

<b>CLIENT</b>	Theodore P. Cummings, Esq. The Law Offices of Theodore P. Cummings, LLC 1600 Scripps Center 312 Walnut Street Cincinnati, OH 45202
<b>CASE</b>	2010-00376 VMS - Video Management Software
<b>REQUEST DATE</b>	April 7, 2010
<b>REQUEST</b>	Patent Search
<b>POINTS OF FOCUS</b>	<p>Publications or communications that describe, disclose or teach, in general, as stated in client's search request of April 7, 2010 the following...</p> <p>A system that enables managers, associates, or vendors to see the products on store shelves. The system also enables an operator, such as a retail store, to track the movement of shoppers and store personnel...</p> <p>Video Management Software is installed on a server (logic engine) that is connected through a LAN to IP cameras. In some embodiments the IP Cameras are communicatively coupled to information routers that are members of a communications multi-network (at least one mesh communication network and at least one star communication network connected to a logic engine that organizes, routes and manages data to be communicated on the different communication networks that make up the multi-network)...</p> <p>1) communications multi-network tracking system* through the multi-network using VMS to confirm the data from the communications multi-network tracking system. 2) VMS as a stand alone tracking system (without the communications multi-network) 3) communications multi-network tracking system is used to confirm that data of the VMS tracking system</p> <p>* communications multi-network tracking system is fully covered in the allowed US patent application, 12/353,817.....</p>
<b>RESULTS</b>	<p>This search located eight (8) <a href="#">Tier One</a> patent references, eleven (11) <a href="#">Tier Two</a> patent references and three (3) <a href="#">Non-patent references</a> that either speak directly or indirectly to the points of focus of which the following may be of interest...</p> <p><a href="#">US20080232641A1</a> SYSTEM AND METHOD FOR THE MEASUREMENT OF RETAIL DISPLAY EFFECTIVENESS</p> <p><a href="#">WO2006113281A3</a> SYSTEM AND METHOD FOR MEASURING DISPLAY COMPLIANCE</p> <p><a href="#">US20090164450A1</a> SYSTEMS AND METHODS OF RANKING ATTENTION</p> <p><a href="#">IP surveillance solutions: Making the difference for retail</a></p>
<b>NOTES</b>	<ol style="list-style-type: none"><li>1. Tier One references teach or speak to many of the elements listed in the points of focus and may touch on novelty.</li><li>2. Tier Two references teach or speak to a few of the elements listed in the points of focus and, when combined, may touch on obviousness.</li><li>3. Legal Status is <b>bold</b> and italicized if other than pending or active.</li></ol>
<b>DISCLAIMER</b>	<p>This search represents a thorough and continuous effort to locate the most appropriate references given the information provided by the client and the budget placed on this project. This is not a guarantee that every potential reference has been located. Furthermore, the information contained herein has been obtained from data sources believed to be reliable. Gilman Research Services, LLC disclaims all warranties as to the accuracy, completeness or adequacy of such information. No opinion, unless clearly stated, regarding freedom to operate, patentability or otherwise of the invention is expressed or implied other than the comments stated herein.</p>

**RESOURCES**

<b>PATENT LITERATURE</b>	
<i>USPTO</i>	US Full Text, US Published Patent Applications
<i>Class/Subclass</i>	348/150, 155, 169, 170, 218
<i>Lexis-Nexis</i>	US Full Text, US Published Patent Applications, PCT Applications, Abstracts of Japan
<i>Delphion</i>	US Full Text, US Published Patent Applications, PCT Applications, Abstracts of Japan
<b>NONPATENT LITERATURE</b>	
<i>Lexis-Nexis</i>	General News, Industry News, Encyclopedia of Associations, Company News, Information Week
<i>Dialog</i>	Dissertation Abstracts (35), Conference Paper Index (77), Inside Conferences (65), New Product Announcements (621)
<i>Internet Search Engines</i>	Google, Google Scholar, Google Books, Taurus, All The Web, Open Directory Project
<i>e-Resources</i>	IBM Technical Disclosure Bulletin, IP.com, Research Disclosure, Social Science Research Network Electronic Library, IEEE Xplore, Internet Archive's – Wayback Machine, ACM Digital Library, Cite Seer, IST Scientific Literature Digital Library, MIT Technology Review, Geek.com, HalfBakery.com, Shouldexist.com, SlashDot, IE-Compendex Plus, Technology Review, Advanced Imaging, Chain Store Age, Retail Touchpoints, Retail Surveillance,
<i>Usenet Newsgroups, Forums, BLOGS</i>	Google Newsgroups, Yahoo Groups, Eng-Tips Forum
<i>Company Sites</i>	IBM, NCR, Panasonic, Sony, LG
<i>Inventors, Individuals of Interest</i>	Not Applicable
<i>Trade Groups, Assoc. &amp; Conferences (Online)</i>	Journal of Marketing, British Food Journal
<i>Academia, Journals (Online)</i>	Journal of the Academy of Marketing Science
<i>Hand Library Search, Hardcopy Text</i>	Not Applicable

**SEARCH STRATEGY**

<b>SEARCH TERMS</b>	Video	Image	Capture
	video traffic monitor	security system	Surveillance system
	intelligent video surveillance	Network	Integration
<b>SEARCH STRINGS</b>	Action	Prompt	
	video image processing system networked data extraction to monitor inventory, product placement, customer flow	(video w/5 (process! or capture or monitor or system)) and (retail w/p (product or inventory or traffic or placement or display)) 36	((video or image) w/5 (process! or capture or monitor or system)) and (monitor w/s (product or inventory or traffic or placement or display))
	(video w/3 (process! or capture or monitor or system)) and (monitor w/5 (product or inventory or traffic or placement or display) and (network! w/s (data or image or product or info! or communic! or local or remote))	(video w/3 (process! or capture or monitor or system)) and (monitor w/5 (product or inventory or traffic or placement or display)) and (retail w/s (customer or traffic or employ! or product!))	((video! w/3 monitor!) w/s (customer or traffic or employ! or product! or status or inventory))

**Patent References - Tier One**

**[US20080077510A1](#) 2008-03-27 Method And System For Providing Security Surveillance And Shelf Monitoring Functions (en)**

Inventors: Corne Dielemans, Kalmthout, Kingdom of Belgium  
Applicants/Assignees: POLYMER LOGISTICS BV , Bergen op Zoom, Kingdom of Belgium  
Application/Filing Date:  
2006-09-21

English Abstract:

A system and a method for providing shelf monitoring functions to a retail system including a video-based security system such that both the security and the current product distribution in a product storage area are monitored using the same video camera network. The method includes acquiring a video image of at least a portion of at least one shelf using at least one video camera mounted in a fixed location and directing the video image to a shelf monitoring module of a processing system and to a security module of the processing system

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**[US20080232641A1](#) 2008-09-25 SYSTEM AND METHOD FOR THE MEASUREMENT OF RETAIL DISPLAY EFFECTIVENESS (en)**

Inventors: Sergio Borger, Demarest, NEW JERSEY;  
Christopher R. Carlson, Incline Village, NEVADA;  
Arun Hampapur, Norwalk, CONNECTICUT;  
Andrew W. Senior, New York, NEW YORK;  
Chiao-Fe Shu, Scarsdale, NEW YORK  
Applicants/Assignees: BORGER SERGIO ;  
CARLSON CHRISTOPHER R ;  
HAMPAPUR ARUN ;  
SENIOR ANDREW W ;  
SHU CHIAO-FE  
Application/Filing Date:  
2007-03-20

English Abstract:

The present invention relates to the measurement of human activities through video, particularly in retail environments. A method for measuring retail display effectiveness in accordance with an embodiment of the present invention includes: detecting a moving object in a field of view of an imaging device, the imaging device obtaining image data of a product display; tracking the object in the field of view of the imaging device to obtain a track; and obtaining statistics for the track with regard to the product display.

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**[WO2006113281A3](#) 2007-01-18 SYSTEM AND METHOD FOR MEASURING DISPLAY COMPLIANCE (en)**

Inventors: HAMILTON, Craig ;  
SPENCER, Wayne ;  
RING, Alexander

Applicants/Assignees: STORE EYES, INC. ;  
HAMILTON, Craig ;  
SPENCER, Wayne ;  
RING, Alexander  
Application/Filing Date:  
2006-04-12

English Abstract:

Methods and systems for measuring retail store display compliance are provided. One or more images of one or more retail store conditions are captured and associated with related information. The one or more captured images and the related information are transmitted to a processing location for storage and processing. The one or more captured images and the related information are received at the processing location, stored in a repository and processed. The one or more retail store conditions in the one or more captured images are compared with a library to identify them and obtain identification information. The one or more identified captured images and identification information for the one or more retail store conditions are stored in the repository. The one or more retail store conditions in the one or more captured images and identification information are analyzed and one or more summary reports or one or more alerts are generated based upon the analysis.

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**[US7474330B2](#) 2009-01-06 System and method for integrating and characterizing data from multiple electronic systems (en)**

Inventors: Andrew Wren, Atlanta, GEORGIA;  
Christopher Ashe, Duluth, GEORGIA;  
Scott Fairbairn, Alpharetta, GEORGIA;  
Kenneth Dutch Schultz, Roswell, GEORGIA  
Applicants/Assignees: Wren Associates, Ltd. , Jefferson City, MISSOURI  
Application/Filing Date:  
2003-12-19

English Abstract:

A computer-based platform is provided for integrating data from multiple systems including (but not limited to) point of sale (POS) terminals, video systems, electronic article surveillance (EAS) systems, automatic teller machines (ATMs), gas pumps, alarm systems, radio frequency identification (RFID) detection systems, etc. The subject computer-based platform is configured to gather and correlate data (e.g., transactional data and/or video data), package such data into multiple discrete system "events", and to provide various features for proactively identifying selected events as "exceptions". Additional aspects of the computer-based platform may be utilized to provide signaled identification to a user of identified exceptions and other integrated system data. Still further aspects of the platform can be used to group these new events to create larger groupings of multiple transactions, events, data, exceptions, and/or research. This larger grouping can be derived from similar or diverse input systems and can be treated as a new entity that can be acted on independently.

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**US20100020172A1 2010-01-28 PERFORMING REAL-TIME ANALYTICS USING A NET-WORK PROCESSING SOLUTION ABLE TO DIRECTLY INGEST IP CAMERA VIDEO STREAMS (en)**

Inventors: Pandian Mariadoss, Allen, TEXAS  
Applicants/Assignees: INTERNATIONAL BUSINESS MACHINES CORPORATION, Armonk, NEW YORK  
Application/Filing Date: 2008-07-25

English Abstract:

The present invention discloses a solution for an intelligent video surveillance (IVS) system able to perform real-time analytics on internet protocol (IP) video streams which are directly ingested by the IVS system. An internet protocol camera can be identified and connected to the intelligent video surveillance system which lacks an intermediate video management component. The raw video stream can be received directly from the camera in the form of a real-time video stream such as real-time streaming protocol (RTSP). One or more real-time analytics can be performed on said video stream based on one or more system criteria and user established criteria. When an incident event is detected one or more programmatic actions can be performed in response to analytics enacted.

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**US6559769B2 2003-05-06 Early warning real-time security system (en)**

Inventors: Eric Anthony, 42 Fosters Green, Sugar Land; Joseph Phillips, 5235 Heather Bloom St., Houston  
Applicants/Assignees: ANTHONY ERIC; PHILLIPS JOSEPH  
Application/Filing Date: 2001-12-07

English Abstract:

An early-warning security system for monitoring and tracking in real-time the activities and movements associated with prescribed personnel, personal property, mobile vehicles, and buildings. The system comprises a plurality of in situ local controllers having a microprocessor and a coordinated plurality of conspicuous and clandestine digital video cameras for continuously producing digital audio and visual signals, uplinking such signals via a suitable wireless telecommunications device to a satellite, general packet radio service, the Internet, intranet or extranet, and then downlinking these signals to a plurality of control centers for recording and analysis thereof. Uplinking of these digital signals may occur continuously or may be activated by a manual or predefined trigger event. Preventative or remedial action is immediately taken when perturbations from normal behavior or activities are observed in the recorded audio and visual signals.

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**US20090164450A1 2009-06-25 SYSTEMS AND METHODS OF RANKING ATTENTION (en)**

Inventors: Ronald Martinez, San Francisco, CALIFORNIA; Marc Eliot Davis, San Francisco, CALIFORNIA; Christopher William Higgins, Portland, OREGON; Joseph James O'Sullivan, Oakland, CALIFORNIA  
Applicants/Assignees: MARTINEZ RONALD; DAVIS MARC ELIOT; HIGGINS CHRISTOPHER WILLIAM; O'SULLIVAN JOSEPH JAMES  
Application/Filing Date: 2007-12-21

English Abstract:

The disclosure describes systems and methods of ranking user interest in physical entities based on the attention given to those entities as determined by an analysis of communications from devices over multiple communication channels. The attention ranking systems allow any "Who, What, When, Where" entity to be defined and ranked based, at least in part, on information obtained from communications between users and user proxy devices. An entity rank is generated for entity known to the system in which the entity rank is derived from the information in communications that are indicative of user actions related to the entity. The entity ranks are then used to modify the display of information or data associated with the entities. The system may also generate a personal rank for each entity based on the relation of the entity to a specified user.

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**US20030154141A1 2003-08-14 Image recognition inventory management system (en)**

Inventors: Mario Capazario, Geneva, Swiss Confederation; Jeffrey Rubin, Richmond, Australia  
Applicants/Assignees: Pro Corp Holdings International Ltd.  
Application/Filing Date: 2002-09-18

English Abstract:

A method and system that includes a microprocessor device with memory adapted to receive input corresponding to a report at an instant of time of an amount of product in a product display in a business, and further adapted to store the data in the memory. The method and system also include a central computer for receiving and processing the data from the microprocessor device so that the computer is configured to create a planogram which optimizes the display of the product by maximizing the amount of desired product and minimizes the amount of undesired product to be displayed. The central computer further contacts product suppliers so that the quantity of supplied product always meets the requirements of the planogram.

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**Patent References - Tier Two**

**[US20030216969A1](#) 2003-11-20 Inventory management system (en)**

Inventors: Donald G. Bauer, Laurel;  
Richard J. Campero, Ellicott City;  
Paul B. Rasband, Frederick;  
Martin D. Weel, Coto De Caza  
Applicants/Assignees: BAUER DONALD G. ;  
CAMPERO RICHARD J. ;  
RASBAND PAUL B. ;  
WEEL MARTIN D.  
Application/Filing Date:  
2003-01-23

English Abstract:  
Methods, systems, and articles of manufacture consistent with certain aspects related to the present invention collect item information from RFID tags attached to items in an inventory, and uses the collected item information to perform various inventory management processes. In one aspect, the inventory management processes may include determining, reporting, and/or providing corrective actions for one or more events associated with at least one of depletions of items in the inventory, changes in the design of items in the inventory, defects with one or more items, misplaced items, the movement of an unusual number of items within a short period of time (i.e., shrinkage), and malfunctions of one or more components included in the environment.

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**[US20060088092A1](#) 2006-04-27 Method and apparatus of controlling a plurality of video surveillance cameras (en)**

Inventors: Wen-hsiung Chen, Sunnyvale, CALIFORNIA ;  
Fang Wu, Pleasanton, CALIFORNIA ;  
Philip R. Graham, Milpitas, CALIFORNIA ;  
Gregory D. Pelton, Raleigh, NORTH CAROLINA;  
Blane A. Eisenberg, Saratoga, CALIFORNIA  
Applicants/Assignees: CHEN WEN-HSIUNG ;  
WU FANG ;  
GRAHAM PHILIP R ;  
PELTON GREGORY D ;  
EISENBERG BLANE A  
Application/Filing Date:  
2004-10-21

English Abstract:  
An apparatus, a method, and a software product to control a plurality of surveillance video camera/encoder combinations. The method includes receiving a plurality of encoded video streams from a respective surveillance camera/encoder combination, and accepting a measure of the level of activity for each encoded video stream. Each measure is obtained from the output of the camera of the corresponding camera/encoder combination. The method further includes assigning output bit rates for each encoded stream according to the accepted level of activity such that a maximum overall bit rate is not exceeded. One version is for controlling camera/encoder combinations that accept remote bit rate control, and a second is for controlling camera/encoder combinations that send at a pre-set bit rate. One version includes a network connection between the

camera/encoder combinations, and the method or apparatus for central control.

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**[US20060173756A1](#) 2006-08-03 Inventory management tracking control system (en)**

Inventors: Barry P. Benight, San Jose, CALIFORNIA  
Applicants/Assignees: BENIGHT BARRY P  
Application/Filing Date:  
2005-12-31

English Abstract:  
An inventory management tracking control system includes a first event processor operative to receive a video data signal from at least one video capturing device, the video data signal including an archive attribute signal, relating an item being tracked; reader circuitry operative to generate an event attribute signal in response to information provided by a radio frequency identification tag; and a second event processor operative to adjust the image characteristics of the video data signal in response to the event attribute, the second event processor further operative to adjust the event attribute subsequent to the time the event attribute is received. An inventory management control method includes receiving video image data from at least one video capturing device; receiving an archive attribute corresponding to the received video image data; receiving an event attribute corresponding to an occurrence of an event of interest; and adjusting the characteristics of the video image data in response to an event attribute.

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**[US20060274828A1](#) 2006-12-07 High capacity surveillance system with fast search capability (en)**

Inventors: Michael Siemens, Fort Collins, COLORADO ;  
David Desormeaux, Fort Collins, COLORADO ;  
Matt Siemens, Wildwood, MISSOURI;  
Scott Ruff, Fort Collins, COLORADO  
Applicants/Assignees: A4S Security, Inc. , Loveland, COLORADO  
Application/Filing Date:  
2006-08-09

English Abstract:  
A surveillance system having a plurality of MPEG compressed data streams each originating from a separate video/audio source. The data is stored on hard disk and streamed to tape in real time with time set markers readable independent of the compressed video signal. The data is partitioned on the tape, each partition including a plurality of data blocks, each data block including synchronized frames from each stream, a stream map, telemetry information, roster information and tape positioning data. Each partition includes a duplicate stream map and a duplicate partition directory, and each block within the partition includes duplicate telemetry information. Set marks readable in fast forward or rewind mode, are placed every second on the tape in a position just before the duplicate telemetry map and a file mark is placed just before the duplication partition directory. The tape cassette includes an EEPROM, which holds a duplicate partition directory and redundant directory information useful for

searching. In case of tape error, the tape automatically restores itself when inserted into the tape deck.

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**[US20090183177A1](#) 2009-07-16 MULTI-EVENT TYPE MONITORING AND SEARCHING (en)**

Inventors: Lisa M. Brown, Pleasantville, NEW YORK;  
Arun Hampapur, Norwalk, CONNECTICUT;  
Andrew W. Senior, New York, NEW YORK;  
Chiao-Fe Shu, Scarsdale, NEW YORK;  
Yun Zhai, White Plains, NEW YORK  
Application/Filing Date:  
2008-01-14

English Abstract:

Multiple event types are monitored for events, and surveillance data is stored for each event. Surveillance data for a primary event of one event type can be presented to a user, and surveillance data for a set of related events corresponding to another event type can be pre-sented based on a set of relatedness criteria and the surveillance data for the primary event. A user can adjust the relatedness criteria to filter/adjust the surveillance data presented for the related event(s). A user interface can enable the user to simultaneously view the surveillance data for both events and adjust the relatedness criteria. In an illustrative application, the in-vention is utilized to detect fraudulent merchandise returns in a retail store.

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**[US20090201432A1](#) 2009-08-13 System and Method for Advertising in Retail Environ-ments with Video Displays Attached to Shelving (en)**

Inventors: James Hyde, Salt Lake City, UTAH;  
Bryce Englebrecht, Salt Lake City, UTAH;  
Michael Landon, Salt Lake City, UTAH;  
Craig Kelley, Salt Lake City, UTAH;  
Hugh Clark, Bountiful, UTAH  
Application/Filing Date:  
2008-11-13

English Abstract:

This application relates to systems and methods for advertising in retail environments through the use of video displays that are disposed on retail shelving near target products. In some instances, the video display system may comprise a head-end cabinet that is located re-mote to the video displays. The head-end cabinet may communicate with at least one tail-end box. In turn, each tail-end box may communicate with at least one line-driver box. The line-driver box may communicate with a fin box that sends signal to the video display. The video displays may be vertically and laterally located on the shelving to catch consumer attention and be easily circumnavigated. For example, the video displays may not be located in an end-of-aisle exclusion zone located at each end of a section of shelving. Similarly, no each video display in an aisle may be a minimum distance from another video display.

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**[US20100082403A1](#) 2010-04-01 ADVOCATE RANK NETWORK & ENGINE (en)**

Inventors: Christopher William Higgins, Portland, OREGON;  
Marc Eliot Davis, San Francisco, CALIFORNIA ;  
Ronald Martinez, San Francisco, CALIFORNIA ;  
Christopher T. Paretti, San Francisco, CALIFORNIA  
Applicants/Assignees: HIGGINS CHRISTOPHER WILLIAM ;  
DAVIS MARC ELIOT ;  
MARTINEZ RONALD ;  
PARETTI CHRISTOPHER T  
Application/Filing Date:  
2008-09-30

English Abstract:

This disclosure describes systems and methods for providing real-time and customized ad-vocacy to consumers over a network. Customizing advocacy is done by selecting one or more advocates most likely to induce a potential customer to engage in a transaction with a product, brand, or service. To select these one or more advocates, an advocate ranking is generated, wherein advocates are ranked by a total advocacy value (an estimation of the likelihood that an advocate will induce a potential customer to engage in a transaction with a product, brand, or service). The total advocacy value is determined by monitoring data regarding advocates, and applying that data to a model. The data can be derived from the interactions of real world entities (RWEs) with the network as well as from information objects (IOs) accessible by the network.

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**[US5465115A](#) 1995-11-07 Video traffic monitor for retail establishments and the like (en)**

Inventors: Gary L. Conrad, Elgin;  
Byron A. Denenberg, Northfield;  
George L. Kramerich, Chicago  
Applicants/Assignees: RCT Systems, Inc. , Wheeling, ILLINOIS  
Application/Filing Date:  
1995-01-10

English Abstract:

A video traffic monitor and method for counting people using video imaging provides an in-expensive hardware implementation for analyzing real-time video where the operational envi-ronment presents a reasonably restricted traffic flow, such as in the entryway of a building. The video traffic monitor utilizes a windowed subsample of an image frame, and the image frame is further subdivided into gates. The video traffic monitor processes this windowed area to highlight the objects moving through the gates. The gates are then analyzed to determine a direction of movement for the people and support the logic for noise elimination and object discrimination. The video traffic monitor counts the detected people and records the count ac-cording to the direction of movement of the people.

**US6266442B1 2001-07-24 Method and apparatus for identifying objects depicted in a videostream (en)**

Inventors: Robert Anthony Laumeyer, Minneapolis;  
James Eugene Retterath, Excelsior  
Applicants/Assignees: Facet Technology Corp. , Minneapolis,  
MINNESOTA  
Application/Filing Date:  
1998-10-23

English Abstract:

The present invention relates to an apparatus for rapidly analyzing frame(s) of digitized video data which may include objects of interest randomly distributed throughout the video data and wherein said objects are susceptible to detection, classification, and ultimately identification by filtering said video data for certain differentiable characteristics of said objects. The present invention may be practiced on pre-existing sequences of image data or may be integrated into an imaging device for real time, dynamic, object identification, classification, logging/counting, cataloging, retention (with links to stored bitmaps of said object), retrieval, and the like. The present invention readily lends itself to the problem of automatic and semi-automatic cataloging of vast numbers of objects such as traffic control signs and utility poles disposed in myriad settings. When used in conjunction with navigational or positional inputs, such as GPS, an output from the inventive system indicates the identity of each object, calculates object location, classifies each object by type, extracts legible text appearing on a surface of the object (if any), and stores a visual representation of the object in a form dictated by the end user/operator of the system. The output lends itself to examination and extraction of scene detail which cannot practically be successfully accomplished with just human viewers operating video equipment, although human intervention can still be used to help judge and confirm a variety of classifications of certain instances and for types of identified objects.

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**US6654047B2 2003-11-25 Method of and device for acquiring information on a traffic line of persons (en)**

Inventors: Hitoshi Iizaka, Fuji, Japan  
Applicants/Assignees: Toshiba Tec Kabushiki Kaisha , Tokyo,  
Japan  
Application/Filing Date:  
1999-10-20

English Abstract:

A feature vector creating section creates a feature vector unique to a customer on the basis of the images of a person picked up by cameras in a store. An entrance information storage section stores entrance information obtained by adding the identification code, entrance time, etc. to the feature vector of the incoming person. A customer collating section collates the feature vector of a person leaving and moving around the store with the feature vectors stored in the entrance information storage section. When the collation has found the same customer, the customer's identification code, pickup time, pickup place, and others are stored as traffic-line information into a traffic-line storage section. The route that a customer took is found by picking up pieces of the traffic-line information with the same identification code.

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**US7167576B2 2007-01-23 Method and apparatus for measuring dwell time of objects in an environment (en)**

Inventors: Malcolm Steenburgh, Vancouver, Canada;  
Don Murray, Vancouver, Canada;  
Vladimir Tucakov, Vancouver, Canada;  
Shyan Ku, Vancouver, Canada;  
Rod Barman, Vancouver, Canada  
Applicants/Assignees: Point Grey Research , Vancouver, Canada  
Application/Filing Date:  
2002-07-02

English Abstract:

A method for tracking objects entering and exiting an environment comprises providing stereo vision cameras positioned proximate to the paths to enter the environment, such that the stereo vision fields associated with the cameras substantially cover the paths. Using image data obtained by the stereo vision cameras, entry signatures are determined for objects entering the environment and exit signatures are obtained for objects exiting the environment. At any time after the determination of at least one exit signature, exit signatures are matched with the set of available entry signatures. Matching may be performed according to a variety of techniques.

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### ***Non-patent References***

#### **[Putting Surveillance Video To Work To Monitor Customer Satisfaction](#)**

Thursday, 25 March 2010 14:33  
<http://www.retailtouchpoints.com/in-store-insights/464-putting-surveillance-video-to-work-to-monitor-customer-satisfaction-.html>

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#### **[10 Strategies to Maximize Store Productivity with Real-Time Video Intelligence](#)**

[http://retail-surveillance.com/files/10\\_strategies\\_to\\_maximize\\_store\\_productivity.pdf](http://retail-surveillance.com/files/10_strategies_to_maximize_store_productivity.pdf)

With the use of real-time, affordable visual intelligence, today's retailers can clearly see the path to understanding daily activity in the store and maximizing the use of every square foot. Read this whitepaper to find out how you too can use real-time video intelligence.

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#### **[IP surveillance solutions Making the difference for retail](#)**

In the retail industry, network video systems provide a whole new level of pro-active surveillance and monitoring. Network video technology not only offers superior loss prevention. It can also be used to boost sales, improve staff and customer security, optimize store layouts, boost productivity, count people, monitor flow control, and many more key functions.

So the return on investment is very fast. In other words, whether you run a single shop or a whole chain of malls, network video makes a noticeable improvement in your bottom line. That's why it belongs in the toolset of any successful retail operation.

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