AllGoVision

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Datasheet

Intrusion Detection

Version 3.7

This Specification Sheet gives the details of system requirements, feature details and other salient points of AllGoVision's Intrusion Detection applications.

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INTRODUCTION

AllGoVision is a Video Analytics software product for actionable intelligence in security installations. The product provides excellent return on investment for a wide range of applications, including City Surveillance, Building Surveillance, Border Security, Business Intelligence and many more.

The technology evaluates the contents of video to rapidly determine the specific information about the video contents like specific data, behavior patterns, tracking movement of people/objects in monitoring zones.

This Data sheet gives the details of system requirements, features and salient points of AllGoVision's features used in Intrusion Detection applications.

The Video Analytics product can use the following features to monitor and detect the event of intrusion and thereby ensures safety for vulnerable and critical infrastructures, boundaries of industrial areas etc.:

- ✓ Basic Features: Tripwire, Trespass,

- ✓ Auto PTZ Features: Continuous Auto PTZ, Smart Auto PTZ, PTZ Handoff, PTZ Preset Analytics

- ✓ Suspicious Action by Persons (Intruders): Loitering Detection, Crowding Detection

SYSTEM REQUIREMENT

AllGoVision analytics has the following system hardware and software requirements.

CATEGORY	REQUIREMENT
Operating System	Windows Server 2003, 2008, 2012 Window XP, Vista, 7, 8, 10
Network	Ethernet, 1 Gbit or higher recommended.
Hardware Requirement	x86 Platform
Server requirement (for QVGA resolution)	Core i7 (6 Cores), 3 GHz, 8 GB RAM for up to 18 channels Xeon 6 core, 3 GHz, 8 GB RAM for up to 18 channels Xeon 12 core, 3 GHz, 16 GB RAM for up to 36 channels Note: Approx. 3 channels per core, suitable to add multiple CPUs in single server. For higher resolution consult AllGoVision
Resolution Frame Rate Requirement	Resolution - QVGA (320x240) and above, up to 1080p Frame Rate > 8 fps for Intrusion Detection – Basic Features Frame Rate >15 fps for PTZ Analytics
Stand Alone version camera support	Axis, Pelco, Bosch, Sony, Honeywell, IQinvision, Hikvision, Dahua, ISD, Panasonic, Brickcom, ArecontVision, Indigovision, Cisco, Samsung, Acti, Vision, Digital Watchdog, and others (ONVIF Cameras).
VMS Support	Milestone, Genetec, IndigoVision, exacqVision, Honeywell, Cisco, DW Note: Any other VMS is supported through Alarm Center

ALLGOVISION VIDEO ANALYTICS

The AllGoVision Analytics is robust to weather changes, lighting changes, tree swaying and other background distractions. The AllGoVision also works well in crowding conditions. The AllGoVision supports object classification.

The software is easy to install and simple to use with intuitive GUI. AllGoVision also supports customization through variation of features for specific applications. AllGoVision supports distributed architecture. Following are the salient features and options supported in AllGoVision.

- Administrator Login
- Scheduler to enable scheduling of Analytics
- Failover server
- ONVIF streaming of analytics overlaid video, video stabilization
- Alarm video creation and Snapshot creation
- False Alarm Minimization
- Direct Camera Connection
- Option to run the Application as a Windows Service
- People/Object/Vehicle counting report generation
- Auto Emailer & FTP upload options for reports
- Save, Export and Restore options for Analytics Settings of each Camera
- Metadata Storage & Search for object's Type, Time, Color, Size, Speed and Aspect Ratio
- Privacy Masking options – face masking and masking of view
- Logical operation on Alarms
- Both Server based and Edge based (on camera) analytics capabilities
- Multi-region Analytics on a single frame (alerts for multiple features/regions simultaneously)
- Options for Naming & Priority Settings for the regions.
- AllGoVision has its own alarm management client **Alarm Center**, providing below features:
  - Provides real time alarm snapshot and video. The database requirement is MySQL.
  - View / Search / Reporting & Analysis options for AllGoVision's video analytics alarms
  - Options for alarm Pop-up, Preview, Playback, Thumbnail view & Video Summary
  - Alarms filters based on object properties – time, type, color, size, speed & aspect ratio
  - Live View option for video wall and Live Reporting options
  - Provides search capability for Forensic Search based on metadata / object properties.
  - Analysis tools for operations management: Heat Map, Motion Map, Flow Map.
  - Reporting in pdf, jpeg, excel, text file and scheduling reports for email & FTP.
  - Provides comparison reports for time series analysis.

INTRUSION DETECTION FEATURES

The following video analytics features are used for effective surveillance for intrusion detection:

Automatic PTZ Features:

AllGoVision provides AutoPTZ tracking. AllGoVision controls PTZ operation directly with camera or through VMS. Home or Preset position needs to be defined. AllGoVision supports PTZ control through ONVIF protocol.

Smart Auto PTZ

This feature allows automatic one step PTZ operation to capture closer video of an agent on any pre-set rule violation such as crossing a virtual line, or entering a virtual area etc.

Example: Detection of violation with closer view capture of violator for evidence as well as monitoring purpose.

The Analytic rules like Tripwire can be set on PTZ camera to enable Smart Auto PTZ. In this process there are below steps are performed in order.

- At first, the analytics system estimates Violator's position.

- Then, PTZ control automatically captures a closer view of the violator for evidence.

- When the violator has moved, the camera immediately returns to normal position for monitoring again.

Rule Violation by Object   Automatic tracking of object for close view

Continuous Auto PTZ

This feature allows Automatic tracking of object (Single or Multiple) using Pan-Tilt-Zoom (PTZ) camera.

Example: Continuous tracking of objects like intruder; Continuous tracking of vessels in Sea.

In Continuous PTZ there are 2 options provided

- Multiple object – Any object near the end of frame is tracked.

- Single object – An object is latched based on size and continuously tracked

Continuous AutoPTZ for monitoring vessels at Sea

PTZ Handoff

Violation detected on any Fixed-camera triggers PTZ camera to its view for auto tracking of the violator object.

Example: Auto tracking of intruder with one PTZ camera covering multiple Fixed cameras, for instance, along the compound perimeter.

A typical set up can be achieved with PTZ cameras with multiple fixed cameras where the PTZ camera can cover in its PTZ range the views from the fixed cameras.


Fixed Camera

PTZ Camera

PTZ Pre-set Analytics

A PTZ Camera has different pre-set positions at different Pan-Tilt-Zoom level to have closer view of critical areas within the reach of PTZ range of the camera. With PTZ Pre-set Analytics, the analytics would run for each pre-set one by one in a cyclic order and send alerts against any detected rule violation.

Similar or different analytics features (rules) can be run on different pre-set positions. The time interval can be set by the user so that after that defined interval the camera would move to the next pre-set view and analytics would be run on that particular view.

Example: A PTZ Camera in patrolling mode typically used for city or traffic surveillance will have multiple pre-sets and analytics can be run automatically from one pre-set to another in a cyclic manner.

Pre-set 1

PTZ Pre-set Analytics

Home Position

Pre-set 2

Pre-set 3
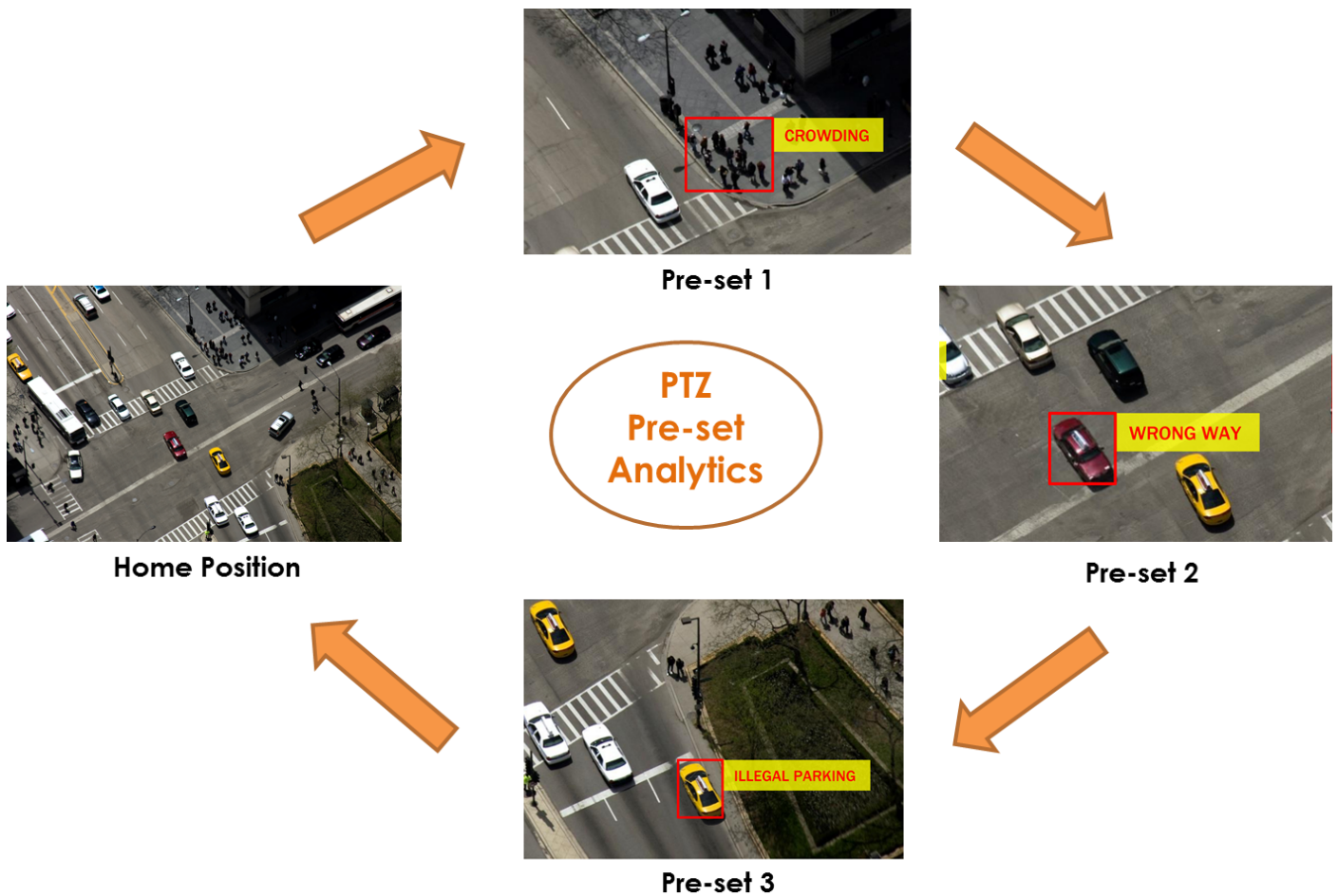
Object Detection based features:

AllGoVision video analytics is based on advanced object detection and object tracking algorithms. It has superior robustness to environmental changes like wind, rain, snow, etc. and gives accurate results even during gradual and sudden illumination changes.

Tripwire

Detection of a person or vehicle crossing (or touching) a virtual line drawn in the camera field of view. The line crossing event can be detected for both directions.

Example: Intruder detection on fenced areas, alert monitoring at the entrance, detection of illegal crossing of railway lines or getting closer to a restricted zone.

Trespass

Detection of a person or vehicle entering or exiting virtual area drawn by the user.

Example: Intruder detection in restricted areas. Illegal entry into secured zones in Banks, Stores, Plants. Entry of person or vehicle into restricted area or exit from that.

Loitering

Detection of a person's or vehicle's persistence beyond a specified time (set by the user) in a monitored virtual area in the camera field of view.

Example: People loitering in malls even after closing hours; people or vehicle having longer dwell time in restricted area; people persistence near critical assets.

Crowding

Detects crowd in the camera field of view / region of interest, and when the crowd formation goes beyond a specified threshold (crowd count / percentage of area) alerts against the over-crowing scenario.

Example: Detecting illegal gathering of masses, or getting alert for overcrowding scenario in public places

Object Classification with 3D Mapping:

● AllGoVision provides Object Classification with 3D Mapping.

Apart from considering the width and height of the object, the distance metric is also considered for camera views where objects can be detected at different distance from camera. Intrusion detection accuracy increases due to 3D mapping of scene.

● The 3D Mapping is based on calibration.

While configuring the analytics setup, the user can calibrate the object for each class at 4 different distance points such that the relative sizes are all captured for object positions at varying distances.

● Object classes for detection of Vehicles, Pedestrian, Unidentified etc.

The specific options for Object Classification in the software are: People, Vehicle, People and Vehicles only, Unidentified, All, Advanced People Detection. Thus, you can also narrow down the generation of alarms for any particular object class or a combination of object classes.

For features related to people detection (such as Loitering, Crowding, People Counting etc.) 'People' class can be used. Similarly for features related to Vehicle detection (such as Vehicle Counting, Illegal Parking etc.) 'Vehicles' class can be used. If only People and Vehicles are required to be considered, 'People and Vehicles only' should be selected. Otherwise 'All' can be selected for generic cases. For objects which cannot be classified in any of the categories, it is considered as 'Unidentified' class.

● AllGoVision supports Custom classes

Custom classes can be provided to define types of vehicles such as Car, Truck etc. The calibration is set at different distance for the similar custom class, the absolute dimension is also given by the user and the estimated dimensions are adjusted with an experimental correction factor.
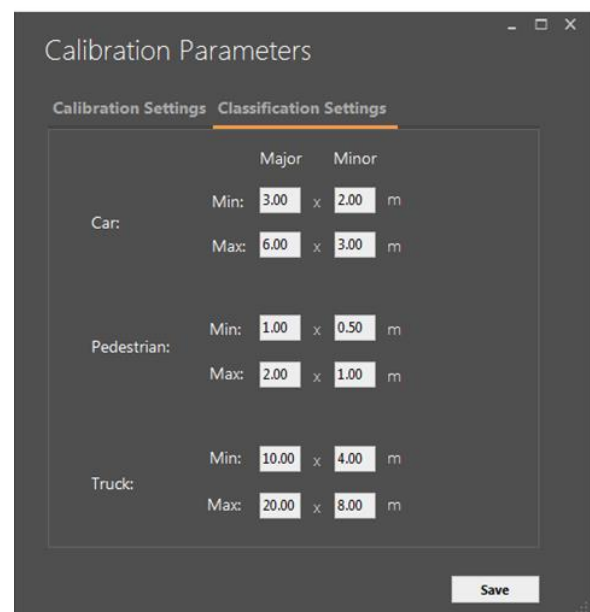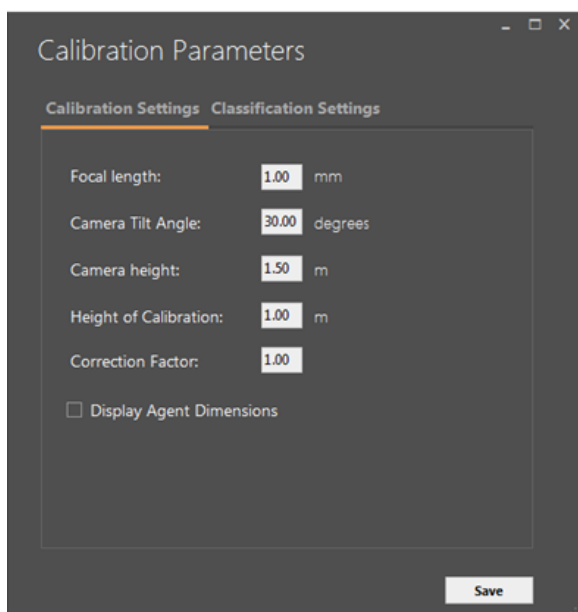
INTEGRATION FLEXIBILITY

The AllGoVision Video Analytics is flexibility in terms of supporting both Server-based and Edge-based analytics. In server based analytics it is available in 2 flavours:

With VMS: AllGoVision application is based on Open Platform Standards. It is integrated with many VMS Softwares. It takes video feed either from Camera or VMS, sends alarms to the VMS viewer.

AllGoVision Analytics VMS Integration
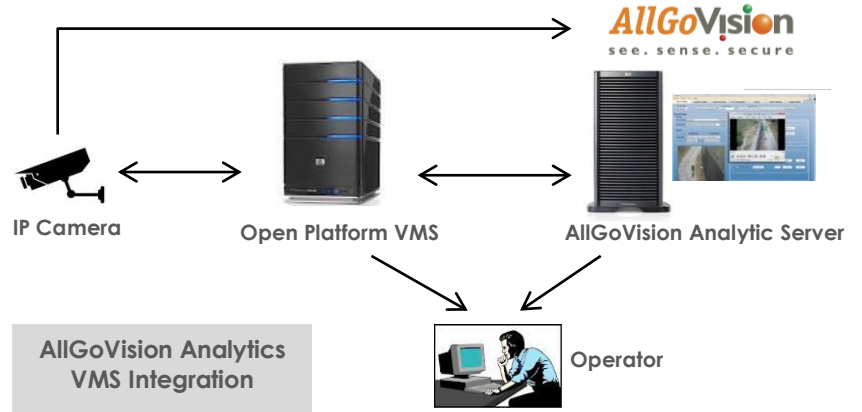
Without VMS: AllGoVision can also work independent of VMS as a stand-alone application, it takes the video feed directly from camera and sends alarms to Alarm Center (AllGoVision's own Alarm Management Client software) and works for view / search / reporting & analysis of alarms.

AllGoVision Stand-Alone Analytics
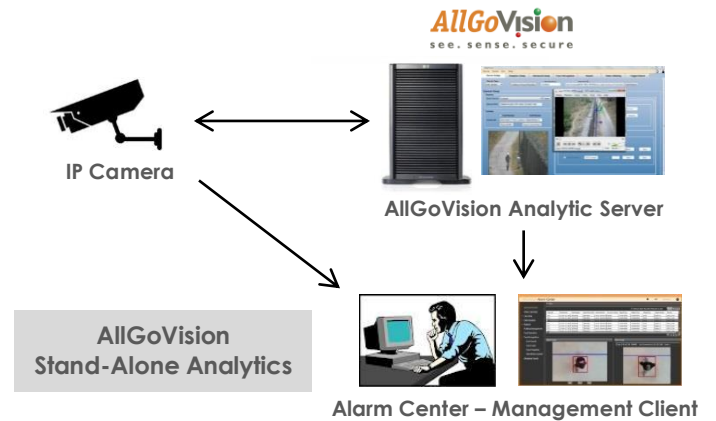
Edge Analytics: AllGoVision Analytics is also available on Edge on supported cameras. It runs the analytics algorithm directly on the camera based on the settings & configurations done at the AllGoVision GUI end (installed on server/pc). The alarms are sent to and viewed in below options:

1) At the Camera's Management Client
2) At the VMS Viewer (Smart Client) level
3) In AllGoVision Alarm Management Client – Alarm Center

The application runs as Windows service. It supports many channels per server for Edge Analytics and therefore saves extra hardware cost. The features supported in Edge Analytics are marked in the list of features section of this datasheet. Auto PTZ features are not supported in Edge Analytics.

AllGoVision Analytics – Edge – Alarm Center
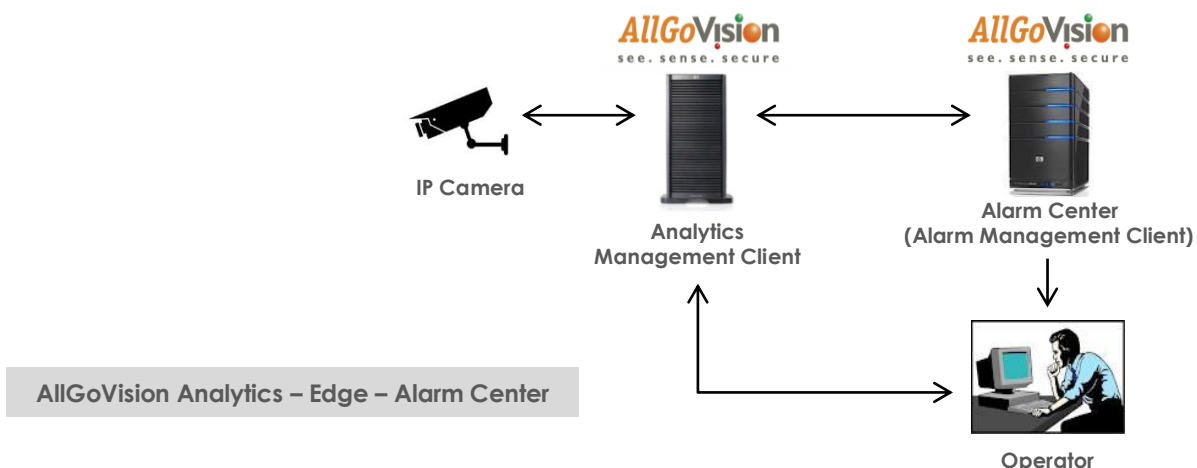
ALLGOVISION GUI

AllGoVision product offers a graphical user interface with windows-oriented, tab based, point and pick interface. Extensive use of graphical icons, pull-down menus, buttons, check boxes, and radio-buttons are incorporated to reduce typing work to the minimum possible extent.

AllGoVision product GUI consists of following seven tabs:

Server Setup Tab - The server setup tab consists of VMS or camera settings and other field details. You are able to view the video details from camera.

Analytics Setup Tab - The Analytics setup tab gives options to set the analytics fields for different features.

Advanced Setup Tab - This tab gives options to select advanced settings like camera environment, analytics processing complexity, shadow removal sensitivity, camera view, predefined object size and minimum object size.

Video Stitching Tab - This allows stitching of Videos from 2-8 cameras. The output is displayed in the same tab. The objects detected are also shown with Red rectangles.

Trigger Based - This allows running analytics from trigger like that from RFID.

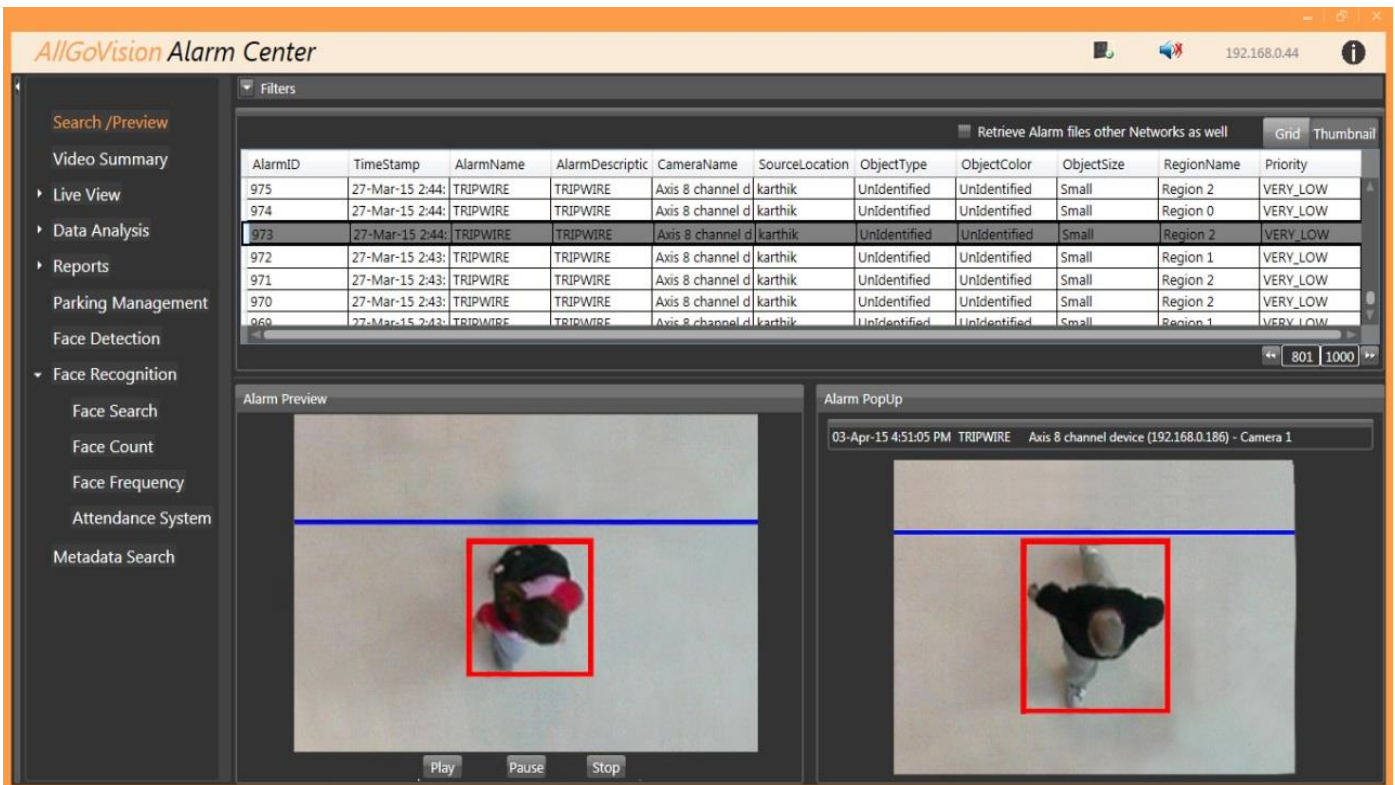Face Recognition Tab - This tab provides registration application for Face recognition.

Report Tab - This tab gives option to plot the statistics of counting applications. Both line and bar charts are possible. This also has auto e-mailer and export of plots and report.
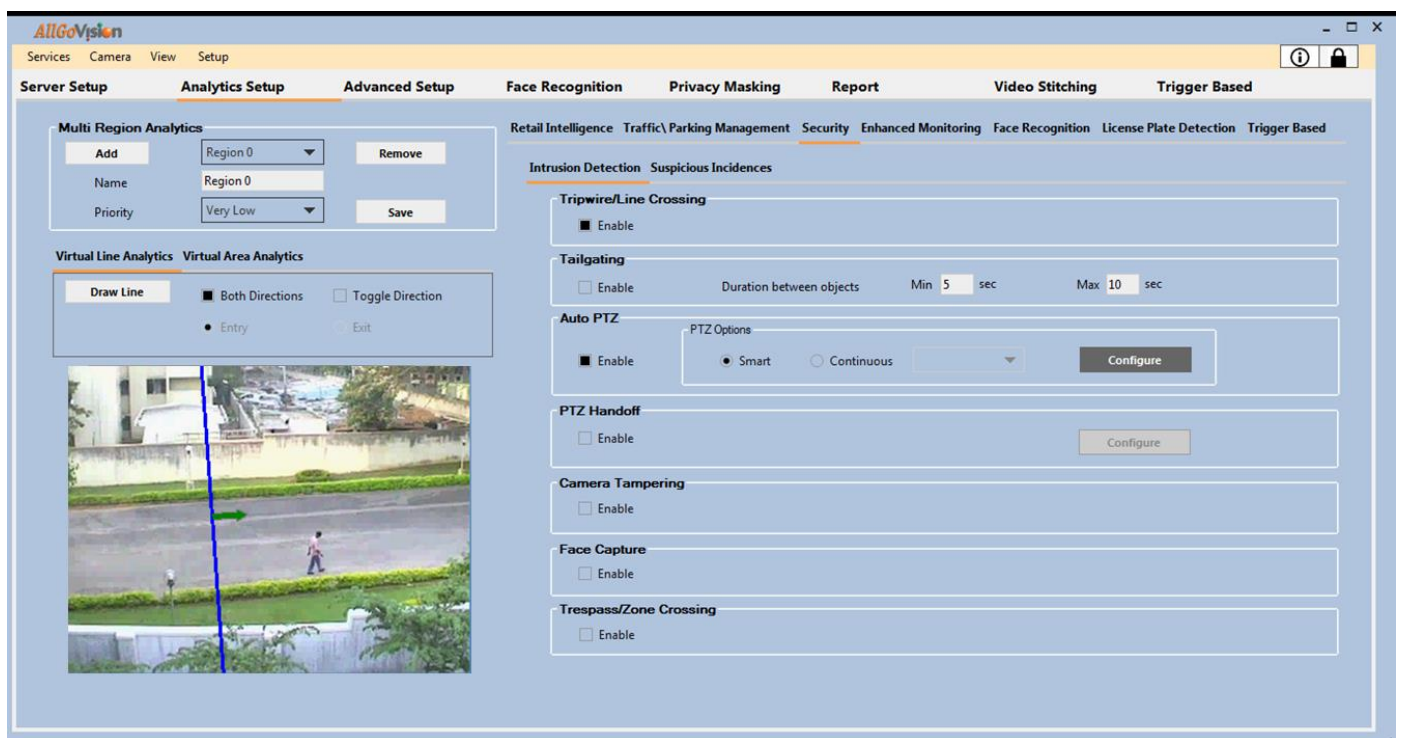
AllGoVision GUI – Analytics Setup Tab
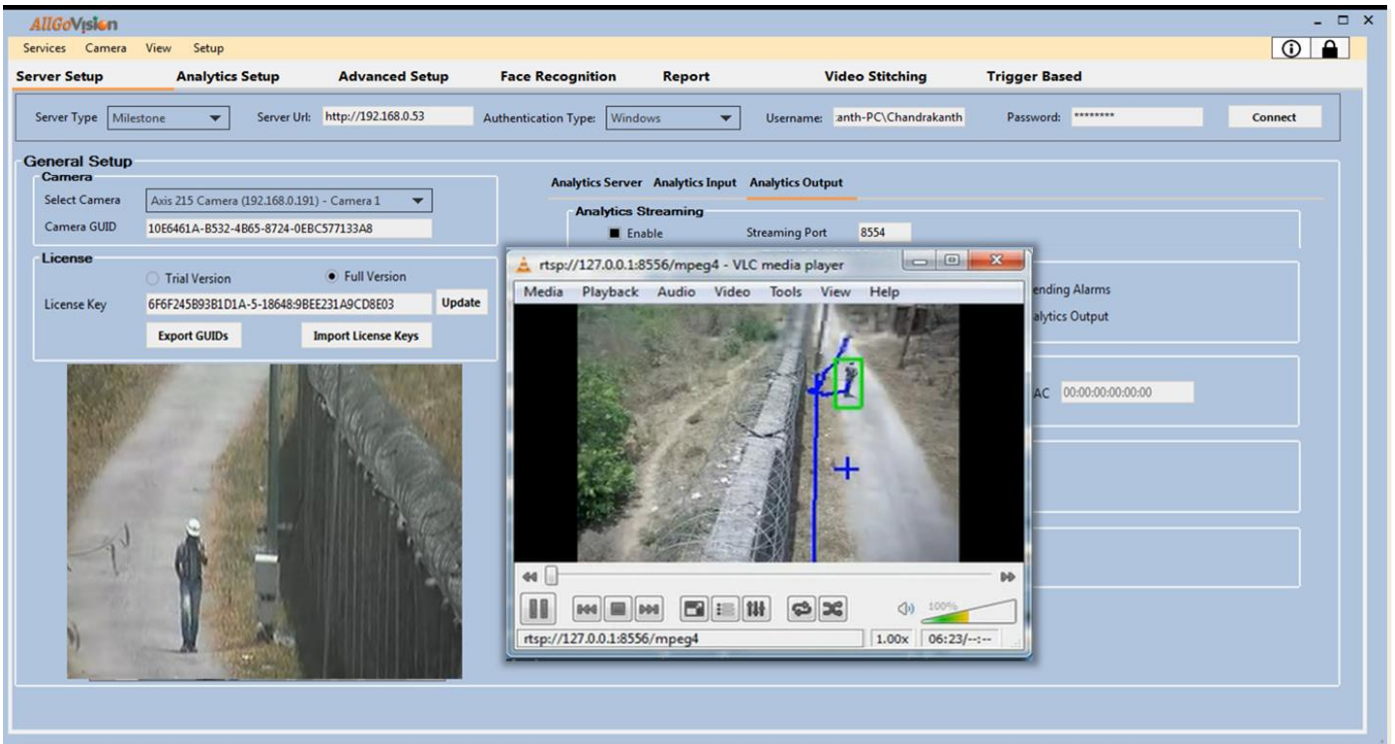
AllGoVision PTZ Handoff Operation

AllGoVision Alarm Center