

Intelligent Video Analytics for: The Warehousing and Distribution Centres Market



Honeywell's new intelligent video analytics software enables enhanced security and surveillance solutions by automatically monitoring video of people, vehicles and objects, and their associated behaviours, within a camera's view. Honeywell's intelligent video analytics software monitors up to 20 objects with more than 35 specific behaviours and events. Intelligent video analytics continues to automate monitoring tasks for high risk sites will ensure a higher level of security and efficiency by working 24/7, providing accurate and reliable continuous monitoring, scaling to a large number of cameras, and catching events that human operators may overlook.

Common commercial applications of intelligent video analytics in warehouses and distribution centres include shrink management, facility optimisation, safety and freight flow management.

Applications: Warehousing and Distribution Security

- Detect people loitering or meeting based on duration, time, and other factors.
- Detect events and behaviours that precede theft.
- Warehouse/cargo theft – Detect activity of people and vehicles at loading docks and in warehouses. Real-time alarms established for employees exiting from unauthorized doors; detection of cars or trucks parked in violation of established rules; monitoring inappropriate traffic flow in warehouses; tracking employees leaving and going to their cars, meeting with accomplices, collaborating with forklift drivers and tractor trailer drivers, etc.
- Restricted zone detection – Detection of entry or exit of people or vehicles from “protected zones” including high value targets such as pallet storage on warehouse floors and trespass alarms at storeroom entry points.
- Detection of people or vehicles “casing” a facility by slowing, stopping or making U-turns.
- Detecting and alarming of undesired direction of motion of people, forklifts, or vehicles.
 - People exiting via an entrance door.

Management and Optimisation: Warehouses/Distribution Centres

- People counting:
 - Measures people flow to determine high traffic and low traffic areas by facility, floor and/or building sector with real-time or periodic reporting for facility optimisation.
- Vehicle counting:
 - Detect and count freight yard vehicle flow to maximise vehicle throughput. Every specified object is counted and time stamped.
 - Alarm conditions can be established based on time, location, or other rules.
- Restricted areas:
 - Detect people standing or loitering in restricted areas; vehicles parking in handicapped zones or fire lanes exceeding a specified time period.

Perimeter Protection and Traffic Flow Surveillance: Freight Yards

- Quickly establish *virtual perimeters* – Real-time alarms established for virtual fences or “trespass lines” on gates or sectors where fencing is impractical, or to establish early-warning boundaries outside of fences.
- Restricted zone protection – Easily implement detection of entry or exit of people or vehicles from protected zones including high value targets such as parked and loaded trailers, parked tractors, employee vehicles, or outdoor goods storage.
- Establish rules for detecting, tracking, and alarming of inappropriate direction of travel, stopping in unauthorized zones exceeding specified periods, vehicle loitering, speeding, or parking at unauthorized loading docks.
- Detecting, tracking and alarming of people running, moving in undesired directions, falling down, crawling, loitering, meeting with accomplices, entering restricted areas against established rules based on time, location, direction of travel, speed, etc.
- Protection of access to railroad sidings and parked freight cars with behaviours that you specify as inappropriate.

Success Story:

The Problem

A large food processing and warehousing facility in Texas asked us to solve some key problems:

1. Theft: Theft of high value items from the warehouse.
2. Waiting: Trucks forced to wait for access to delivery bays caused overtime charges associated with shipping and receiving.
3. Liability: Increased insurance premiums due to past accidents and damages from trucks going the wrong way in a facility.

The Solution

Active Alert[®] was deployed at the scene using analytics to track movement of high value goods, personnel inside the warehouse, and trucks entering and moving through the facility.

The Results

Within one month, several trends were identified and operational changes were made:

1. Theft: Restricted and directional zones were set up near high value areas and all exits. One source of theft was determined to be single pallets exiting the facility in pickup trucks after normal delivery hours. By setting alarms to detect pallets being removed from delivery bays, the trend was quickly identified and the thieves were caught.
2. Waiting: Cameras were set up at direction choice points for the truck drivers. The warehouse manager discovered that most trucks traveled the same path even though it wasn't the shortest way to the delivery bays because there was insufficient signage to guide drivers to drop-off points. Thirty days after warehouse management had installed new directional signage, monthly waiting time and overtime charges were reduced by more than 40 percent.
3. Liability: Directional zones were set to catch drivers taking short-cuts the wrong way to exit the facility. The company informed the drivers that violators would be fined, and within the first two months a number of drivers incurred fines. Over a period of nine months, however, the number of violators dropped by 80 percent. Eighteen months later, the company was able to lower its

insurance premiums again: the result of no injuries during the period and the capability to document the tracking and fining system.

Overview of Advantages

- Increases levels of security, improves staff productivity and efficiency with reduced manpower costs for monitoring.
- Multiple applications: security enhancement, visitor management, visitor processing, productivity enhancement, facility optimisation, safety enhancement.
- Detecting, tracking, and recording of event meta-data for every entry and exit from a scene, for later forensic analysis of newly-defined events or behaviours not originally believed to be of interest.
- Powerful search tools that permit user-definable, event-specific behavior retrieval in seconds, even in very large systems.
 - Ability to play back and analyse archived video and apply a variety of rules to discover events and relationships formerly of no interest.
 - Compare and evaluate traffic flow patterns between different facility locations/layouts over the same time period.
 - Review personnel and visitor movements related to undesired events or behaviours to identify meetings with accomplices.
- Discrimination between objects of interest and environmental backgrounds.
 - Ignores tree motion, rain, snow, birds, or animals.
 - Accommodates widely ranging lighting conditions, including strong shadows and high contrast scenes.
- High performance analytics algorithms enable real-time tracking of up to 20 objects and more than 35 events.
- Easy deployment and intuitive setup of the object and event rules for each video channel; different analytics rules for different periods of the day as needs change.
- Deployable for both analogue and digital video systems.

Not only is video analytics an outstanding advancement in perimeter protection and loss prevention for warehouses and distribution centres, it is also increasing in its importance and demand for use in other markets as well. Instead of having operators monitor multiple cameras, video analytics identifies behaviours of interest and immediately alerts the security operator to suspicious activity. Ultimately, this allows security operators to focus their attention on the most important activities and monitor the highest potential for risk, and enables them to make better decisions and react faster to events.

For more information: www.honeywell.com/security/uk

Honeywell Security

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