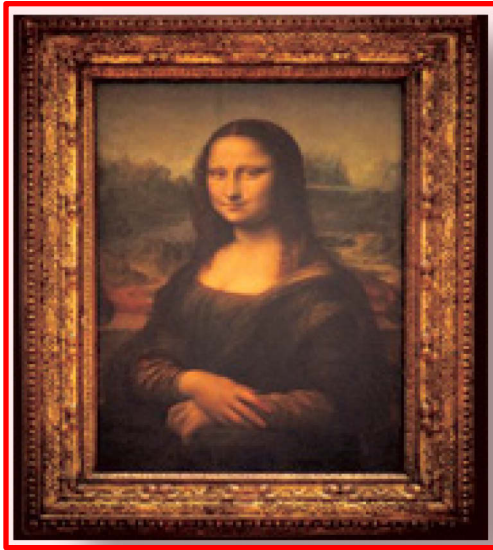


VTrack-StolenObject v3.0

Video Analysis for the detection of stolen objects in sensitive areas



THE FUNCTION **VTRACK-STOLENOBJECT** ALLOWS THE REAL TIME AND AUTOMATIC DETECTION AND SIGNALING OF OBJECTS REMOVED FROM VIRTUAL AREAS

- ✓ **VIDEOSURVEILLANCE MORE EFFECTIVE AND EFFICIENT FOR SAFETY AND SECURITY**
- ✓ **INCREASING OF PROTECTION FOR ASSETS, GOODS AND FACILITIES**
- ✓ **OPTIMIZATION OF PERSONNEL AND SERVICES**
- ✓ **FORENSIC ANALYSIS**

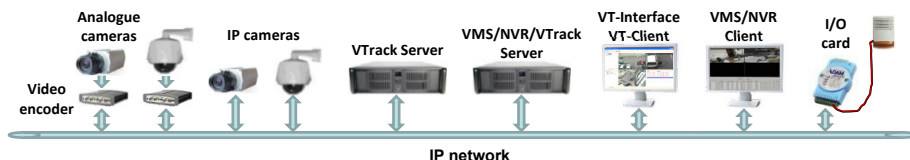
- **DETECTION OF THEFTS**
- **PREVENTION OF MANIPULATIONS AND DAMAGES**
- **DETECTION OF VANDALISM FOR MONUMENTS OR SENSITIVE ASSETS**

- **INDUSTRIAL AREAS AND CRITICAL INFRASTRUCTURES**
- **COMMERCIAL CENTRES, CHAIN STORE, SUPERMARKETS, AUTOGRILLS**
- **BANKS**
- **TRANSPORTATIONS: PORTS, AIRPORTS, METRO AND RAILWAY STATION**
- **PUBLIC FACILITIES: MUSEUMS, SCHOOLS, PRISONS, HOSPITALS, PUBLIC AND INSTITUTIONAL BUILDINGS**



FUNCTIONAL SPECIFICATIONS

- ✓ Modular, scalable and flexible software architecture, available for Windows/Linux o.s. 32/64bit
- ✓ Unlimited configurable virtual zones, of any shape and size
- ✓ Detection and tracking of unlimited subjects of interest in the scene
- ✓ Robust and reliable in filtering false alarms due to atmospheric phenomena, changing of environmental conditions, vegetation, thanks to the most advanced self-adaptive algorithms based on Self Learning Background Modelling, Foreground Filtering and Multitarget Tracking
- ✓ Specific algorithms for filtering shadows and lighting changes
- ✓ Filtering of objects by size, type and dynamics
- ✓ Morphological filtering for improving the efficiency of the detection and separation of subjects by shape enhancement
- ✓ Ability to select several active points of the detected subjects (ex. baricenter and/or ground point and/or left upper point ...)
- ✓ Filtering of subjects of interest with specific size for each configured alarm zone (ex. Zone1: alarm only on little objects detection, Zone2: alarm only on big objects detection, ...)
- ✓ 3D perspective management by linear interpolation on image, or by image calibration
- ✓ Unlimited configurable no-processing virtual zones, to inhibit not-of-interest areas in the image
- ✓ Unlimited configurable crops of the image, each one processed as separate video source
- ✓ Enabling/disabling of the module by external input or time scheduling
- ✓ Calendar function, for the scheduling of different configurations in different timeframes
- ✓ Ability to process at resolution and frame rate different from the source ones
- ✓ VirtualAlertRule function, for the generation of alarms by correlating in AND within a certain time the occurring of multiple configured alarms
- ✓ Visualization on a centralized graphic map of the position and trajectory of the detected subjects
- ✓ Interface for the simulation of the processing results, to verify the correctness of the configuration
- ✓ VTClient interface for the real time visualization of live and alarms, with bounding boxes and trajectories overlays
- ✓ Watchdog function, for the automatic restart of the module in case of critical error or hw unit restart
- ✓ Automatic and real time alarms sending to:
 - VMS or NVR compatible platforms
 - I/O contacts, electrical devices, external DVR or NVR units, through Modbus I/O units
 - e-mail, with in attachment the image related to the generated alarm
 - FTP server
 - serial port, PLC
 - network device through http/TCP call, customizable
- ✓ VTrack-Recorder function, for the storage in local directories of continuous or event-based videos



TECHNICAL REQUIREMENTS

- Hardware unit needed, with Windows (XP or next) or Linux, 32/64 bit
- Video flow acquisition from:
 - IP cameras (optical or thermal), through standard protocols rtp/rtsp, mjpeg or ONVIF
 - analogue cameras (optical or thermal), by IP video encoders through standard protocols rtp/rtsp, mjpeg or ONVIF, or by compatible frame grabber cards
 - compatible VMS platforms
 - NVR or DVR units, compatible or through standard protocols rtp/rtsp, mjpeg or ONVIF
 - off-line videos in all standard formats (avi, asf, mpg, mov, ...)
- Conditions of the objects of interest in the image in order to be effectively detected:
 - clearly visible to the naked eye in the image, even in difficult environmental conditions (dark, glare from the sun, reflections or other sources of artificial light, ...)
 - entirely visible in the image for at least 10-15 continuous frames
 - minimum size: area of 100 pixels, or 10 pixels/meter, at the farthest point where the detection is required (eg 10x10 pixel)
 - maximum size: about 1/4 of the image
- Minimum frame rate: 8fps
- Suggested image resolution: according with the object minimum size requirement, CIF/QVGA for big objects, 4CIF/VGA/SVGA for little far objects
- Computational need:
 - CPU: up to 5 video flows in CIF/QVGA resolution at 8fps with single core 2.8GHz
 - RAM: about 100MB for each processed video flow

