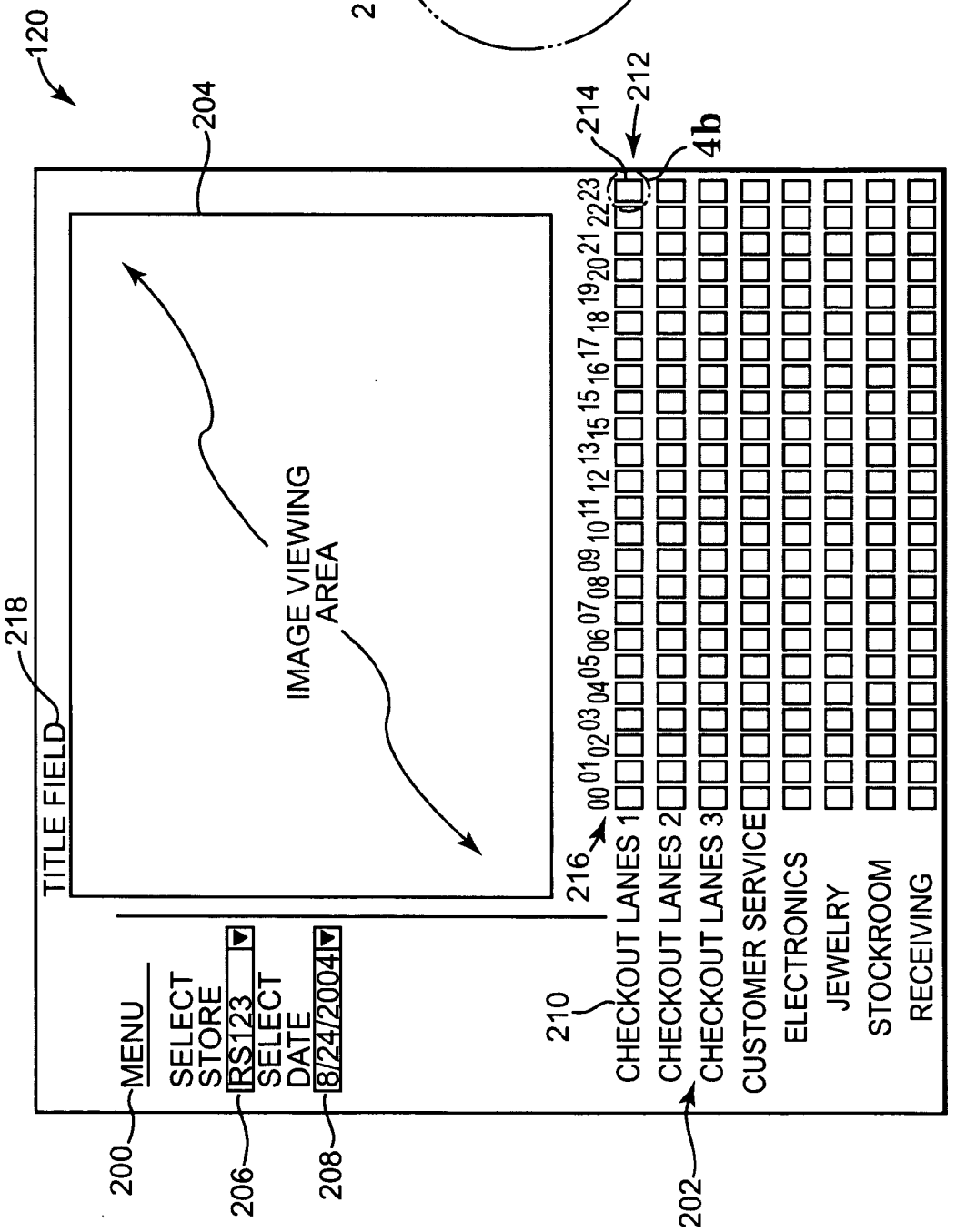

120
204
214
212
4b
218
TITLE FIELD
IMAGE VIEWING AREA
216
210
MENU
SELECT STORE
RS123
SELECT DATE
8/24/2004
CHECKOUT LANES 1
CHECKOUT LANES 2
CHECKOUT LANES 3
CUSTOMER SERVICE
ELECTRONICS
JEWELRY
STOCKROOM
RECEIVING
00 01 02 03 04 05 06 07 08 09 10 11 12 13 15 15 16 17 18 19 20 21 22 23
200
206
208
202

Fig. 4A

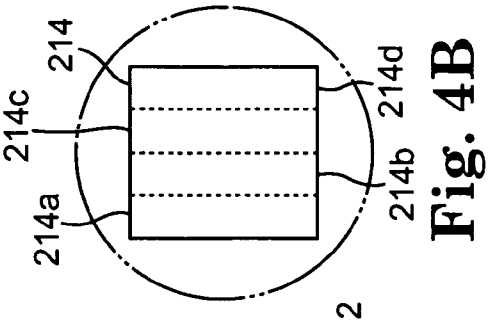

214
214c
214d
214a
214b

Fig. 4B

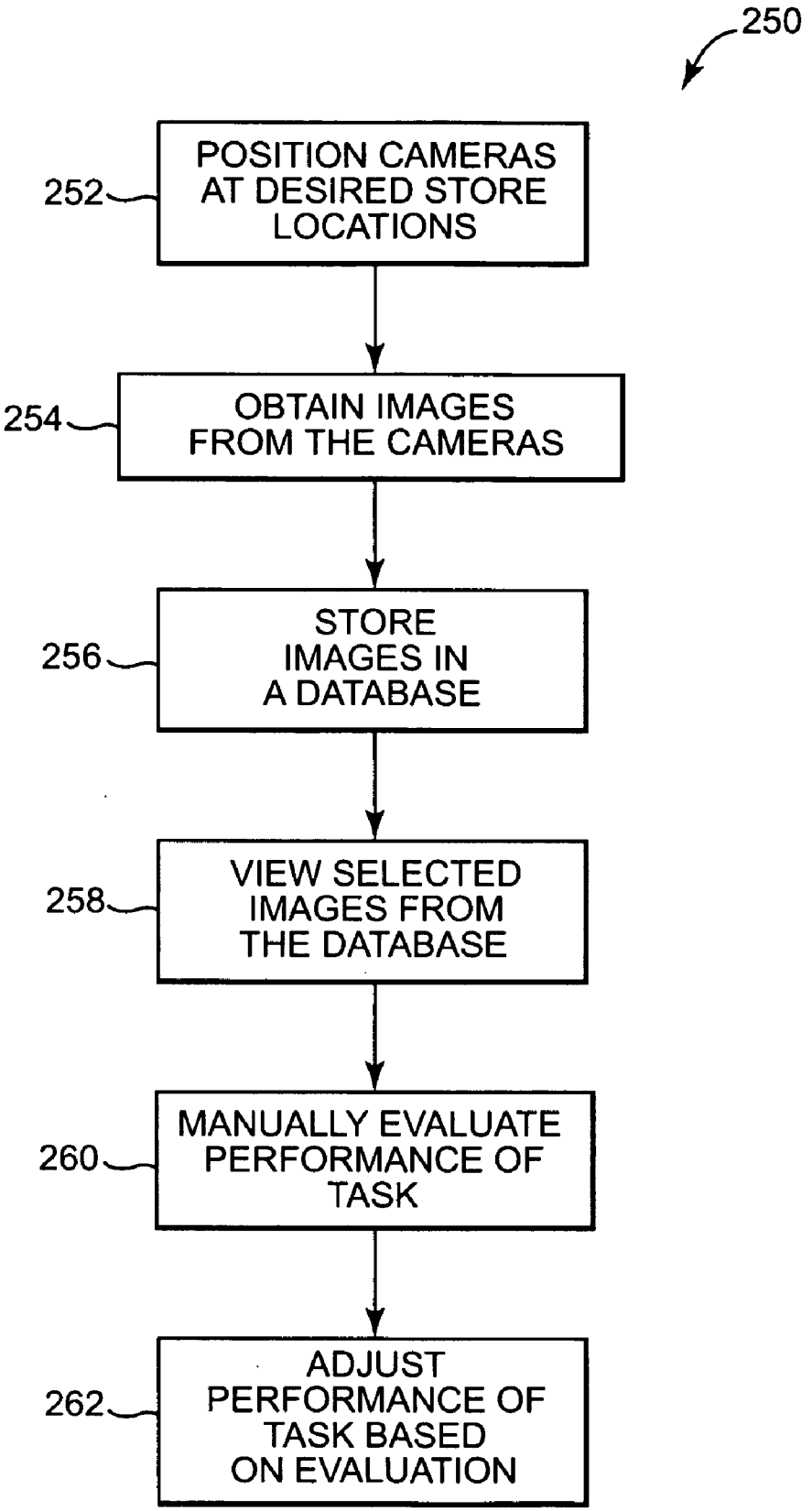

250
252
POSITION CAMERAS AT DESIRED STORE LOCATIONS
254
OBTAIN IMAGES FROM THE CAMERAS
256
STORE IMAGES IN A DATABASE
258
VIEW SELECTED IMAGES FROM THE DATABASE
260
MANUALLY EVALUATE PERFORMANCE OF TASK
262
ADJUST PERFORMANCE OF TASK BASED ON EVALUATION

Fig. 5

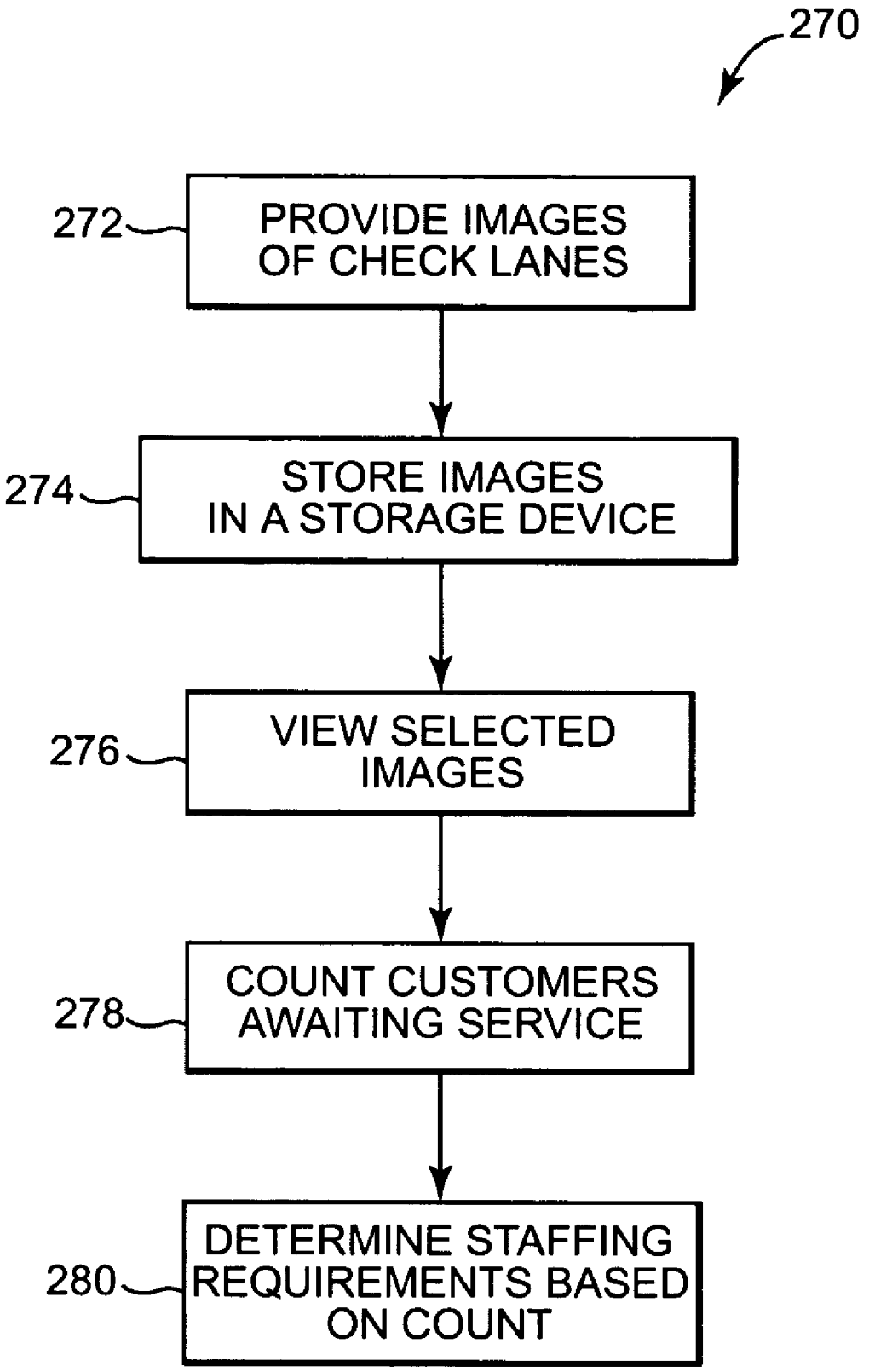

270
272
PROVIDE IMAGES OF CHECK LANES
274
STORE IMAGES IN A STORAGE DEVICE
276
VIEW SELECTED IMAGES
278
COUNT CUSTOMERS AWAITING SERVICE
280
DETERMINE STAFFING REQUIREMENTS BASED ON COUNT

Fig. 6

SYSTEM AND METHOD FOR MONITORING RETAIL STORE PERFORMANCE

BACKGROUND OF THE INVENTION

[0001] As the retail industry continues to become more competitive, customer satisfaction is of paramount importance in establishing and maintaining customers. Customer satisfaction depends on a variety of factors such as a customer's perception of price, product availability, well-stocked shelves, ease of finding products within a retail store, cleanliness of the store, and friendliness of employees.

[0002] However, perhaps the most important factor regarding customer satisfaction is customer service. Of primary concern with regard to customer service is the amount of time a customer must wait when requiring assistance from a store employee. This includes, for example, time spent waiting for assistance at a customer service counter, at a merchandise counter and, of course, time spent waiting in check-out lanes. Generally speaking, the less time spent waiting for assistance, the more satisfied the customer.

SUMMARY OF THE INVENTION

[0003] One embodiment of the present invention relates to a system for monitoring the performance of at least one task associated with operation of a retail store. The system comprises at least one monitoring device positioned and adapted to provide images of at least one location within the retail store, with each image showing at least one factor related to performance of the at least one task. The system further includes a controller and an interface. The controller is adapted to obtain and store images from the at least one monitoring device. The interface is configured to enable a user to selectively view stored images and to manually analyze the at least one factor shown in the viewed images to evaluate the performance of the at least one task.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] Embodiments of the invention will be described with respect to the figures, in which like reference numerals denote like elements, and in which:

[0005] **FIG. 1** is block diagram illustrating one embodiment of a performance monitoring system according to the present invention.

[0006] **FIG. 2** is a block diagram illustrating one embodiment of a performance monitoring system according to the present invention.

[0007] **FIG. 3** is a block diagram illustrating one embodiment of a performance monitoring system according to the present invention.

[0008] **FIG. 4A** is an illustration of a graphical user interface for use with one embodiment of a performance monitoring system according to the present invention.

[0009] **FIG. 4B** illustrates in greater detail a portion of the graphical user interface of illustrated in **FIG. 4A**.

[0010] **FIG. 5** is a flow diagram illustrating one embodiment of a process for monitoring the performance of a retail store according to the present invention.

[0011] **FIG. 6** is a flow diagram illustrating another embodiment of a process for determining staffing requirements of a retail store according to the present invention.

DETAILED DESCRIPTION

[0012] **FIG. 1** is a block diagram generally illustrating one embodiment of a performance monitoring system **10** according to the present invention for monitoring the performance of at least one task associated with operation of a retail store **12**. Performance monitoring system **10** includes a plurality of monitoring devices **14**, each positioned to view a corresponding location **16** within retail store **12** and adapted to provide images of the corresponding location **16**, each image showing at least one factor related to performance of at the at least one task. In one embodiment, monitoring devices **14** comprise cameras. In one embodiment, monitoring devices **14** comprise analog video cameras adapted to provide analog video of corresponding locations **16**. In one embodiment, monitoring devices **14** comprise digital video cameras adapted to provide digital video of corresponding locations **16**. As illustrated, analog video cameras **14***a* through **14***f* respectively correspond to store locations indicated as checkout lanes **14***a*, customer service desk **14***b*, electronics counter **14***c*, jewelry counter **14***d*, stockroom **14***e*, and receiving area **14***f*. Although illustrated as having analog video cameras **14***a* through **14***f*, monitoring system **10** can include more or fewer cameras **14** at locations other than locations **16** indicated by **FIG. 1**. Additionally, multiple cameras may be used to monitor a single store location, such as check lanes **16***a*.

[0013] Performance monitoring system **10** further includes a controller **18** and an interface **20**. Controller **18** is adapted to automatically obtain and store still images from each of the monitoring devices **14** at selectable intervals. In one embodiment, controller **18** is adapted to obtain still images in a digital format, such as JPG format, for example, from analog video cameras **14** at selected intervals. In one embodiment, the selectable intervals are regular intervals, such as every fifteen minutes, for example.

[0014] Interface **20** is adapted to enable a user, such as a store manager, to selectively view the stored images and to manually analyze the at least one factor shown in the viewed images to evaluate the performance of the at least one task. Examples of such factors include number of employees and an amount of unloading time required when evaluating the task of unloading an incoming shipment of products at receiving dock **16***f*, and a number of customers awaiting service when evaluating the tasks of processing customers at check lanes **16***a* or assisting customers at customer service area **16***b*, electronics counter **16***c*, and jewelry counter **16***d*. Any number of other tasks associated with operation of retail store **12** can be similarly monitored by providing and positioning cameras **14** at other locations within retail store **12** as required.

[0015] By providing monitoring of selected areas of a retail store, performance monitoring system **10** enables a user, such as a store manager, to evaluate performance of selected tasks associated with the operation of the retail store. Based on such evaluations, performance of certain tasks can be adjusted to improve the store's performance. For example, staffing requirements at certain store locations, particularly at check lanes, can be evaluated and adjusted in

order to minimize customer wait times and thereby likely improve customer satisfaction. Furthermore, by storing the images, monitoring system **10** enables a user, such as a store manager, to evaluate the performance of tasks at any suitable time and does not require real-time monitoring.

[**0016**] Components of the present invention can be implemented in hardware via a microprocessor, programmable logic, or state machine, in firmware, or in software with a given device. In one aspect, at least a portion of the software programming is web-based and written in HTML and JAVA programming languages, including links to user interfaces, such as a Windows based operating system, and each of the main components may communicate via a network using a communication protocol. For example, the present invention may or may not use a TCP/IP protocol for data transport. Other programming languages and communication protocols suitable for use with the present invention will become apparent to those skilled in the art after reading the present application. Components of the present invention may also reside in software on one or more computer-readable mediums, which is defined herein to include any kind of memory, volatile or non-volatile, such as floppy disks, hard drives, read-only memory (ROM), CD-ROMs, flash memory, and random access memory (RAM).

[**0017**] **FIG. 2** is a block and schematic diagram illustrating one embodiment of performance monitoring system **10** for retail store **12** as illustrated generally by **FIG. 1**. Performance monitoring system **10** includes a plurality of analog video cameras **14**, such as analog video cameras **14***a* through **14***e*. Each camera **14** is coupled to a digital video recorder (DVR) **30** via a corresponding link **32**. Each camera **14** is configured as a unique channel and provides an analog video signal of its associated store location **16** via corresponding link **32** to DVR **30**. DVR **30** includes an analog-to-digital converter (A/D) **34** which converts the analog video signal of each camera (or channel) **14** to a corresponding digital video having a digital video format, such as AVI, for example. DVR **30** is configured to store a predetermined amount of the digital video for each camera **14**. In one embodiment, for example, DVR **30** stores a day's worth of digital video for each camera **14**, with the stored digital video being replaced with the digital video for each subsequent day.

[**0018**] A server **40** is coupled to DVR **30** via a link **42**. In one embodiment, controller **18** comprises a monitoring system application (MSA) comprising an electronically readable code which is installed and operating on server **40**. In one embodiment, in addition to MSA **18**, store server **40** includes various other applications **44** related to operation of retail store **12**. MSA **18** is adapted to automatically retrieve digital still images for each camera **14** at regular intervals from DVR **30** via link **42**. In one embodiment, MSA **18** is adapted to retrieve the digital still images for each camera by selecting a single frame from a selectable time period of the digital video of each camera stored in DVR **30** and by converting the selected digital video frame from a digital video from, such as AVI, to a digital still picture format, such as JPG. In one embodiment, MSA **18** stores the retrieved digital still images for each camera in a memory **46** according to a directory and file naming convention. In an alternate embodiment, MSA **18** stores the retrieved digital still images in a database **48**. Although illustrated as being within server **40**, in other embodiments, database **48** could be located external to server **40**.

[**0019**] In one embodiment, interface **20** comprises a graphical user interface (GUI) adapted to display the digital still photos stored in database **46** and which is viewable via a personal computer (PC) **50** coupled to server **40** via a link **52**. Although illustrated as being viewed via PC **50**, in other embodiments, GUI **20** may be viewed via other electronic viewing devices, such as a personal digital assistant (PDA) or Blackberry device, for example.

[**0020**] In one embodiment, DVR **30** comprises a portion of a security system **60** which further includes a plurality of analog video cameras **62** providing surveillance video of retail store **12** for purposes of assets protection. Surveillance system **60** is controlled by a security system application (SSA) **64** comprising a computer readable code which is installed and operating on store server **40**. In one embodiment, analog video cameras **16** are dedicated for use as surveillance cameras for assets protection and analog video cameras **14** are employed both as surveillance cameras by security system **60** and as monitoring cameras by performance monitoring system **10**. Security system **60** utilizes the entire video signal of analog video cameras **14** and **62** stored in DVR **30**, while performance monitoring system **10** utilizes the digital images obtained by controller **18** and stored in database **46**.

[**0021**] In one embodiment, security system **60** represents an existing surveillance system within retail store **12**. If analog video cameras **62** of security system **60** are already positioned or can be repositioned to view all locations desired to be monitored by performance monitoring system **10** (e.g., locations **16** as illustrated by **FIG. 1**), analog video cameras **14** are not required and MSA **18** of performance monitoring system **10** can obtain images as necessary from existing analog video cameras **62**. However, if analog video cameras **62** of security system **60** are not, or cannot, be positioned to view all desired store locations **16**, analog video cameras **14** are added to security system **60** and positioned to view the otherwise non-observed areas. In such a scenario, while the primary function of analog video cameras **14** is to provide images for performance monitoring system **10**, analog video signals provided by analog video cameras **14** via links **32** can also be utilized for assets protection purposes by security system **60**.

[**0022**] In one embodiment, in lieu of a digital recording device, recording device **30** comprises some type of analog recording device, such as one or more video tape recording devices adapted to record the analog video signals received via links **32** from each camera, or channel. In such an embodiment, performance monitoring system **10** further includes a "frame grabber" (FG) **70** adapted to capture at regular intervals a single frame of the analog video signal provided by each camera **14** prior to the analog video signal being recorded by the analog recording device, and to convert the single frame to a digital still image which is subsequently stored in memory **46**.

[**0023**] In one embodiment, cameras **14** comprise digital still cameras configured to provide digital still images of store locations **16** at intervals as directed by MSA **18**. In this embodiment, digital still images from cameras **14** can be

stored directly to database **46** as directed by MSA **18**. As such, recording device **30** is not required in this embodiment.

[**0024**] **FIG. 3** is a block diagram illustrating one embodiment of a performance monitoring system **110** according to the present invention configured as a network system distributed across a plurality of retail stores **112** and a headquarters facility **113** of a retail corporation. In one embodiment, as illustrated, each retail store **112***a* through **112***n* respectively includes a monitoring system **110***a* to **110***n*. In one embodiment, monitoring systems **110** are similar to monitoring system **10** of retail store **12** described above by **FIG. 2**, with each monitoring system **110** including a plurality of digital video cameras and a digital recording device (indicated generally at **114**), and an MSA **118** and database **146** installed and operating on a server **140**. Each monitoring system **110** further includes a GUI **120** viewable via an electronic viewing device, such as PC **150**. Headquarters facility **113** includes a server **140***x* and at least one electronic viewing device, such as PC **150***x*, for viewing GUI **120***x*.

[**0025**] Monitoring systems **110***a* to **110***n* of are respectively coupled to a network communications link **180** via communications links **176***a* to **176***n* and headquarters facility **110** is coupled to network communications link **180** via communications link **176***x*. Network communication link **180**, as employed herein, includes an Internet communications link, an intranet communication link, or similar high-speed communication link. In one embodiment, network communication link **18** includes an Internet communications link **182**. Internet communications link permits communication between performance monitoring systems **110** of stores **112** and between performance monitoring systems **110** of stores **110** and headquarters facility **113**.

[**0026**] In one embodiment, network communications link **180** includes an Intranet communications link **184** linking retail stores **112** and headquarters facility **113** by means of Internet communications link **182**. Intranet communications link **184** provides a controlled-access communications link between stores **112** and headquarters facility **113** which is accessible via a password or other user-recognition mechanism.

[**0027**] MSA **118** of monitoring system **110** of each retail store **112** is configured to obtain and store digital images of desired locations within retail store **112** (e.g. locations **16** as illustrated by **FIG. 1**) in memory **146** of server **140** of corresponding retail store **112**. In other embodiments, in lieu of monitoring systems **110** storing digital images in a memory **146** local to each retail store **112**, monitoring systems **110** store digital images obtained from corresponding camera and recording devices **114** in a central data base, such as database **192** within server **140***x* of headquarters facility **113** or database **194** coupled to network communications link **180** via a communications link **196**.

[**0028**] In one embodiment, the digital images obtained by MSAs **118** are viewable by users via GUIs **120** which access the digital images stored in data bases **146** of servers **140** via a website **190** located on server **140***x* of headquarters facility **113** and network communications link **180**. Although illustrated as being located on server **140***x*, in other embodiments, website **190** could be located on any server coupled to network communications link **180**.

[**0029**] In one embodiment, as described briefly above, intranet communications link **184** comprises a controlled-access communications link between stores **112** and headquarters facility **113**. In one embodiment, to access the digital photos stored in memories **146**, a user, such as a manager of retail store **112***a*, enters the URL (Uniform Resource Location), or address, of website **190** into a Web browser located on PC **150***a* which subsequently locates website **190** via intranet connection **186**. To access website **190**, the user enters a username and password. Upon entering a valid username and password, the user can access and view selected stored digital images via GUI **120***a* which is displayed by PC **150***a*. Although described as being accessed via PC **150**, website **190** can be accessed via other types of electronic viewing devices, such as a PDA, for example, and from any location that provides a communication link to intranet **184**.

[**0030**] In one embodiment, access to viewing stored images is limited based on a user's logon ID. For instance, in one embodiment, based on the user's unique logon ID, a user associated with a given retail store **112** can access only stored images corresponding to the given retail store **112**. For example, a manager of retail store **112***a* can access only images of locations within retail store **112***a* which are stored within memory **146***a*, and cannot access images of other retail stores, such as retail store **112***b*. In other embodiments, other users, such as certain employees associated with headquarters facility **113**, can access images of all retail stores **112***a* to **112***n* respectively stored in memories **146***a* to **146***n*. In one embodiment, access to viewing stored images is limited based a location from which access is initiated. For example, in one embodiment, each PC, or workstation, **150** has unique hardware identifier which corresponds, at least in part, to the retail store **112** in which PC **150** is located. As such, a user accessing stored images via PC **150***a*, for example, is limited to viewing only those images stored in memory **146***a* corresponding to retail store **112***a*.

[**0031**] **FIG. 4A** is an illustrative example of GUI **120** for accessing and viewing digital images provided by performance monitoring systems **110** via website **190** as described above by **FIG. 3**. GUI **120** includes an options menu **200**, an image selection menu **202**, and an image display area **204**. Options menu **200** includes a pull-down menu **206** that enables a user to select a retail store **112** from which the user would like to view digital images provided by the stores performance monitoring system **110**. In one embodiment, pull-down menu **206** comprises a list of unique identification numbers corresponding to each retail store **112** (for example, "RS123" as illustrated in **FIG. 4**) from which the user can select, such as by selecting the identification number corresponding to the desired retail store with a mouse. Similarly, options menu **200** includes a pull-down menu **208** that enables a user to select a desired date from which the user would like to view images for the desired retail store **112** as selected via pull-down menu **206**.

[**0032**] As described above, in one embodiment, access of images is limited based on a user's unique logon ID or location. As such, in one embodiment, pull-down menu **206** comprises the unique identification numbers of only those retail stores **112** to which the user is allowed access as based on the user's password. Thus, for a user having access to only one retail store **112**, options menu **200** will include only pull-down menu **208** enabling the user to select a desired

date from which to view images of only the retail store **112** with which the user is associated. In lieu of pull-down menu **206**, only the unique identification number of the store with which the user is associated will be displayed.

[**0033**] Image selection menu comprises a column **210** of descriptions of monitored locations within the selected retail store (e.g. locations **16** of retail store **12** as illustrated by **FIG. 1**). Each description of column **210** is followed by a row **212** of icons **214** representative of stored images corresponding to the described location within the selected retail store. In one embodiment, each row comprises 24 icons with each icon representative of images acquired during one hour of the day selected via pull-down menu **208**. In one embodiment, as indicated at **216**, the columns of icons are labeled as columns "01" through "23" with the icons in the column labeled "00" representative of digital images acquired between 12:00 am and 1:00 am, the icons in the column labeled "01" representative of digital images acquired between 1:00 am and 2:00 am, and so on.

[**0034**] In one embodiment, wherein images of desired locations within a retail store are obtained on 15-minute intervals, each icon **214** is partitioned into four areas **214***a* through **214***d*, with each area being representative of one of the four photos acquired during the corresponding hour. For example, as illustrated by the enlarged view of **FIG. 4B**, icon **214** is representative of images of a first group of check lanes ("check lanes 1") acquired during time period "23", wherein time period "23" corresponds to the time period between 11:00 pm to 12:00 am. As such, areas **214***a*, **214***b*, **214***c* and **214***d* respectively represent images of the first group of check lanes acquired at 11:00 pm, 11:15 pm, 11:30 pm and 11:45 pm.

[**0035**] After selecting a desired store and a desired date via pull-down menus **206** and **208**, a user chooses an image to be viewed by selecting one of the icons **214**. In one embodiment, a user selects a desired icon, or desired area of an icon, by mouse-clicking the desired icon **214**. Upon selecting a desired image, the image is displayed within image viewing area **204**. In one embodiment, image viewing area **204** includes a title field **218** displaying the description of the store location from column **210** corresponding to the selected image (i.e. the camera from which the selected image originated) and an indication of a time frame **220** corresponding to the selected image.

[**0036**] **FIG. 5** is a flow diagram illustrating one embodiment of a process **250** according to the present invention for monitoring performance of at least one task associated with operation of a retail store. Process **250** begins at step **252** where cameras are provided at desired locations within the retail store where certain tasks which are desired to be monitored are performed, such as positions **16** illustrated by **FIG. 1**. In one embodiment, as described above, the cameras may be analog video cameras providing analog video signals which are converted into digital video format. In one embodiment, the cameras may be digital video cameras providing a digital video signal. In one embodiment, the cameras may be digital still cameras providing digital still photos. In one embodiment, the cameras may comprise a portion of an existing security surveillance system.

[**0037**] At step **254**, images are obtained at selectable intervals from the cameras positioned at step **252**. In one embodiment, the images are obtained at regular intervals, such as, for example, 15-minute intervals. In one embodiment, wherein the cameras are analog video cameras, digital still photos are extracted from the digital video signals obtained from the cameras' analog video signals, wherein the extracted images comprise digital still photos of the corresponding areas monitored by the cameras. At step **254**, the images obtained at step **254** are stored in a memory. In one embodiment, the obtained images are stored in a database.

[**0038**] At step **258**, a user, such as a store manager, views selected images obtained and stored via steps **254** and **256**. At step **260**, the user manually analyzes at least one factor shown in the viewed images that is related to the performance of a given task in order to evaluate how well the given task was performed. For example, a user may select images of a given location provided by one or more cameras over a certain time period to evaluate the performance of a task that is carried out a that location. For example, a user may select one or more cameras positioned at receiving dock **16***f* to monitor how long it takes to unload an incoming shipment of products. In this instance, factors related to the unloading of the incoming shipment may include the number of employees engaged in unloading the truck, the size of packages being unloaded, and the time required to unload the truck. From the images, the store manager can evaluate generally the number of employees engaged in unloading the truck and from the time interval of the images selected, estimate how long it took to unload the truck.

[**0039**] At step **262**, based on the evaluation of the images at step **260**, the user may determine that performance of the task needs to be improved. For example, if the truck took too long to unload, more employees may be assigned to this task for future shipments. Also, if from the images it appeared that there were too many employees assigned to unload the truck, fewer employees may be assigned to unload future shipments.

[**0040**] **FIG. 6** is a flow diagram illustrating one embodiment of a process **270** according to the present invention for determining staffing requirements at one or more check lanes of a retail store. Process **270** begins at step **272** where still images of the one or more check lanes are provided. In one embodiment, the still images are digital images. At step **274**, the still images are stored in a storage device.

[**0041**] At step **276**, a user, such as a store manager, selects for viewing one or more images of the one or more check lanes corresponding to a desired time interval. In one embodiment, the digital still images are viewed via an electronic viewing device, such as via the display of a personal computer or a personal digital assistant (PDA). At step **278**, the user manually analyzes the one or more selected images to assess generally the customer conditions at the one or more check lanes. If the images permit, a store manager may thoroughly assess customer conditions by manually counting a number of customers awaiting service at the one or more check lanes. The user may also determine a number of cashiers on duty and estimate a length of time customers wait before being served.

[**0042**] At step **278**, the store manager may adjust the number of cashiers on duty at that time of the day based on the conditions shown in the images viewed during step **276**. For example, with reference to **FIG. 1**, a store manager may view images obtained from camera **14***a* during a selected

time interval, such as between 4 pm and 5 pm on a given date, to evaluate the performance of check lanes **16***a*. For instance, if controller **18** obtains images from camera **14***a* at fifteen minute intervals, the store manager can view the five images (i.e., 4:00, 4:15, 4:30, 4:45, and 5:00) to determine the number of check lanes open (i.e., staffed with a cashier) and the number of customers at each open check lane in order to determine whether more or few check lanes should be open during that time of the day. Also, a store manager may view images of a same time period each day over an extended time period (e.g., a week, a month, etc.) to determine trends in customer patterns in order to predict how many cashiers should be available and how many check lanes should be open at a given time.

[**0043**] One aspect of the present invention, as described briefly above with respect to **FIG. 2**, relates to retrofitting a retail store's existing security system to provide a performance monitoring system according to the present invention, wherein the existing security system includes a plurality of video cameras each providing a video signal of a corresponding location within the retail store. The retrofitting process includes evaluating the positions of the existing video cameras and to select those existing video cameras that provide images of store locations desired to be monitored. If all desired store locations are not adequately monitored, the process includes adding one or more video cameras to the existing security system in order to adequately monitor such store locations.

[**0044**] The process further includes providing a controller adapted to capture digital images from the video signals of selected existing video cameras and newly added video cameras. The process further includes providing a storage device in which to store the captured digital images and providing an interface adapted to enable a user to selectively view the stored digital images in order to evaluate performance of one or more operations taking place at the one or more locations viewed in the digital images.

[**0045**] Although the invention has been described with respect to particular embodiments, such embodiments are for illustrative purposes only and should not be considered to limit the invention. Various alternatives and changes will be apparent to those of ordinary skill in the art.

What is claimed is:

1. A system for monitoring the performance of at least one task associated with operation of a retail store, the system comprising:

at least one monitoring device positioned and adapted to provide images of at least one location within the retail store, each image showing at least one factor related to performance of the at least one task;

a controller adapted to obtain and store images from the at least one monitoring device; and

an interface adapted to enable a user to selectively view stored images and to manually analyze the at least one factor shown in the viewed images to evaluate the performance of the at least one task.

2. The system of claim 1, wherein the at least one monitoring device comprises a video camera providing a video signal of the at least one location.

3. The system of claim 1, wherein the at least one monitoring device comprises a digital still camera.

4. The system of claim 1, wherein the controller is adapted to obtain and store images at selectable intervals.

5. The system of claim 1, wherein the controller comprises an electronically readable code.

6. The system of claim 1, wherein the interface comprises a graphical user interface including icons representative of selected stored images.

7. The system of claim 1, wherein the at least one factor comprises a number of retail store customers awaiting service at the least one location.

8. A performance evaluation system comprising:

a first monitoring system adapted to provide and store images of at least one task being performed at a first facility;

a second monitoring system adapted to provide and store images of at least one task being performed at a second facility; and

an interface adapted to enable selective viewing of the stored images and manual evaluation of the at least one task based on the viewed images, wherein a first user associated with the first facility can view only stored images of the first facility, a second user associated with the second facility can view only stored images of the second facility, and a third user associated with the first and second facilities can view stored images of the both the first and second facilities.

9. The system of claim 8, wherein the first facility is a first retail store, the second facility is a second retail store, and the third user is associated with a headquarters facility of a retail corporation that includes the first and second retail stores.

10. The system of claim 8, wherein the interface and the first and second monitoring systems are coupled via a communications link.

11. The system of claim 10, wherein the communications link includes the Internet.

12. The system of claim 11, wherein the communications link comprises an intranet having restricted access.

13. The system of claim 12, wherein the interface comprises a website.

14. The system of claim 8, wherein the first monitoring system stores images locally at the first facility and the second monitoring system stores images locally at the second facility.

15. The system of claim 8, wherein the first and second monitoring systems store images at a location remote from the first and second facilities.

16. A performance monitoring system for a retail store, the system comprising:

means for providing images of at least one location within the retail store;

means for storing the images; and

means for viewing stored images to enable a user to manually evaluate a performance of at least one task associated with operation of the retail store occurring at the at least one location.

17. The system of claim 16, wherein the means for providing images includes means for providing images at selectable intervals.

18. The system of claim 16, wherein means for providing images further comprises:

means for providing a digital video signal of the at least one location; and

means for obtaining digital still images from the digital video signal at selectable intervals.

19. A method of operating a retail store, the method comprising:

capturing images of at least one location within the retail store;

storing the captured images at a storage location;

viewing selected images stored at the storage location; and

evaluating a performance of at least one task occurring at the least one location within the retail store by manually analyzing the viewed images.

20. The method of claim 19, further including:

adjusting the performance of the at least one task based on the evaluation.

21. The method of claim 19, wherein capturing images further comprises:

positioning at least one camera to view the at least one location; and

providing images of the at least one location with the at least one camera.

22. The method of claim 21, wherein the at least one camera comprises a digital video camera providing a digital video signal, and wherein capturing images further comprises:

obtaining digital still photos from the digital video signal at selectable intervals.

23. A method for determining staffing requirements of a retail store, the method comprising:

providing digital images of one or more check lanes at selectable intervals each day;

storing the digital images in a storage device;

viewing selected stored digital images;

counting manually a number of customers awaiting service at each of the one or more check lanes in the selected digital images; and

determining staffing requirement based on the counting.

24. The method of claim 23, further comprising:

determining customer trends based on the number of customers counted in the selected digital images.

25. The method of claim 24, further comprising:

providing a number of cashiers based on the customer trends.

26. The method of claim 24, further comprising

determining customer trends for a given day of the week during a selected time period by counting the number of customers awaiting service at each of the one or more check lanes in each stored digital image at each selectable time interval for each given day of the week over the selected time period.

27. A method of retrofitting a retail store's existing security system to provide performance monitoring of store operations, the existing security system including a plurality of video cameras, each video camera providing a video signal of a corresponding location within the retail store, the method comprising:

providing a controller adapted to capture digital images from the video signals of selected video cameras of the existing security system;

providing a storage device to store the captured digital images; and

providing an interface adapted to enable a user to selectively view the stored digital images in order to evaluate performance of one or more operations occurring at one or more locations corresponding to the digital images viewed.

28. The method of claim 27, further comprising:

adding one or more video cameras to the existing security system to provide video of additional locations within the retail store to enable monitoring of operations occurring at the additional locations, wherein the additional locations would not otherwise be monitored for security purposes.

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