



AI Powered Video Incident Detection System

Datasheet v4.3

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INTRODUCTION

Video Incident Detection System– this system monitors and reports real time incidents such as Illegal Parking, Over/Under Speeding, Wrong Way, Lane Change Violation, Fire & Smoke, Vehicle Counting, Camera Tampering, Left Object detection and Congestion Detection.

Deep Learning: A subset of Artificial Intelligence, Deep Learning technology exposes machines to high volumes of tagged data. The machine is then tasked to ‘learn’, ‘analyse’, and ‘detect’ the same information in new datasets which ensures more proficient detection and identification of objects. Since Deep Learning technology is also powered by robust hardware infrastructure, the analytic output is better.

Use of Deep Learning in Video Incident Detection: The use of Deep Learning for VIDS brings it much closer to human perception. Advanced Deep Learning methods can assess objects/vehicles and the layered filters can take the minutest details into account which increases the degree of accuracy. Thanks to the technology’s improved processing performance and superior object classification capabilities, it can efficiently detect and identify with low visual biasing and false alarms.

*VIDS complies to NHAI tender guidelines.

SYSTEM REQUIREMENTS

AllGoVision analytics has the following system hardware & software requirements for VIDS.

CATEGORY	REQUIREMENT
Operating System	Ubuntu server 18.4, Windows Server 2016, Windows Server 2019
Network	Ethernet, 1GB or higher recommended
Hardware Requirements	x86_64 Platform, AVX 2 Support 6 th Gen and above + Nvidia GPU
Frame Rate	Frame Rate > 10 fps
Database	Maria DB (X64) 10.3.13.0
Stand Alone version camera support	Camera Models from Axis, Pelco, Bosch, Hikvision, Honeywell, IQinvision, Sony, Dahua, Panasonic, Brickcom, IndigoVision, Cisco, Samsung, Acti, Digital Watchdog, and others (ONVIF Cameras).

CATEGORY	REQUIREMENT
VMS Support	Honeywell DVM, Honeywell Maxpro, Milestone, Genetec, IndigoVision, ExacqVision, Cognyte (Verint), Bosch, Network Optix Note: With VMS all cameras supported by VMS will be supported
Reporting & Analysis Software	AllGoVision Alarm Center

DESCRIPTION OF THE FEATURES

AllGoVision provides following features for Video Incident Detection.

 <p>AGV-VA-IPDT</p>	<p>Illegal Parking Detection</p> <p>Detects parking or stopping by any vehicle in a specified virtual area (no parking zone or restricted zone) beyond a specified period. Example: Illegal parking on road sides, in no parking areas or restricted zones, Illegal parking of the vehicle in front of the entry/exit gates.</p>
 <p>AGV-VA-SPDT</p>	<p>Speeding Detection</p> <p>Detects speeding of any vehicle above specified speed limit observed in camera installed parallel to the road. Example: Over speeding vehicles on highways, city roads and campus pathways.</p>
 <p>AGV-VA-WWDT</p>	<p>Wrong Way Detection</p> <p>Detects vehicle movement in a direction opposite to user specified direction. Example: Wrong movement of vehicles on highways, one-ways, illegal U-turns, etc.</p>
 <p>AGV-VA-LCV</p>	<p>Lane change violation</p> <p>Lane change violation can be detected by drawing a virtual "Tripwire" on the lane boundary which should not be violated. After a vehicle crosses the Tripwire, the Automatic Number Plate Recognition or "ANPR" feature can be used to identify the vehicle which commits the violation.</p>
 <p>AGV-VA-VFDT</p>	<p>Video Fire Detection</p> <p>Detects and alerts rapidly (in 5-10 seconds) against presence of fire in the camera view / monitored zone even when it is formed in 10-15% of the view. Example: Rapid detection of fire as an early warning for avoiding huge loss & greater impact due to fire hazards in Oil & Gas plants, critical infrastructure etc.</p>

Video Smoke Detection



Detects presence of smoke for both indoor & outdoor environments within only 5-10 seconds when it appears in the camera view and covers more than 10-15% of area. **Example:** Rapid detection of smoke as an early warning for smoke generation / initiation of fire in large indoor/outdoor areas, Warehouses, Server and Data rooms.

AGV-VA-VHLC

Vehicle Counting



Counting of vehicles that cross a virtual line in a vehicle lane or entry / exit gates. **Example:** Vehicle movement statistics for traffic study, traffic density calculation etc.; multi-lane vehicle counting; vehicle queue length and waiting time analysis at toll plaza etc.

AGV-VA-TMPR

Camera Tampering



Detection of camera tampering efforts by camera focus change or view obstruction or video cable cut. **Example:** Sabotage attempts by vandals (initiated with camera tampering) are detected and alerted and security personnel can take necessary actions.

AGV-VA-LODT

Left Object Detection



Detection of any object left behind in the monitored zone by a moving agent such as the owner of the object or baggage. **Example:** Threat detection due to baggage left unattended in public places like malls, roads, railway station, airports etc. Unmindful passenger leaving any luggage.

AGV-VA-CNDT

Congestion Detection



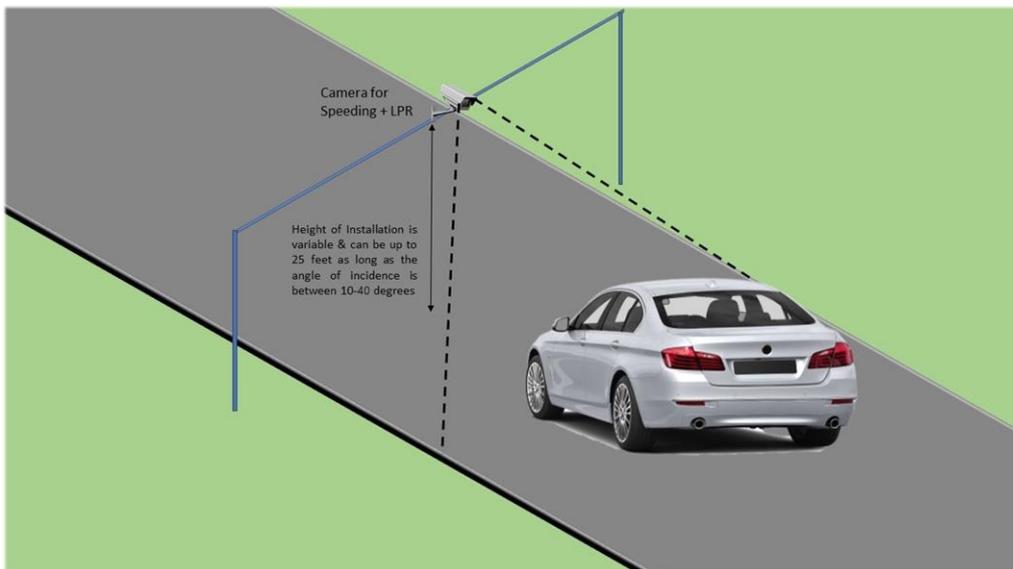
Detects the percentage of area occupied by vehicles and alerts against vehicle congestion as the vehicles occupy area beyond a threshold value. **Example:** Detects traffic jams and traffic slowness in zones which have moving traffic otherwise.

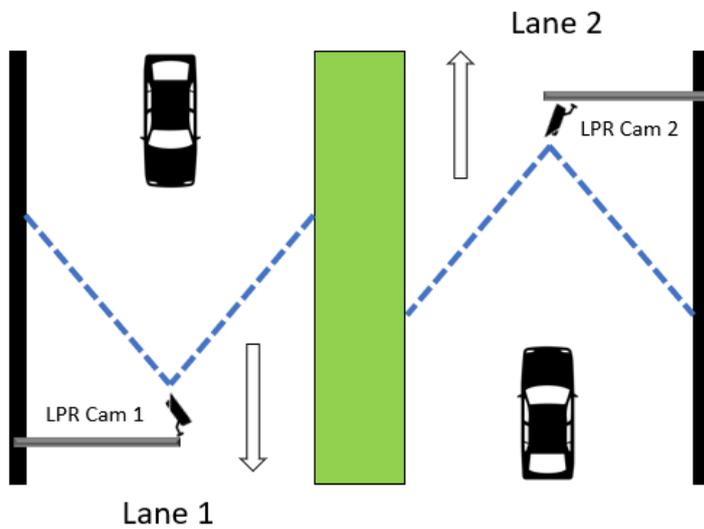
INSTALLATION

The software is easy to install and simple to use with intuitive GUI.

- Camera should be of good quality with high shutter speed. Full HD, 120 DB WDR, min 10 fps Frame rate is required.
- Illumination should be Min 200 Lux. IR illuminator is required.
- **For Highway:** Height of Installation of the Camera is variable and can go up to 25 feet. The angle of Incidence should be between 10 to 40 degrees.

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TECHNICAL HIGHLIGHTS

- i. Vehicles and objects are detected, classified, recognized and tracked based on Deep Learning / Artificial Intelligence.
- ii. Supports multiple VMses
- iii. Server redundancy / failover – both Active – Active (load balancing) as well as Active – Passive N:1 support
- iv. Web based UI. It runs on popular browsers such as Chrome and Edge.
- v. MySQL (Maria DB) and MS SQL databases supported
- vi. Configuration:
 - Rule engine allows for combining multiple detection rules
 - Allows configuration of regions that need to be excluded by the analytics algorithm for alarm generation
 - Allows drawing region of interest where analytics are applied. Drawing the ROI is possible using rectangles and free line-based areas defining multiple regions of interest in the same view for capturing alerts
 - Supports running multiple analytics per camera feed simultaneously

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- Supports scheduling so that that analysis can be enabled or disabled for a certain period
- vii. Advanced reporting capabilities:
 - Generate reports in PDF, JPG, Excel, Text formats
 - Schedule reports for Email & FTP
 - Filtering report output based on roles
 - Auto generation of reports through scheduling and ability to send the report to a predefined list of recipients
 - Present information in various chart formats such as: Pie Charts, Columns, and Histograms to support trend analysis of alarms over a period of time and over the installed camera base
 - Ability to create custom reports
 - Ability to export up to 100K reports
- viii. Alarm management
 - Alerts are displayed on screen as soon as they occur
 - Audio alarms when a real time alert occurs
 - Support for playback of alert videos
 - Support unlimited number of alarm clients
 - Ability to set filters such that the set of alarms that can be sent to a user or a group of users is configurable
 - System Administrator to define custom fields to be maintained per each event type
 - Notification templates per each alert type allowing the System Administrator to select the data to be passed in such notification messages
 - Allows user to personalize user layouts determining size, colour, and position of windows, tabs
 - Ability to set different colour for icons representing different alert types
 - Able to send alert information to other systems through REST APIs

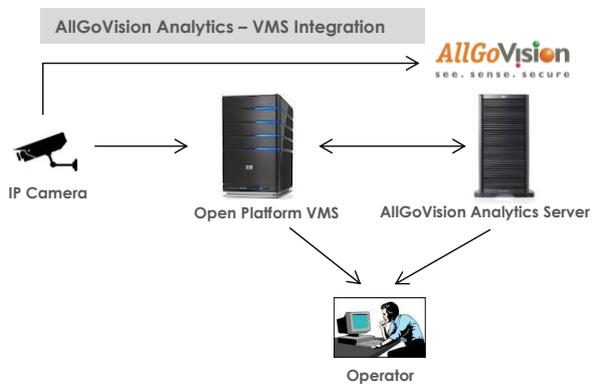
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INTEGRATION FLEXIBILITY

AllGoVision Video Incident Management System is available in 2 flavours:

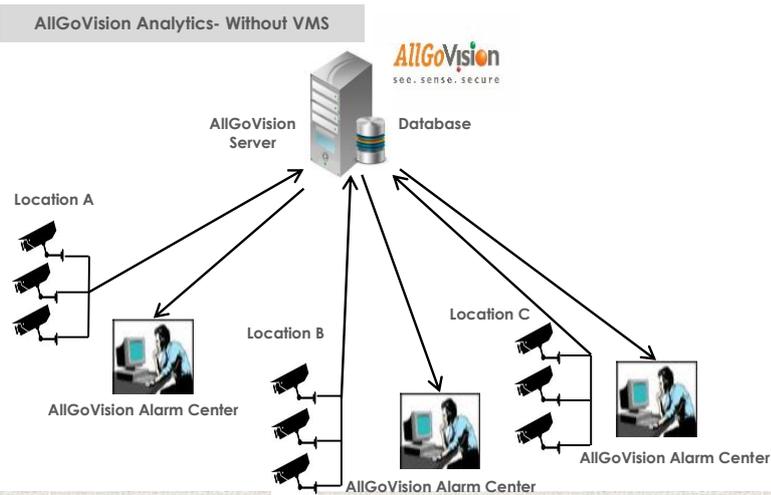
With VMS:

AllGoVision application is based on Open Platform Standards. It is integrated with many open platform VMS.



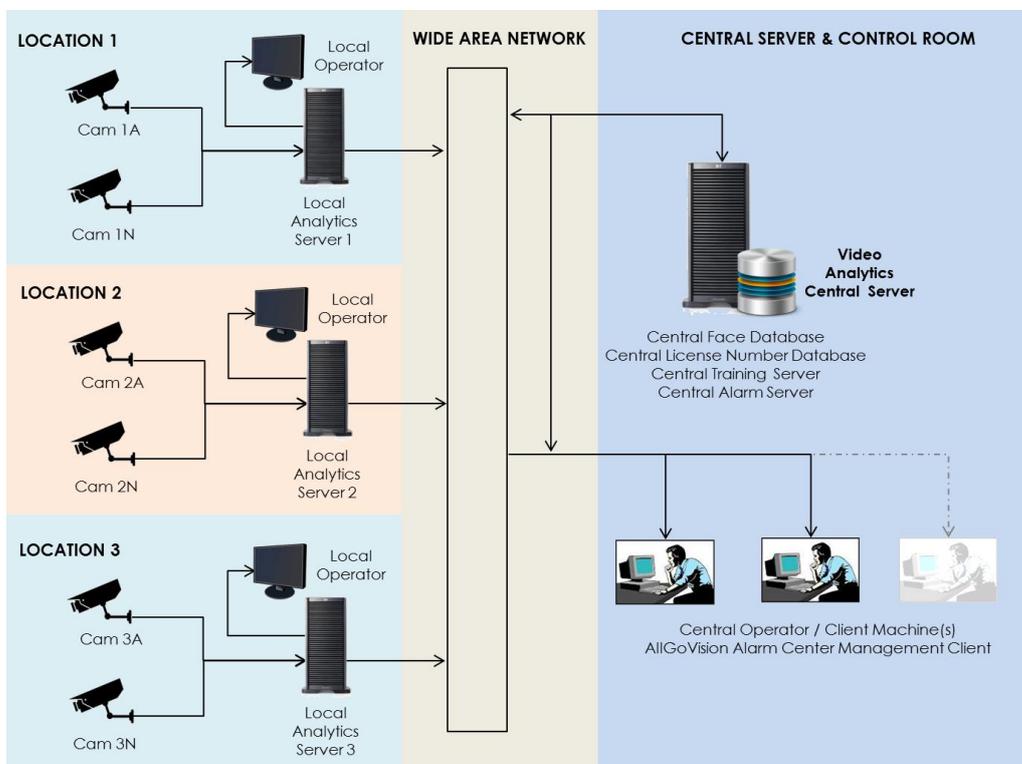
Without VMS:

- It is a standalone application.
- Directly takes the video feed from camera.
- The alarms and reports are seen in AllGoVision Alarm Center.



Federated Architecture

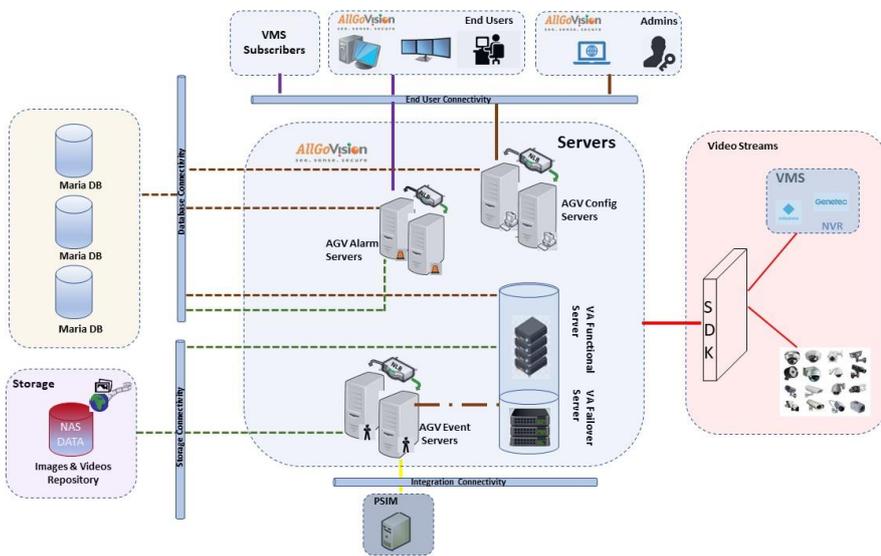
- With Federated Architecture, analytics can be done at local servers and viewed by local operators.
- A central server with a central operator can view all the alarms in the system generated by all the local servers.
- Alarms from different clients can be seen at the central Alarm Center and alarms are differentiated through Client IDs.



Redundancy / Failover

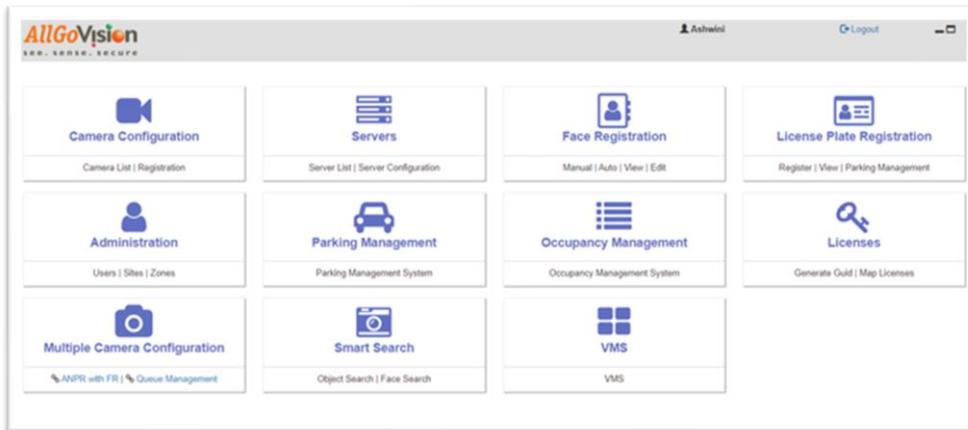
- Config Server can be setup for active/passive redundancy. NLB is used to manage the Active/Passive redundancy. When the active Config Server is up, all requests will be serviced by it. Only when it is down, requests are serviced by the passive Config Server.

- For video analytics, redundancy is achieved by having redundant server capacity for N:1 or 1:1 redundancy. When one or more VA Servers fail, the analytics pertaining to the cameras running in that server are re-assigned to a pre-designated set of servers.



ALLGOVISION GUI

AllGoVision product offers a graphical user interface with the choice of native windows-oriented, tab based, point and pick interface along with the Web UI. The options are provided to add cameras directly or from VMS, provide configuration and view alarms whenever event happens.



AllGoVision Dashboard

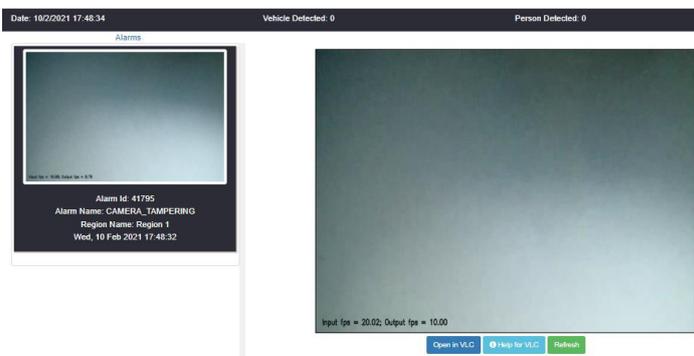
ALLGOVISION ALARM CENTER

AllGoVision Alarm Center is a Client to view all the alarms generated by AllGoVision analytics running on

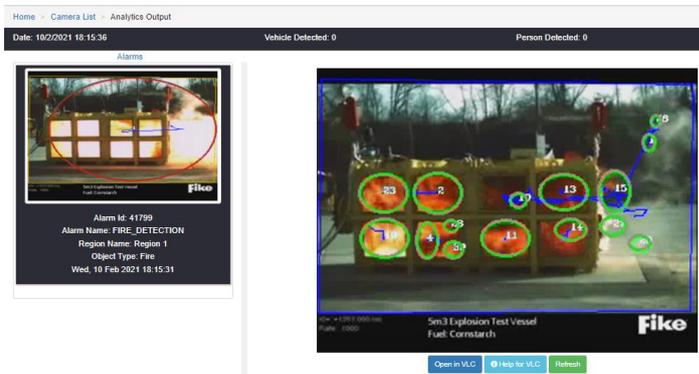
different systems across a LAN. It also supports report generation.

	Thumbnail	Timestamp	Camera Name	Site Name	Alarm Name	Alarm Description	OI
			ANPR		Alarm Name	Alarm Description	C
6		2020-12-16 09:59:58	Speed with ANPR 1_India_P252	Ash	OVERSPEEDING	KA432972,131.794 mph	Ve
4		2020-12-16 09:59:56	Speed with ANPR 1_India_P252	Ash	OVERSPEEDING	KA51MJ4662,128.556 mph	Ve
2		2020-12-16 09:59:52	Speed with ANPR 1_India_P252	Ash	OVERSPEEDING	KA51MG5932,125.591 mph	Ve
9		2020-12-16 09:59:47	Speed with ANPR 1_India_P252	Ash	OVERSPEEDING	KA12Z2652,30.211 mph	Ve
7		2020-12-16	Speed with	Ash	OVERSPEEDING	AP098R6205,136.036 mph	Ve

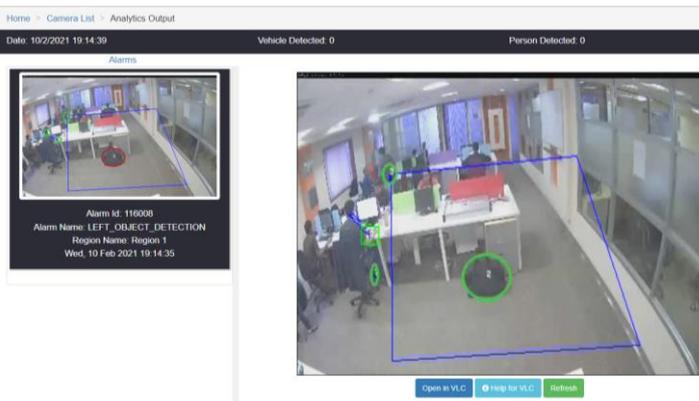
SPEED DETECTION



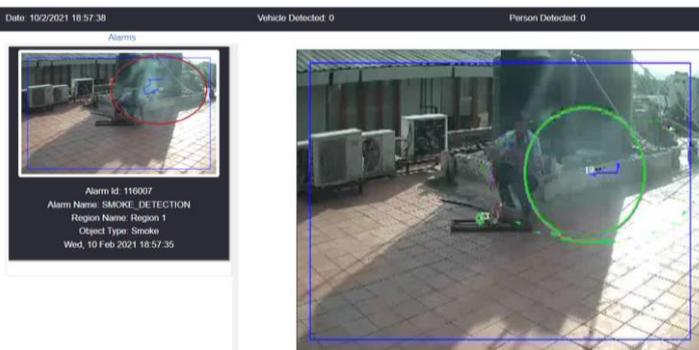
CAMERA TAMPERING



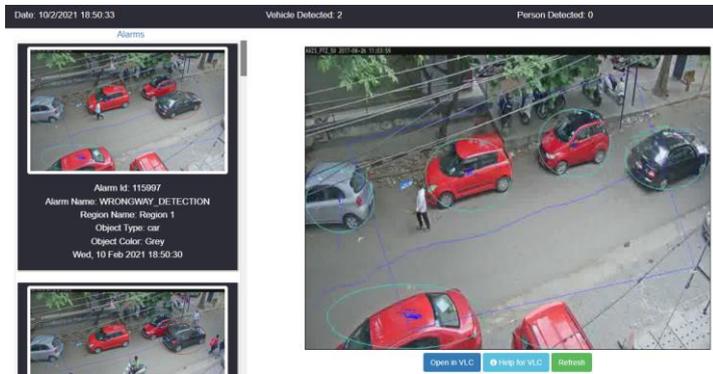
FIRE DETECTION



LEFT OBJECT DETECTION



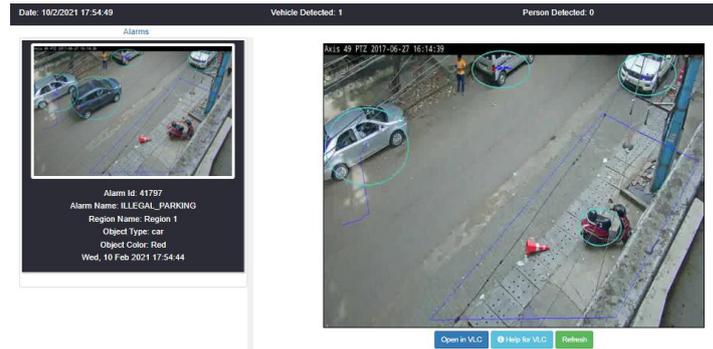
SMOKE DETECTION



WRONG WAY DETECTION



CONGESTION DETECTION



ILLEGAL PARKING

Date: 17/2/2021 17:17:55 Vehiculo Detected: 1 Person Detected: 0

Alarms



Alarm Id: 116097
Alarm Name: LANE_CHANGE_VIOLATION
Region Name: Region 1
Object Type: car
Object Color: Grey
Wed, 17 Feb 2021 17:17:51



Open in VLC Play in VLC Refresh

Alarm List

Start Time: dd-mm-yyyy --:-- End Time: dd-mm-yyyy --:-- Submit Export to CSV

Show 5 entries Refresh Select all None Acknowledge Alarms Close Alarms Remove Alarms Clear Alarms

Alarm ID	Thumbnail	Timestamp	Camera Name	Site Name	Alarm Name	Alarm Description	Object Type	Colour
116098		2021-02-17 17:17:55	Lane Change Detection	AllGo Vision Technologies	LANE_CHANGE_VIOLATION	LANE_CHANGE_VIOLATION	car	Grey
116097		2021-02-17 17:17:51	Lane Change Detection	AllGo Vision Technologies	LANE_CHANGE_VIOLATION	LANE_CHANGE_VIOLATION	car	Grey
116096		2021-02-17 16:56:59	Lane Change Detection	AllGo Vision Technologies	LANE_CHANGE_VIOLATION	LANE_CHANGE_VIOLATION	car	Grey
116095		2021-02-17 16:55:02	Lane Change Detection	AllGo Vision Technologies	LANE_CHANGE_VIOLATION	LANE_CHANGE_VIOLATION	car	Grey
116094		2021-02-17 16:54:58	Lane Change Detection	AllGo Vision Technologies	LANE_CHANGE_VIOLATION	LANE_CHANGE_VIOLATION	car	White

LANE CHANGE DETECTION