VTrack-LeftObject v3.0

Video Analysis for the detection of unattended objects in sensitive areas

TechnoAware
TECHNOLOGIES FOR AMBIENT INTELLIGENCE

THE FUNCTION ***VTRACK-LEFTOBJECT*** ALLOWS THE REAL TIME AND AUTOMATIC DETECTION AND SIGNALING OF OBJECTS LEFT UNATTENDED WITHIN VIRTUAL AREAS FOR LONGER THAN A DEFINED TIME

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

- PREVENTION OF TERRORISM OR SABOTAGE EVENTS
- DETECTION OF SUSPICIOUS OBJECTS LEFT IN SENSITIVE AREAS
- DETECTION OF OBSTACLES ALONG ROADS, RAILWAYS, TAKEOFF AND LANDING RUNWAYS
- DETECTION OF VIOLATIONS AND INFRINGMENTS

- INDUSTRIAL AREAS AND CRITICAL INFRASTRUCTURES
- COMMERCIAL CENTRES, CHAIN STORE, SUPERMARKETS
- BANKS
- TRANSPORTATIONS: PORTS, AIRPORTS, RAILWAYS, HIGHWAYS
- PUBLIC FACILITIES: STADIUMS, MUSEUMS, SCHOOLS, PRISONS, HOSPITALS, PUBLIC AND INSTITUTIONAL BUILDINGS, POLICE STATIONS
- URBAN AREAS
- LANDFILLS, ECOLOGICAL AREAS

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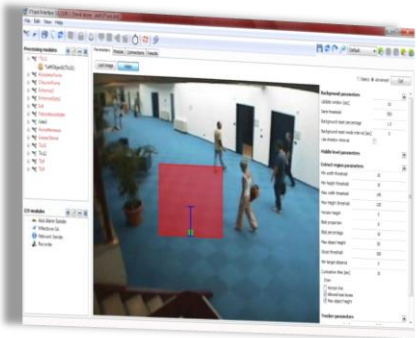
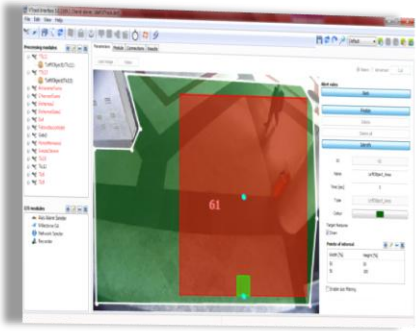
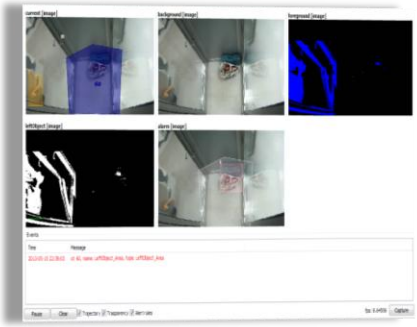
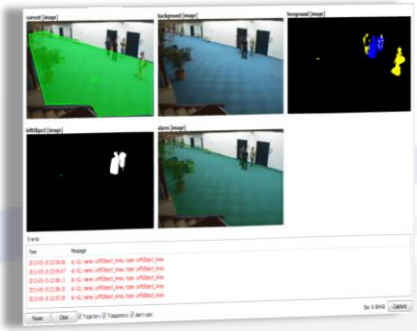


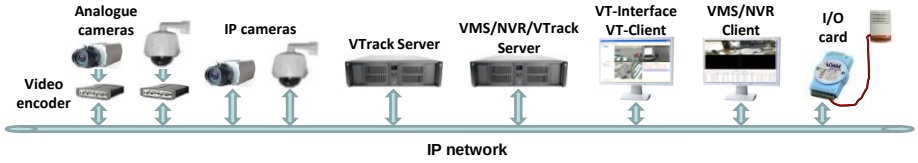






FUNCTIONAL SPECIFICATIONS

- ✓ 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: allarm 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
  - unit connected in web 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 (night, heavy rain, fog, glare from the sun, reflections or other sources of artificial light, snow, ...)
  - 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 in outdoor or in very dynamic environments, 4fps in low dynamic ones
- 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 80MB for each processed video flow