

SmartCatch™ | Crowd Detection Technical Specification

Vidient SmartCatch is an accurate and effective solution for detecting perimeter intrusion in sensitive areas. Using existing CCTV infrastructure, SmartCatch software monitors, identifies and tracks objects for security policy violations and enables quick response through real-time alerts and instant video replays. At the core of SmartCatch is a set of advanced video algorithms capable of performing complex behavioral analysis, tracking numerous objects and simultaneously identifying security threats in even the most complex environments. Crowd Detection is one of many available SmartCatch behaviors.



DEFINITION

SmartCatch Crowd Detection behavior is a video-based crowd and queue detection system. The system detects a crowd threshold situation in a real time video image and generates alert notification when the occupancy rate exceeds user-defined limit in either a Region of Interest (ROI) or in the whole camera view. This is very useful to monitor crowd status for an area or for queue. Appropriate action can be taken to resolve crowd situation before a safety or security situation occurs. To provide high accuracy in the crowd detection behavior, SmartCatch provides an easy to use object size calibration feature. Calibrating object sizes helps to compensate for objects that appear larger near the camera as compared to objects that appear small further away from the camera.

SPECIFICATIONS

- General
 - Type of use: indoor and outdoor
 - Input video processing format: CIF, MPEG4
 - Video processing size: 320x240 (NTSC) or 352x288 (PAL) or higher; High resolutions can also be down-sampled or cropped to minimum processing size
 - Self-adapted background modeling for scene learning
 - Day and night time (with some illumination at night time)
- Software & Hardware
 - SmartCatch Video Processing Unit (VPU) Software
 - Minimum hardware specifications: Intel Xeon 2.8GHz, 1Gb RAM, 80 GB HDD

- Region of Interest (ROI)
 - Number of regions of interest: 1
- Noise Filters
 - Shadows cast by objects
 - Varying illumination
- User Configurations
 - Regions of Interest
 - Human size calibration for camera view
 - Periodic event timing variable
 - (See additional user configurations below)

ADDITIONAL USER CONFIGURATIONS FOR CROWD DETECTION

The SmartCatch Crowd Detection behavior consists of two parts that must be set up by the SmartCatch administrator in order to generate an Alert when a crowd threshold is exceeded:

- Behavior algorithm to locate people in the camera view.
- Situation Policy to trigger an alert if a crowd threshold is exceeded.

Other behaviors in SmartCatch generate an event from the behavior algorithm *only* when a violation behavior occurs—the Crowd behavior algorithm does not work this way. Instead, the Crowd behavior generates a *periodic event* to the SmartCatch Server (default is every 120 seconds) submitting a “crowd status.” This status is a percentage of coverage for humans within the entire ROI (region of interest). Each Crowd Detection event sends this percentage number to the SmartCatch Server where a Situation Policy must be created to determine if an Alert is to be generated. The Situation Policy can capture the percentage value from the event attribute called, “CONGESTION” — type is “number” and the value will be between 0.00 and 100.00 identifying the percentage of human coverage within the ROI.

RECOMMENDED CAMERA POSITIONS

