

AVAILABLE BEHAVIOR RECOGNITION MODULES

- **Crowd and Traffic Detection** – detects crowd size, queue length and traffic speed for continuous monitoring of overcrowding situations.
- **Exit Lane** – detects people going the wrong way in single direction entrance or exit lanes.
- **Human Tailgating/Piggybacking** – detects multiple people tailgating or piggybacking on a single access card.
- **Loitering** – detects people or vehicles loitering near secure or high value areas.
- **Perimeter Intrusion** – detects and tracks people, vehicles, or other object intrusions into secured areas.
- **Removed Objects** – detects the removal of stationary objects.
- **Stopped Vehicle** – detects vehicles stopped near sensitive areas for a prolonged period.
- **Turnstile Violation** – detects people hopping over or crawling under an access gate.
- **Unattended Objects** – detects objects such as packages, luggage, and carts that are left unattended for a specified period of time.
- **Vehicle Tailgating/Piggybacking** – detects multiple vehicles tailgating or piggybacking on a single access card.
- **People/Vehicle Counting** – generates an accurate count of one or two way traffic across a virtual line.
- **PTZ Tracking** – Provides vision-guided control of PTZ cameras based on object tracking.

PRODUCT OVERVIEW

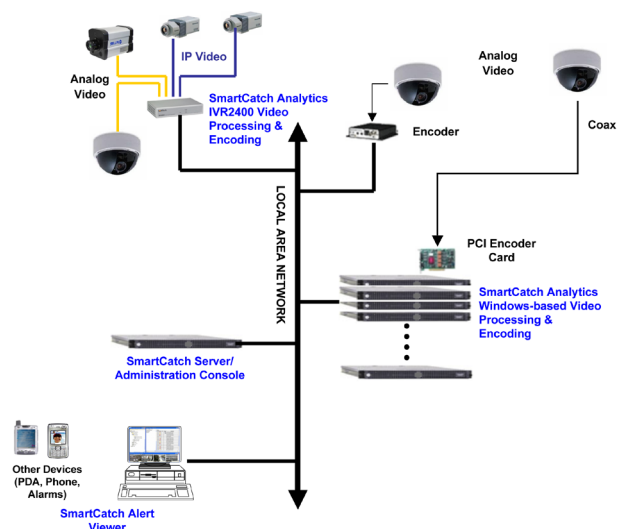
Security and safety are major concerns facing all organizations today. In response, millions of CCTV cameras have been installed worldwide to control access, secure perimeters and monitor for theft, damage or attack. These cameras are watched by busy security personnel with other duties to perform, recorded for later review or even completely unattended. This reactive, after-the-fact approach cannot deliver the level of effective real-time security needed today.

Vidient SmartCatch Analytics provides the most comprehensive, accurate, and advanced intelligent video surveillance software available today. With true behavior recognition capabilities SmartCatch Analytics can detect suspicious behaviors that threaten safety and security in real-time, alerting the appropriate security staff for effective and efficient response. By using state of the art machine learning, multiple object trajectory tracking and human reasoning technology, SmartCatch Analytics consistently achieves the industry's highest accuracy rate, eliminating the false alarms often caused by motion detection systems or simple object tracking solutions. A comprehensive set of behaviors is available for use both indoors and out, offering complete coverage across the entire enterprise.

SmartCatch Analytics works in conjunction with SmartCatch Server/Administration Console and the SmartCatch Alert Viewer to provide a comprehensive platform video surveillance platform. The SmartCatch Server/Administration Console is used to configure and customize SmartCatch Analytics, implement organizational security policy, integrate third party sensors and signals and manage system users. The Alert Viewer is a client application which allows security personnel to receive alert information and video on a wide range of computing devices, including wireless, and respond or escalate as necessary.

KEY BENEFITS

- **Automated Real-Time Video Monitoring** – Monitors, analyzes and interprets video in real time, alerting appropriate security staff via a variety of methods when specific behaviors that threaten safety and security are detected.
- **Accurate Detection of Security Violations** – SmartCatch Analytics accurately detects specific behaviors that violate security policy. It works both indoors and outdoors under complex real world environments, consistently achieving the industry's highest level of accuracy.
- **Deployable in the Data Center or at the Edge** – SmartCatch Analytics can be deployed on industry standard Windows servers in the data center or on the all-weather Vidient Intelligent Video Router (IVR) 2400 at the edge of the network. Both options offer the full capabilities and accuracy of SmartCatch Analytics
- **Works With Existing Surveillance Infrastructure** – SmartCatch Analytics works with all of your existing CCTV cameras and is easily integrated with other sensor and security management platforms.
- **Easy to Set-Up And Use** – SmartCatch is easy to configure for your specific security policies including when, where and how alerts are delivered, escalation of notification and delivery via a wide variety of communication devices. SmartCatch enables viewing of multiple cameras simultaneously, shows alert details and provides a listing of previous alerts.



INDUSTRY'S MOST COMPREHENSIVE, VERSATILE AND ACCURATE INTELLIGENT VIDEO SURVEILLANCE SOLUTION

■ **Deploy Anywhere.** SmartCatch can be deployed in a centralized environment, on standard PC's, or on the network edge with the Vidient Intelligent Video Router (IVR). Both deployment options offer the full range of SmartCatch behavior recognition modules and support both analog and digital cameras for unrivaled flexibility.

■ **High Accuracy.** SmartCatch consistently delivers the high accuracy with low false alarms even in tough environmental conditions, and across a wide range of behaviors. Using state of the art machine learning, multiple object trajectory tracking, and human reasoning technology, SmartCatch recognizes behaviors that threaten safety and security.

■ **Comprehensive Response Management.** SmartCatch provides an Alert Response Management system that enables security personnel to respond quickly and according to specific security policy.

■ **Versatile.** SmartCatch can be deployed on a few cameras or on thousands of cameras across a large organization so it can grow as your needs do. It works with other existing CCTV systems and can easily integrate with other sensor and security systems to provide complete situational awareness.

SmartCatch® provides a comprehensive set of behavior modules that detect suspicious activities indoors and out. Behavior modules can be used individually or in combinations on individual cameras or extended across thousands of cameras. Configuring behaviors to accommodate site-specific conditions such as defining areas of interest or the size of vehicles to be detected is easy to do with simple drag and draw tools, wizards and menus. More complex customizations or integrations are easily accomplished by using the SmartCatch application programming interfaces.



Individuals tailgating on a single access card even in difficult lighting conditions

HUMAN TAILGATING / PIGGYBACKING

SmartCatch detects piggybacking when two or more people move through a door or gate without the door or gate fully closing between their entries. It is designed to track unauthorized entry by piggybacking on a legal access.

Capabilities

- Indoor and outdoor usage
- Track one or multiple humans/objects
- Works in varying illumination, shadows, reflections and weather conditions
- Accurate regardless of size and speed of humans
- Able to synchronize with other sensors like access control for comprehensive security management
- Detects loitering and suspicious activities such as object passback



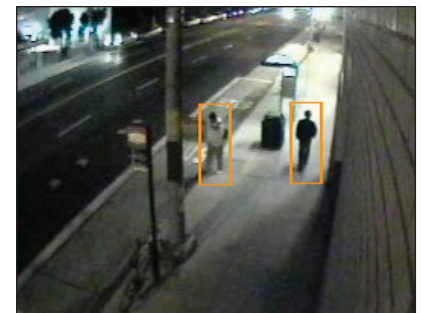
Identifying perimeter objects accurately even over water.

LOITERING

Loitering is used to detect people staying at an area longer than usual. The movement tracked can be running or walking. SmartCatch can individually track multiple people who may be loitering simultaneously.

Capabilities

- Indoor or outdoor usage
- Multiple concurrent people tracked
- User configurable loitering time setting
- Works in varying illumination, shadows, reflections and weather conditions
- Up to ten areas of interest can be defined by the user
- Works event in occluded environments such as parking lots



Loitering or suspicious behavior even under low light or nighttime conditions.

PERIMETER INTRUSION

SmartCatch Perimeter Intrusion is able to detect, track and classify objects entering the controlled areas within the field of view, based on as few as four pixels of video data. It is effective in conditions of varying illumination, shadows, and reflections and in inclement weather.

Capabilities

- Outdoor usage
- Detects objects entering and leaving secure zones as well as object speed, direction and GPS location



Vehicles tailgating on a single access card.

- Detect and track object as small as four by four pixels
- Works in varying illumination, shadows, reflections and weather conditions
- Classification on people, vehicles, boats and other objects
- Includes loitering detection.
- Can detect and alert on disappearing/ appearing objects.
- Alerts can be generated based on speed of movement.
- Continuous tracking even when object or person disappears and reappears in the scene due to temporary blocking
- Integrates with GPS and radar systems.



A vehicle stopped for an extended period in a sensitive location.

STOPPED VEHICLE

Detects any size vehicle that is stationary for longer than a specified time in the camera field of view or in a region defined in the camera view. This includes monitoring small to large vehicles such as a passenger car, moving van or truck, etc.

Capabilities

- Outdoor usage
- Works in varying illumination,

shadows, reflections and weather conditions

- Highly accurate even in crowded street
- Added flexibility to detect only certain size vehicle

VEHICLE TAILGATING / PIGGYBACKING

SmartCatch detects tailgating when two or more vehicles move through an access gate without it fully closing between entries. It is designed to track unauthorized entry by tailgating on a legal access. In addition, SmartCatch can detect a human tailgating a vehicle through the same access gate.

Capabilities

- Indoor and outdoor usage
- Track one or multiple vehicles tailgating
- Track people tailgating vehicle
- Works in varying illumination, shadows, reflections and weather conditions
- Accurate regardless of size and speed of the vehicle
- Able to synchronize with other sensors like access control for comprehensive security management

CROWD DETECTION

Being able to detect growing crowd or traffic conditions can be very useful in identifying emergency situations, preventing long customer wait times and maintaining operational efficiency. Based on specified thresholds for occupancy rate or speed of movement within a region, SmartCatch can notify authorities to take action on overcrowding.

Capabilities

- Indoor and outdoor usage
- Detect overcrowding based on capacity and occupancy rate
- Detect speed of movement.
- Real time, continuous output of speed and crowdedness data.
- Works in varying illumination, shadows, reflections and weather conditions

UNATTENDED OBJECT

SmartCatch can selectively detect objects of specified sizes like boxes, luggage, etc. being placed in the monitored area for a period of time. The monitored area can be the whole camera view or a user defined area. The noise filter feature enables detection of the unattended object in a crowded area or under changing weather conditions.

Capabilities

- Indoor and outdoor usage
- Detect any size object even in crowded scene
- Works in varying illumination, shadows, reflections and weather conditions



Detecting an unattended object even in the crowded environment of a busy sidewalk.

REMOVED OBJECTS

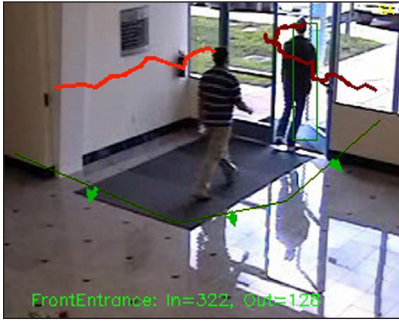
SmartCatch can detect any size object being removed from a monitored area. It is designed to protect valuables from being stolen or damaged. The monitored area can be the whole camera view or a user defined area.

Capabilities

- Indoor and outdoor usage
- Detect any size object even in crowded scene
- Works in varying illumination, shadows, reflections and weather conditions



Easily Identifies the removal of objects.



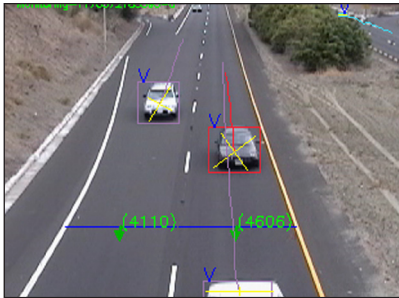
Egress and ingress people counting through a portal

PEOPLE / VEHICLE COUNTING

SmartCatch can generate a count of the number of people or vehicles which pass through a zone or across virtual line in either direction. The system supports any number of zones or virtual lines allowing for specific counts through individual lanes. In addition to security applications, this behavior is useful for retail traffic flow analysis and highway traffic monitoring. It can be integrated with RFID systems to identify when unauthorized individuals are present.

Capabilities

- Utilizes highly accurate learning-based human detection algorithms



Counting vehicles in individual lanes of traffic.

- Accurate despite shadows, reflectivity or varying illumination
- Ingress and egress counting
- Independent counts by lane
- Able to count individual humans even they are walking close together.

EXIT LANE

SmartCatch Exit Lane module detects any person or object crossing a pre-defined area in the wrong direction. Any person or object that crosses the area will cause an event to be generated. SmartCatch can monitor separate warning and alarm areas providing escalating levels of alerts for each.

Capabilities

- Indoor and outdoor usage
- Detection of counter direction crossing
- Works in varying illumination, shadows, reflections and weather conditions
- Highly accurate even in crowded situation
- Security Guard recognition filter

TURNSTILE VIOLATION

Many access gates are controlled by turnstiles. Smartcatch can detect unauthorized entry by hopping over or crawling under these.

Capabilities

- Indoor usage
- Works in varying illumination, shadows and reflections
- Works with mechanical or optical turnstiles

- Able to synchronize with the turnstile software for comprehensive security management

PTZ TRACKING

SmartCatch includes comprehensive support of PTZ cameras, including single camera autonomous tracking, camera handoff (master/slave), control of the PTZ camera in response to alerts and situations, and support for preset, view-specific regions and behaviors. The camera maintains tracking despite temporary occlusions.

Capabilities

- Single camera vision-guided control of a PTZ camera
- PTZ active tracking can actively follow the object of interest through the entire PTZ range.
- It also provides the ability to automatically zoom in on unattended objects.
- The user can manually select objects for active tracking.
- Camera handoff from fixed camera to PTZ



Autonomous, vision-guided, object tracking

ABOUT VIDIENT SYSTEMS

Vidient Systems, Inc. develops and deploys intelligent video surveillance software that makes CCTV cameras more accurate and cost effective. These systems are used today to monitor secure locations at major transportation facilities, corporations and public institutions. The Santa Clara, California-based company was founded in 2003.



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