

Intelligent Video Analytics for: The Military and Government Applications 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 government and military applications of intelligent video analytics include perimeter monitoring and restricted area entry at sites such as airports, seaports, harbors, dams, watersheds, tanker loading terminals, bridges, and national monuments and icons.

Applications: Perimeter, Restricted Zone and Boundary Control

- Base and critical facility protection – Real-time alarms upon identification and classification of humans attempting approach to, or a vertical climb on, a security fence.
- Impervious to changes in environment due to rain, snow, waves, heavy winds, lighting changes, and animals.
- Quickly establish virtual perimeters – Real-time alarms may be established for virtual fences or “trip wires” on gates, sectors where fencing is impractical, or 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 aircraft, fuel storage tanks, ports, harbors, munitions storage, bridge supports, power plants, sub-stations, water treatment plants, dams, or similar infrastructure targets.
- Hazmat zone protection – Protection of and alarming on people or vehicles entering dangerous or hazardous areas.
- Detection of people or vehicles “casing” a facility by slowing, stopping, loitering or making U-turns and returning.
- Detecting and alarming undesired direction of motion of people or vehicles.
- Traffic flow rates – Counting people or vehicles through gates, doors or portals.
- Advance detection of vehicles speeding toward boundaries in a possible attempt to breach the perimeter.

Security Events or Behaviour Monitoring Indoors or Outdoors

- Detection and classification of people, vehicles or objects that violate defined events or behaviours such as speed and direction.
- Detect, track, and alarm on people or vehicles entering or exiting restricted areas.
- Wrong-way movement detection, e.g., people entering an exit-only lane in an airport concourse or vehicles traveling the wrong direction.

- Detect people standing or loitering in restricted areas; vehicles parked in handicap zones or fire lanes exceeding a specified time period.
- Detect presence and activity of people and vehicles at loading docks and in warehouses.
 - Specify rules of behavior and movements for alarm.
- Detect people loitering or meeting based on duration, time, and other factors.
- Detect certain events and behaviours that may precede theft, vandalism, ambush, or destruction.

Facility Optimisation, Operational Enhancement, Productivity and Safety

- Facility access – Monitor all entry and exit points to a facility and establish rules differentiating normal and unacceptable events or behaviours.
- People counting:
 - Measure traffic flow of facility, floor and/or building sector with real-time or periodic reporting.
 - Enable collection of periodic personnel movement and traffic flow data for use in facility or area optimisation.
 - Alarm on occupancy levels exceeding allowable limits.
 - Detect unusual or panic entry or exit of large numbers of people.
- Traffic monitoring of parking lots or parking garage entrances, exits, restricted areas, or major arteries for abnormal (slow) movement, traffic jams, wrong direction, speeding, illegal U-turns, failure to stop, stopping in restricted zones.
- Detect and alarm when people or vehicles enter or leave dangerous or hazardous areas.

Success Story

The Problem

A military facility in the Pacific Northwest asked us to solve some key problems they were facing in a training location spanning several hundred acres:

1. Huge facility: With several hundred acres, they needed a redundant system that could cover the entire perimeter.
2. Reliability: The customer was using motion alarms and was experiencing hundreds of irrelevant alarms per day across more than 2000 cameras. At busy times each day, they were getting more than 100 alarms per minute and could not manage them. They were looking for alarms that were “relevant” to them rather than just detecting motion.
3. Remote management: They wanted the ability to send alarms to any point inside the facility and to accelerate the alarms to senior commanders at remote locations if necessary.

The Solution

Active Alert[®] was deployed in several locations using analytics to track critical perimeters, fencelines and virtual fencelines as well as military personnel and visitors in and out of the facilities. All facilities were monitored from two command and control centres located inside the facility superstructure.

The Results

Within three months, the following results were achieved:

1. Huge facility: Within two months, a significant operational efficiency was achieved. At the areas where Active Alert was deployed, roving guards were decreased by 70%. This was a huge cost savings.

2. Reliability: Within less than one month, the number of alarms per minute was dropped by more than 80 percent to an average of 20 alarms per minute during busy times. This was a huge savings in labor and gave the system a level of trust that had not previously existed in their video management system.
3. Remote management: The Active Alert system was set up so that password protected access could be made available from any client, anywhere in the world. Because of this capability, the facility could also be used for training purposes for remote locations.

Overview of Advantages

- Increased levels of security, improved 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 video forensics that permits user definable, event-specific behavior retrieval in seconds, even in very large systems.
 - Ability to playback 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.
 - Ability to ignore tree motion, rain, snow, birds, or animals.
 - Accommodates widely ranging lighting conditions, including strong shadow and high contrast scenes.
- High performance analytics algorithms enable real-time tracking of up to 20 objects and more than 35 events.
- Easy to deploy and intuitive set up 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 military installations and government sites, 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

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