

A photograph of a modern, multi-level shopping mall. The image shows several escalators and walkways with people moving through the space. The architecture features a complex network of metal beams and railings. The lighting is bright and even. The overall atmosphere is one of a busy, contemporary retail environment.

INTELLIGENT VIDEO SURVEILLANCE IN RETAIL

BUSINESS SOLUTIONS AND SMART SURVEILLANCE

aimetis

WHITE PAPER

“The retail industry has, for some years, been moving away from being product centric - all about the merchandise - to increasingly customer centric.”



MOVE TO CUSTOMER CENTRIC RETAILERS

Retailers are more and more looking to be further customer-focused. Aimetis' retail practice has identified a strategic shift in the retail market from the goods retailers sell towards the customers who buy them. The retail industry has, for some years been moving away from being product centric—all about the merchandise - to increasingly customer centric.

To fully achieve this customer focus, Aimetis has observed that greater organizational alignment and collaboration is needed in retail businesses in order to seamlessly satisfy customer needs.

Tight cross-functional collaboration between Loss Prevention, Merchandising, and Sales/Service is necessary to deliver the desired customer experience.

It is now clear that retailers must also adopt new customer metrics along with traditional metrics to manage performance and guide incentives.

POWER OF INTEGRATED VIDEO MANAGEMENT AND ANALYTICS

✓ INCREASE PUBLIC SAFETY

Increase the effectiveness and scalability of loss prevention staff by providing actionable real-time alerts as well as drastically improving the process of video review, which in turn reduces shrinkage, increases store safety, provides new training opportunities, and reduces delays in incident response.

✓ MEASURE BUSINESS PERFORMANCE

Provide merchandisers new performance measures to help enhance store layout, signage, and product organization.

✓ IMPROVE CUSTOMER SERVICE

Accelerate checkout and reduce customer service wait times through real-time notification if queues exceed a certain time period set by the user.

IMPROVING THE BOTTOM LINE

WHAT IS VIDEO MANAGEMENT AND ANALYTICS

Video Management software turns CCTV video (either a live stream or recorded footage) into digitized and computerized data that can be stored, filtered, indexed, and viewed for much faster data search and retrieval times. Video management software also enables applications such as remote camera control, switching cameras views and other functions that no longer require dedicated hardware.

Video Analytics software is based on 'computer vision', a branch of artificial intelligence that maps pictures to descriptions. Without computer vision, a picture of a store aisle is a simple grid of color values. With computer vision, the aisle picture maps to an intelligent description of the scene and people in the image.

Aimetis Symphony™ software combines the broad functionality and ease of use of its video management with the highly accurate detection rates of its analytics to bring unprecedented value to retail organizations enabling business intelligence gathering and security monitoring on one cost-effective platform.

FROM IMAGE CAPTURE TO IMAGE ANALYSIS

Retail organizations record a significant amount of video, with some large retailers recording well over 1 million hours of video per day. The introduction of Aimetis Symphony software to current video system architecture immediately upgrades an installed solution from being a simple passive surveillance system into a proactive information analysis gathering and reporting tool.

Aimetis Symphony software, with its use of computer vision technology, sees instantly, filters extraneous data, and delivers clear information in seconds. Experience has shown that the limitations of the human brain – due to its memory capacity, intrinsic biases, and distractibility – limits the quality and productivity of conventional human-based video monitoring and event review.

The advent of video analytics software is completely revolutionizing the way people use video. A person is no longer required to watch hours of video to analyze or identify interesting events. Rather, once the video analytics software detects unusual activity, it pushes only relevant information to the monitoring agent who can determine the appropriate response.

GAINS AND BENEFITS FOR RETAIL

✓ REDUCE LABOR COSTS

Labor costs can be reduced by increasing surveillance capacity of the monitoring individual (e.g. more video can be analyzed per person); allowing for the redeployment of the agent to perform non-monitoring duties.

✓ INCREASE SYSTEM SCALABILITY

For humans, large amounts of video data can prove to be a serious obstacle to quickly analyze and respond to. With Video Analytics, analysis of very large amounts of video-derived data can be filtered through in a matter of seconds, reducing the need to for extra personnel.

✓ IMPROVE SURVEILLANCE ACCURACY

Unlike humans who miss over 90% of scene activity after 20 minutes of continuous video monitoring, video analytics does not miss anything and greatly reduces the number of false conclusions.

✓ ENSURE OPERATIONAL COMPLIANCE

Unlike human-based monitoring, where ensuring operational compliance is dependent on the integrity of those doing the job, Video Analytics adheres to customer defined rules and response processes. It also classifies, indexes, and archives every single scene event allowing for

LOSS PREVENTION, PUBLIC SAFETY, AND COMPLIANCE

LOSS PREVENTION



Aimetis Symphony software can positively impact any retailer's loss prevention initiatives. Below are some of the areas of contribution:

Real-Time Alert of Item Removal

Aimetis software can detect, in real-time, the removal of an item off the store shelf. This is especially valuable when applied to common theft items. The software can distinguish between a customer who removes a single item from a shelf (normal shopping behavior) from a customer who removes five items from a shelf in a short period of time (suspicious shopping behavior).

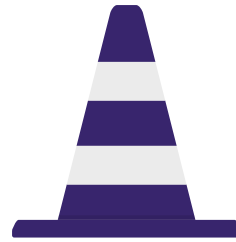
This video analytic application has been used in various retail locations. Items under surveillance included DVD Box sets, baby formula, vacuums, disposable razors, cosmetics, and more.

Improved Case Investigations Through Advanced Search

Currently it can take retail loss prevention professionals many hours to review recorded video to find a specific incident. Independent studies have concluded that a person's attention span decreases the longer the video review takes place. With the use of Aimetis Symphony, searching through video data for events that used to take hours can now be done in seconds.

For instance, with three clicks of a mouse, a user can filter through 30 days of video footage to find an important section of video in seconds and receive a continuous movie of all qualifying video data.

PUBLIC SAFETY



While personal safety is priceless, there is a cost to providing a safe store environment for staff and customers. Aimetis Symphony can watch for potentially troublesome individuals/groups, vandals, movement in alarm zones, and loitering without putting store personnel at undue risk during the monitoring process. At the same time, Symphony can permanently record and index any incidents for easy retrieval.

COMPLIANCE



Aimetis Symphony can identify variant behavior from store compliance rules. For instance, the software can generate an alert when people exit the store and trigger Electronic Article Surveillance alarms, thus ensuring that store staff inspects the customers receipt before leaving the store.

Activity after business hours can be flagged, and often upon review, store personnel can be observed not following protocol. Alerts such as these yield valuable information and data regarding staff adherence to corporate and individual store protocols. Are receipt checks being properly done? Is there merchandise being lost due to lack of diligence by staff? Are there internal theft issues? Aimetis software can provide answers to some of these questions.

BUSINESS INTELLIGENCE FOR MERCHANDISING AND CUSTOMER SERVICE

Consumer retail behavior is affected beyond traditional marketing techniques like product placement and pricing. For any retailer, each store is the medium that consumers connect directly with products. It is well-known that store layouts can affect the time consumers spend in the store, how they navigate through the aisles, and how they allocate their attention and money across departments.

With the use of Aimetis Symphony, there are new performance measures available that can add tangible, actionable insight to monitoring and evaluating store performance.

KEY PERFORMANCE INDICATORS

- ✓ Store Traffic (locally or across different stores)
- ✓ Shopping Path
- ✓ Aisle Penetration
- ✓ Dwell Time
- ✓ Conversion Rate (with integration of POS)

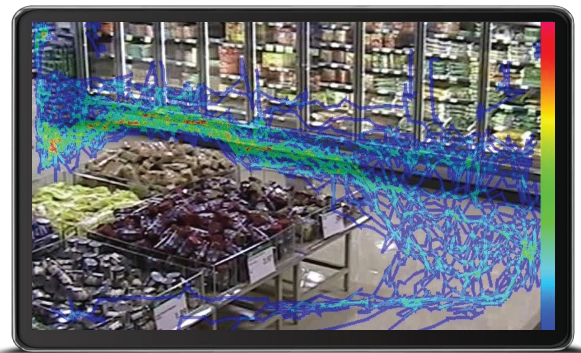
People counting at an entrance can serve as a measure of consumer demand or sales potential at any given time. Store traffic and conversion rates can be used for a number of applications and KPI metrics including the evaluation of store promotions and floor sales, and customer service staff. When these counts are combined with POS systems, retailers can calculate purchase conversion rates. By noting the dominant paths and directions that shoppers take through the store, merchandisers position signs and displays to catch the customer's attention.

In addition, recording how long customers spend at various locations (dwell time), marketers can identify points where shoppers will be most receptive to communication. Tracking a shopper's path through the store and monitoring which areas are trafficked help to identify new cross-selling opportunities.

Video analytics can also pinpoint crowding conditions and bottlenecks in traffic flow that suggest a need to widen aisles or reposition product displays. Finally, measuring queue lengths at checkout and the potential to identify problems with customer service is also a plus.

Pinpoint crowding conditions and bottlenecks in traffic flow

By counting the number of customers who enter the store and walk through each aisle, retailers can create thermal maps showing the percentage of customers who penetrate each section of the store providing valuable information and trend analysis regarding store traffic and flow patterns. If some sections are visited infrequently, this may suggest the need to provide navigational aids, reposition product displays, and/or revise the store layout for improved traffic flow.



Indoor Traffic Heat Mapping

RETAIL AREAS ANALYTICS POSITIVELY IMPACTS

ACCELERATE CHECKOUT AND SERVICE

Alert store managers to help combat discouraging long checkout lines and identify excessive queuing with intelligent video analytics. In less busy store areas where a full time sales associate is not justified, video analytics can automatically notify sales associates to assist shoppers.

STREAMLINE SHOPPING PROCESS

Keep aisles free of obstacles and position "hot" items (for example, heavily discounted items) in a convenient and well-marked location.

PROVIDING TIME AND SPACE TO SHOP

By highlighting crowd density and people counts, retailers can reconfigure shop layout to provide ample room to shop or ensure the appropriate sales support for complex products such as laptop computers.

REDUCE WAIT TIMES

Flag long lines or excess customer wait times in realtime help to reduce end customer frustration and potentially negative customer experience.

VIDEO MANAGEMENT IN RETAIL

One of the most powerful benefits intelligent video analytics offers retail organizations is the ability to combine business intelligence from video analytics with video management and recording in a single solution. The integration helps maximize the effectiveness of retail organizations.

ACCELERATE VIDEO ACCESS AND REVIEW

Aimetis Symphony can be deployed to monitor and record video throughout the retail value chain to distribution centers, loading docks, paths from storage to sales, POS, and building entries and exits to accelerate response to suspicious behaviours or incidents:

- ✓ Quickly view suspicious events by searching video data based on customized parameters
- ✓ Send critical scenes to a central review monitor or to local authorities in various media player formats
- ✓ Monitor loiterers and suspicious packages left in public places or unauthorized access to restricted counters and display

CORRELATE SURVEILLANCE WITH POS DATA

According to a recent survey, on a per-case average, employees steal almost 5.7 times the amount stolen by shoplifters. Much of that theft occurs at the POS terminal, making it a critical area for monitoring. Aimetis can work with leading POS and analytics vendors to integrate POS transaction data with video images and alarms or alerts for each terminal. With these solutions, it's possible to:

- ✓ Time-stamp POS transactions on the video as they are being recorded to detect employees who alter sale tags, charge lower prices, allow multiple items through, or miss items
- ✓ Be alerted to unusual product returns
- ✓ Identify suspicious behaviour at the POS and alert loss prevention staff in real time to prevent theft
- ✓ Send actual images of suspicious behaviour or activity to designated monitors

SUMMARY

Aimetis Symphony is an open, standards-based IP application that has been successfully deployed in a variety of store environments to enhance customer-focused initiatives. Symphony improves loss prevention, public safety, compliance, and business market intelligence. Aimetis software is easily deployed on standard, commercial, off-the-shelf Windows-based PC/servers making Aimetis an industry leader for reliable and cost-effective intelligent video solutions.

Retailers interested in aligning with the latest integrated solutions for security surveillance and business intelligence can gain real ROI by working with Aimetis and its many solution partners who include integrators, consultants, and camera manu-

QUESTIONS

For any questions regarding intelligent video surveillance in retail or any content in this whitepaper please contact us at Aimetis anytime.

aimetis.com
info@aimetis.com

ABOUT AIMETIS

Aimetis Corp. simplifies the management of network video for security surveillance by offering smart solutions with the lowest total cost of ownership for our connected world. Combining an industry leading video management system with integrated analytics and centralized management in the cloud, Aimetis delivers the most scalable and easiest to use video management platform on the market. Founded in 2003, Aimetis has established itself as a global leader in intelligent video management from its headquarters in Waterloo, Canada. Aimetis has distributors and certified partners in over 100 countries and serves a variety of industries, including retail, transportation, and others.

The information researched to create this white paper was obtained from sources considered to be reliable. Aimetis Corp shall have no responsibility for errors, omissions or inadequacies of this information.

All opinions expressed in this white paper are those of Aimetis, except where original author is credited. The opinions expressed in this white paper are subject to change without notice.