



Advanced Security for Industrial Applications

The use of video surveillance in industrial settings is ever increasing. The convergence of inexpensive high resolution video, high speed IP, and advanced computing and software technologies have made the benefits of adding video monitoring to critical industrial applications more accessible.

Video systems, such as those provided by Industrial Video and Control, now aid in improving personnel and public safety, process and product quality, and site security. The open nature of an IP-based video solution such as IVC's make it relatively easy to add complimentary technologies to further enhance the benefits of industrial video monitoring.

Intuvision

An IVC technology partner, Intuvision, provides one of these complimentary technologies. Based in Woburn, MA, Intuvision is a manufacturer advanced video analytics software. Intuvision's VA: Security software is designed to address one of the weak links in a video-based monitoring and security system: the operator. Since their software does not get tired, distracted, or bored, it reacts quickly to a variety of potential threats:

- Activity in critical areas
- Camera Tamper
- Line Crossing

- Wrong Way motion
- Intrusion
- Left Object
- Object Taken
- Speeding
- Loitering Person
- Idle Vehicle
- Crowd Monitoring
- Over Capacity Detection
- Smoke and Fire
- Compound Events

IVC & Intuvision

IVC worked with Intuvision to integrate support of their video analytics with IVC's Alarm Server. The IVC Alarm Server can now listen for and detect alarms from the Intuvision software. Responses to the Intuvision alarms can be tailored to fit the application using the IVC Alarm Manager. Possible response actions could include but are not limited to:

- Camera operations (moving, recording, etc.)
- Initiation of visual cues to operators,



Live video from IVC's Class I Division 2 certified stainless steel dome cameras is analyzed by Intuvision video analytics software.



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such as changing the view they are watching

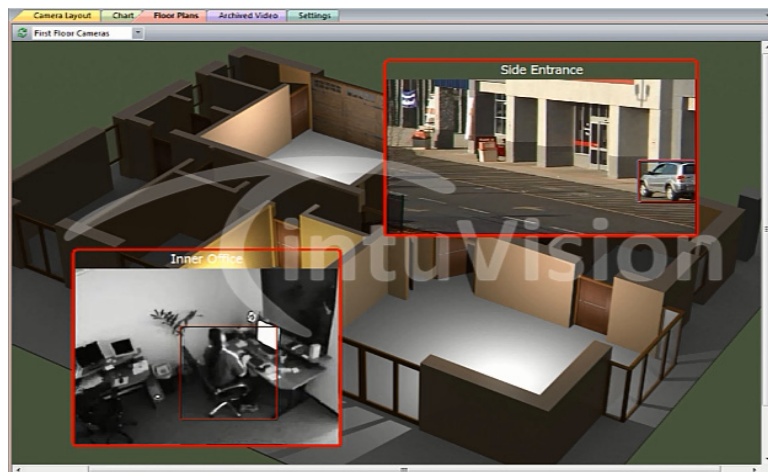
- Initiation of audio cues to operators and other personnel
- Other commands to IVC's camera management software
- HTTP commands to initiate commands to other connected devices or software
- Windows commands to initiate commands to other connected devices or software

integration for a major project at a large polyethylene plant being built in Central America. An IVC camera system comprised of over 60 hazardous area cameras was procured for this project. The primary purpose of the video system is for process and safety monitoring. However, because of the critical nature of the chemicals to be used and produced at the plant, site security is also of great concern.

Consequently, the customer desired to have a video system that included the advanced video analytics listed above. IVC worked with IntuVision to provide an integrated solution. Of particular interest for this customer were the following:

Petrochemical Safety and Security

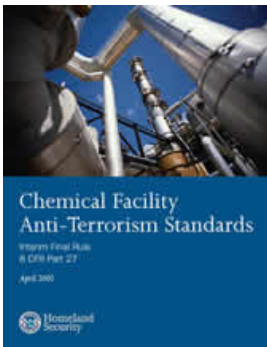
IVC has successfully implemented this



Alarms generated by IntuVision's video analytics software are detected by IVC's Alarm Server. Programmable alarm definitions in the Alarm Server determine alarm responses.



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Advanced video analytics, such as that provided by Intuvision, can be used to ensure compliance to regulatory requirements.

- Activity in critical areas
- Crossing of virtual trip wires
- Intrusion
- Object left behind
- Object taken
- Loitering

IVC cameras are placed around the perimeter of the facility and at key operational locations. Two of the cameras are specialized dual-imaging cameras that include one optical zoom module and one thermal module mounted on a precision pan-tilt unit. These cameras are configured to monitor the flare stacks on site.

All live video streams from the cameras are sent to the IVC Relay Server. The Relay Server "relays" the video to all connected clients. In this system clients include workstations with web-browsers, workstations with IVC's View Station software, and SCADA HMI screens that have been configured with video windows and camera controls. Additionally, live video from the Relay Server is also sent to servers running the Intuvision video analytics software.

The Intuvision software is configured to monitor one or more of the items listed above for each camera. Should the Intuvision software detect an alarm condition, it sends

an HTTP message to the IVC Alarm Server. The Alarm Server then parses the message to determine which alarm responses to initiate for the detected alarm(s).

Alarm responses are unique to each alarm defined in the IVC system. Responses could include:

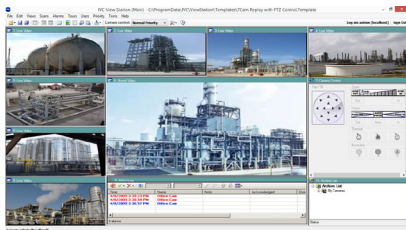
- Move pan-tilt-zoom cameras to preset or specific position
- Increase resolution and/or frame rate on related cameras
- Record video on one or more cameras
- Change operator view on View Station workstation
- Initiate visual cue to operator on View Station
- Initiate audio cue on View Station computer
- Send emails to predetermined list with alarm-related video clip and data
- Send HTTP commands to connected devices or software (This can be used to activate PAGA systems, shut down systems or sub-systems, activate access control systems to restrict access or facilitate evacuation, etc.)
- Send Windows commands to other utilities on the computer hosting the



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Alarm Server.

- Initiate SNMP traps to indicate status on SNMP monitoring software
- Log the alarm for display in the IVC View Station Alarm Log
- Save alarms to database (for future analysis)



IVC's View Station software provides unlimited number of customizable operator views that may include Alarm Log listing alarm events initiated by Intuivision video analytics software.

Benefits

Using video to analyze events in an industrial setting often means the labor intensive activity of reviewing hours or maybe days or more of recorded video. While this effort is going on there is no certainty that the cause of the event has been adequately addressed. The convergence of high performance IP cameras, robust camera management software, and advanced video analytics software now makes it possible to analyze and react to events in near real-time.

Heightened security concerns at many industrial sites, such as this polyethylene plant, demand a more vigilant surveillance approach. IVC industrial video solutions coupled with Intuivision video analytics software provide a security solution that is less dependent on constant monitoring by security personnel. Additionally, since location and type of alarm event are automatically determined and system reactions are tailored to each alarm, responses to events are quicker and more comprehensive.

Even though this implementation is less dependent on human monitoring of live video, the fact that all video and related data are IP-based facilitates the rapid dispersment of event-related video clips and data to appropriate personnel including first responders. This ensures that any potential hazards to equipment, personnel, and the public are quickly addressed.

About IVC

Based in Newton, MA, IVC delivers a broad range of quality IP-based video systems to industrial, commercial and military applications. Their standards-based software, which delivers quality video to PCs and other client devices over a network, is designed to be scalable and easily integrate with third party software. A key strength of IVC is its ability to develop cameras, enclosures, and software to meet demanding customer requirements.

About Intuivision

intuVision was founded to meet the unique needs of intelligence community for high performance video content extraction solutions. Since its inception intuVision has been very successful in solving the most challenging video analytics problems and taking the advanced research concepts into working systems for end-users in both government and commercial domains. AintuVision's real-time video event detection and video forensic investigation technologies have received top ranks in government and organizational evaluations including the first place in Video Event Detection Evaluation run by National Institute of Standards (NIST TRECvid08).

