

<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>	2010-00381 Line Light
<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 determines the best checkout lane available and notifies customers of the determination to provide a more efficient queue. Photo sensors (like those used in driveway alarm systems) are placed along a conveyor belt at checkout to determine the distance of the last item from the end of the belt. When the last item reaches a predetermined distance, a line light turns green, notifying customers that the lane is ready for another customer. In some embodiments, photo sensors are placed along the length of the belt to determine product density, enhancing the output from the analysis. In other embodiments, product density is determined through the use of overhead cameras...</p> <p>This system is useful not only in a retail environment, but also in other queues, such as cars in a parking garage, items on a conveyor belt in a manufacturing facility, foot-traffic in an amusement park, items being loaded onto trucks at a distribution center or shipping facility...</p>
<b>RESULTS</b>	<p>This search located five (5) <a href="#">Tier One</a> patent references and four (4) <a href="#">Tier Two</a> patent references that either speak directly or indirectly to the points of focus of which the following may be of interest...</p> <p><a href="#">US5390107A</a> Checkout lane alert system and method</p> <p><a href="#">US20090249342A1</a> SYSTEMS AND METHODS FOR TRANSACTION QUEUE ANALYSIS</p> <p><a href="#">US20040059614A1</a> Customer checkout system</p>
<b>NOTES</b>	<ol style="list-style-type: none"><li>1. <i>Tier One references teach or speak to many of the elements listed in the points of focus and may touch on novelty.</i></li><li>2. <i>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.</i></li><li>3. <i>Legal Status is <b>bold</b> and italicized if other than pending or active.</i></li></ol>
<b>DISCLAIMER</b>	<p><i>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.</i></p>

**RESOURCES**

<b>PATENT LITERATURE</b>	
<i>USPTO</i>	US Full Text, US Published Patent Applications
<i>Class/Subclass</i>	705/8, 178, 10; 382/104; 364/401, 402, /405, 550, 569; 377/6
<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, Taeus, 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, Retail Customer Experience, Integrated Solutions for Retailers, Supermarket News,
<i>Usenet Newsgroups, Forums, BLOGS</i>	Google Newsgroups, Yahoo Groups, Eng-Tips Forum
<i>Company Sites</i>	IBM, NCR, Panasonic, Sony, LG, IntelliVid Corp, Verint Systems Inc
<i>Inventors, Individuals of Interest</i>	Not Applicable
<i>Trade Groups, Assoc. &amp; Conferences (Online)</i>	Journal of Marketing, British Food Journal, In-Store Marketing Institute,
<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>	Queue management	Yield	Load management
	Checkout	Line	Wait
	Traffic	Congestion	Resources
	Video	Surveillance	Retail
	Physical	Analysis	Track
	Monitor		
<b>SEARCH STRINGS</b>	((queue! or line) w/10 (monitor! or record! or track! or analy! or observ!)) w/10 (density or "wait time" or wait! or traffic or congestion or availability)) and (alert or signal or announce) FT >7K T&B 50	((queue! or line) w/5 (monitor! or record! or track! or observ!)) w/10 (density or wait! or wait! or congestion or availab!) and ((queue! or line) w/5 (transact! or "check out" or "point of purchase" or "pop" or cash! or pay!)) FT 254	((queue! or line) w/5 (monitor! or record! or track! or observ!)) w/10 (density or wait! or wait! or congestion or availab!) and ((queue! or line) w/5 (transact! or "check out" or "point of purchase" or "pop" or cash! or pay!)) and (retail or grocery or !market or shop!) FT

**Patent References - Tier One**

**US20040059614A1 2004-03-25 Customer checkout system (en)**

Inventors: Michael Wayne Brown, Georgetown, United States of America;  
Kumar Ravi, Cedar Park, United States of America;  
Eduardo N. Spring, Round Rock, United States of America

Applicants/Assignees: BROWN MICHAEL WAYNE ;  
RAVI KUMAR ;  
SPRING EDUARDO N.

Application/Filing Date:  
2002-08-29

English Abstract:

Systems and methods are presented for facilitating customer checkout with an electronic communication between a commercial establishment and a customer of the commercial establishment. A checkout line of the establishment can be monitored with respect to a number of customers in a queue waiting to checkout and for a time spent checking each customer out. In addition, an indication that a customer is intending to checkout can be received via an electronic communication from a network access device. The customer can similarly be notified when to approach a checkout line for checkout, taking into consideration a time to travel to the checkout line from the customer's location and information determined from monitoring the checkout line, thereby minimizing a checkout wait time while the customer is physically pre-sent at the checkout line.

**US5953055A 1999-09-14 System and method for detecting and analyzing a queue (en)**

Inventors: Jianzhong Huang, Snellville, United States of America;  
Dinei A. F. Florencio, Plainsboro, United States of America

Applicants/Assignees: NCR Corporation , Dayton, OHIO, United States of America

Application/Filing Date:  
1997-03-04

English Abstract:

A system and method are provided for detecting, collecting information about, and analyzing a queue. A video camera is positioned to view the queue, and a sequence of video images from the camera may be processed in order to perform the functionality of the present invention. The present invention may be implemented at checkout lanes in a retail establishment, in a bank, at customer service desks, at self-service kiosks, at banks, or any other location where a queue (line) of people or other objects may form. After detecting the queue, the present invention may collect multi-dimensional information regarding the queue, including the number of people, etc., in the queue, the average service time for each person in the queue, as well as various other types of information regarding the queue. The present invention may thereafter analyze the collected information in various ways, based upon various criteria. For example, a retailer may use the analyzed information to minimize service time for people in a checkout line, in a way which makes economic sense.

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**US5390107A 1995-02-14 Checkout lane alert system and method (en)**

Inventors: John D. Nelson, Middletown, United States of America;  
Ronald G. Frey, Hackensack, United States of America

Applicants/Assignees: Datatec Industries Inc. , Fairfield, United States of America

Application/Filing Date:  
1993-04-28

English Abstract:

A checkout lane alert system and method is a live, computer base, in-store system that integrates real time shopper traffic data with computerized statistical analysis to generate accurate short term forecasts of shopper traffic at the checkout lanes of the store. Shopper entry time data from a recognition system is used in the analysis. The system combines real time data with pre-gathered statistical data about the population that shops in a particular type of store and data which characterizes the checkout lane throughput capability for the store to predict checkout lane traffic and staffing requirements.

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**US6195121B1 2001-02-27 System and method for detecting and analyzing a queue (en)**

Inventors: Jianzhong Huang, Snellville, United States of America;  
Dinei A. F. Florencio, Plainsboro, United States of America

Applicants/Assignees: NCR Corporation , Dayton, OHIO, United States of America

Application/Filing Date:  
1999-05-27

English Abstract:

A system and method are provided for detecting, collecting information about, and analyzing a queue. A video camera is positioned to view the queue, and a sequence of video images from the camera may be processed in order to perform the functionality of the present invention. The present invention may be implemented at checkout lanes in a retail establishment, in a bank, at customer service desks, at self-service kiosks, at banks, or any other location where a queue (line) of people or other objects may form. After detecting the queue, the present invention, may collect multi-dimensional information regarding the queue, including the number of people, etc., in the queue, the average service time for each person in the queue, as well as various other types of information regarding the queue. The present invention may thereafter analyze the collected information in various ways, based upon various criteria. For example, a retailer may use the analyzed information to minimize service time for people in a checkout line, in a way which makes economic sense.

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[US20090249342A1](#) 2009-10-01 SYSTEMS AND METHODS  
FOR TRANSACTION QUEUE ANALYSIS (en)

Inventors: Alexander Steven Johnson, Erie, COLORADO ,  
United States of America

Applicants/Assignees: JOHNSON ALEXANDER STEVEN

Application/Filing Date:  
2008-03-28

English Abstract:

A method and system for determining a wait time for a transaction queue is disclosed. In the method, video data related to a first transaction queue is received. The video data is processed to determine a number of items presented by a first entity for a transaction in the first transaction queue. A total transaction time is estimated for the first entity based on the number of items presented by the first entity and a transaction time for each of the number of items. A wait time for the first transaction queue is determined based on the estimated total transaction time for the first entity. If the wait time for the first transaction queue is greater than a first threshold, then the availability of a second transaction queue is indicated to a second entity.

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**Patent References - Tier Two**

**[US20040059614A1](#) 2004-03-25 Customer checkout system (en)**

Inventors: Michael Wayne Brown, Georgetown, United States of America;  
Kumar Ravi, Cedar Park, United States of America;  
Eduardo N. Spring, Round Rock, United States of America

Applicants/Assignees: BROWN MICHAEL WAYNE ;  
RAVI KUMAR ;  
SPRING EDUARDO N.

Application/Filing Date:  
2002-08-29

English Abstract:  
Systems and methods are presented for facilitating customer checkout with an electronic communication between a commercial establishment and a customer of the commercial establishment. A checkout line of the establishment can be monitored with respect to a number of customers in a queue waiting to checkout and for a time spent checking each customer out. In addition, an indication that a customer is intending to checkout can be received via an electronic communication from a network access device. The customer can similarly be notified when to approach a checkout line for checkout, taking into consideration a time to travel to the checkout line from the customer's location and information determined from monitoring the checkout line, thereby minimizing a checkout wait time while the customer is physically pre-sent at the checkout line.

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**[US20090034797A1](#) 2009-02-05 LINE LENGTH ESTIMATION (en)**

Inventors: Andrew W. Senior, New York, NEW YORK, United States of America

Application/Filing Date:  
2008-02-08

English Abstract:  
A solution for monitoring an area is provided. At least one image of a physical area corresponding to a line is obtained and a set of hypotheses are evaluated based on the image(s). For one or more hypotheses, an estimated length of the line is extracted, and an estimated line length is generated based on the estimated length(s) and the corresponding evaluation(s) of the set of hypotheses. In this manner, a length of a line of people, customers, vehicles, and/or the like, can be estimated. The estimation can be stored for later use, utilized to generate one or more alerts, and/or the like. The invention also provides for the use of a single camera to monitor multiple lines and/or perform other monitoring functions.

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**[US20040203878A1](#) 2004-10-14 Method and apparatus for meeting an on-site enter-prise service level objective (en)**

Inventors: Rodney A. Thomson, Westminster, COLORADO

Application/Filing Date:  
2002-10-22

English Abstract:  
The present invention is related to the maintenance of on-site enterprise service level objectives. In particular, wait times experienced by individual consumers are monitored. Wait time monitoring may be in response to a request for assistance made by a consumer. The monitoring of wait times may also begin when the consumer enters a particular area of an enterprise site, for example a checkout area. Request for assistance and location information may be obtained from a consumer wireless device in communication with a wireless network infrastructure at the enterprise site. Requests for assistance, including check-out assistance, may be placed in queues maintained by applications on an enterprise server for distributing resources at the enterprise site.

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**[US20080059274A1](#) 2008-03-06 Automatic self-optimizing queue management system (en)**

Inventors: Stuart Holliday, BugBrooke, United Kingdom of Great Britain and Northern Ireland

Applicants/Assignees: HOLLIDAY STUART

Application/Filing Date:  
2007-08-21

English Abstract:  
A queue management system for e.g. supermarket checkouts uses counting devices located at checkouts and optimally entrances/exits in conjunction with P.O.S. information to produce a schedule of how many checkouts are needed to avoid queue length exceeding preset limits. The system includes a dynamic learning system which can optimise calculated schedules on the basis of historical data.

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