AI Powered Illegal Parking Detection

Datasheet v4.3

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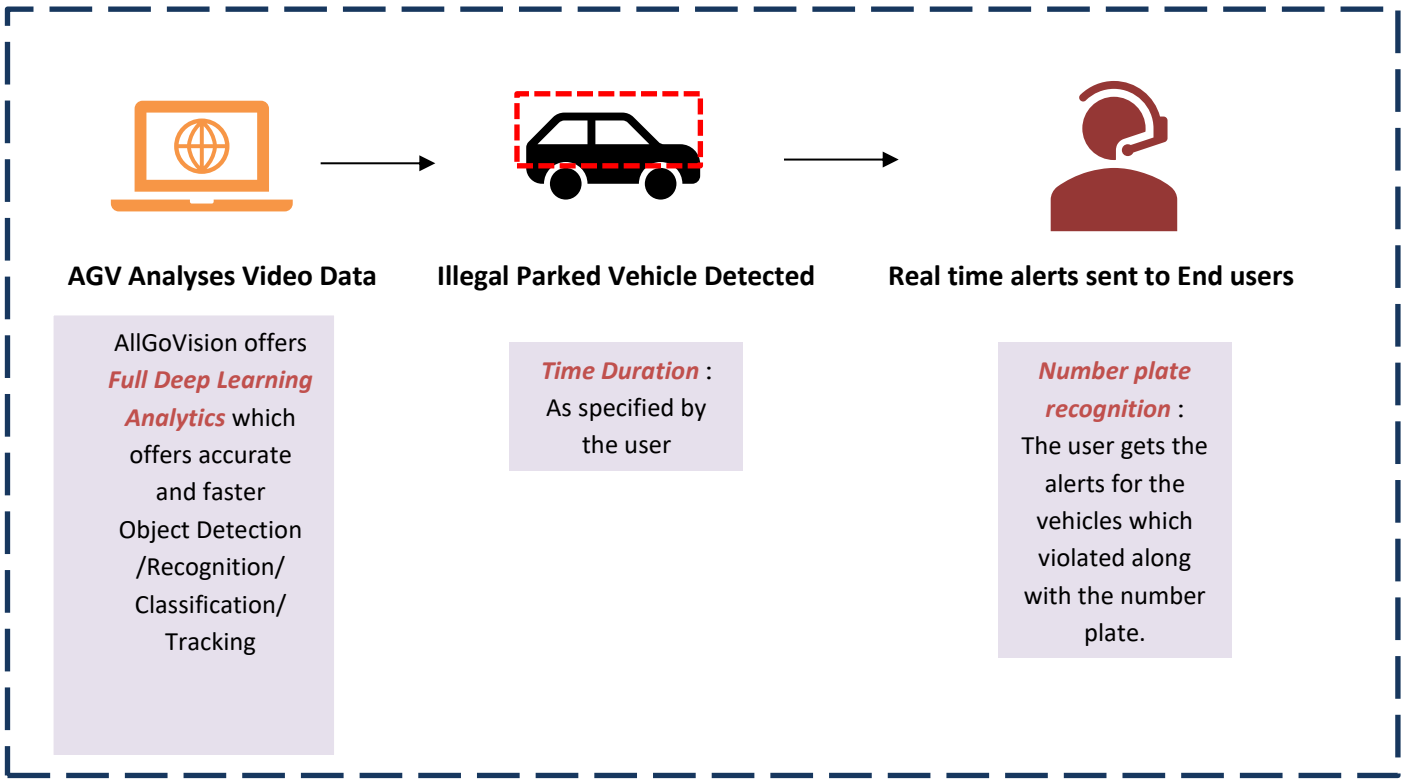
INTRODUCTION



AllGoVision Illegal Parking Flow

Illegal Parking – The Illegal Parking feature detects vehicles parking/stopping in a virtually drawn region of interest (no parking zone or restricted zone) beyond a specified period as configured by the user. It monitors, detects, and alerts against parking violation by generating alarms in real-time. Backed by powerful DL algorithms, this feature can detect instances of illegal parking in busy roads with heavy traffic. Alarms are triggered for all types of transportations that are parked or stopped in the user-specified virtual region. Since this feature also comes with advanced classification servers, multiple object types are automatically classified, and alarms are only generated against the violating vehicles. The Illegal Parking feature prevents the intrusion of unauthorized vehicles in designated zones. For example, it prevents cars or other vehicles to be parked in designated parking zones for buses and trucks. Additionally, it enables law enforcement officials to take corrective measures against violating vehicles and helps optimize traffic by preventing illegal parking of vehicles on the roadside.

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 and faster.

Use of Deep Learning in Illegal Parking The use of Deep Learning for Illegal Parking brings it closer to human perception. Advanced Deep Learning methods can assess large datasets of moving and stationary vehicles and the layered filters can take the minutest details into account. This increases the degree of accuracy in generating alerts against illegal parking. Thanks to the technology's improved processing performance and superior object classification capabilities, it can efficiently detect and identify multiple object types with low visual biasing and false alarms.

SYSTEM REQUIREMENTS

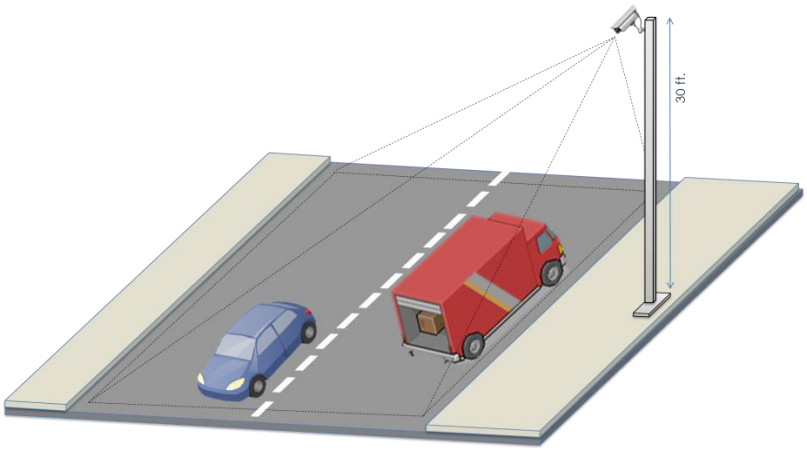
AllGoVision analytics has the following system hardware and software requirements.

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 6th 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).
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

INSTALLATION

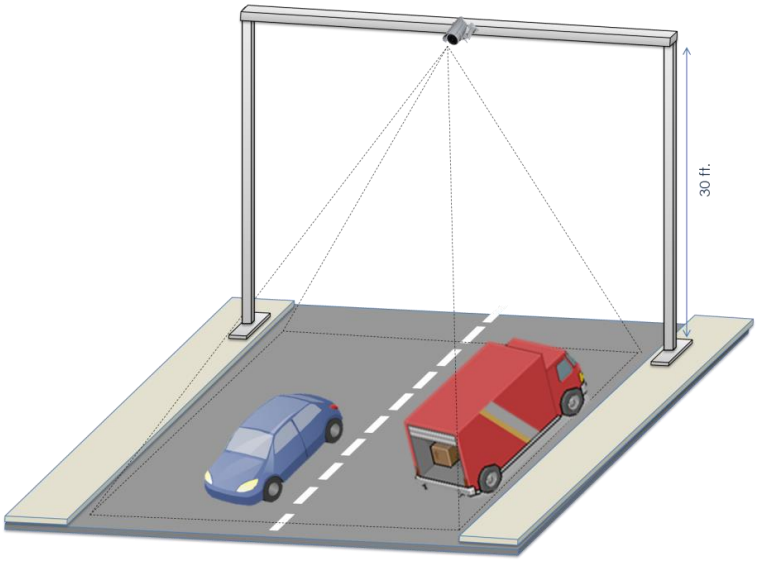
Cameras should be installed at a height of about 30 feet focusing towards the road as illustrated:

Camera Setup Option 1 - for Illegal Parking Detection



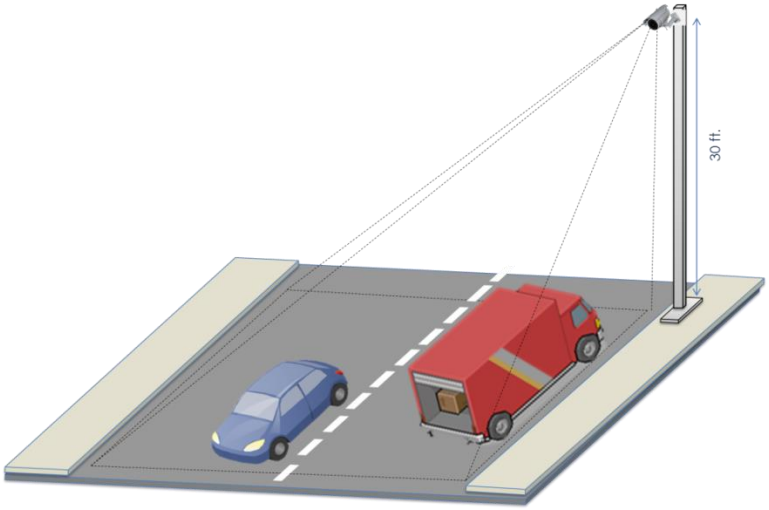
Angular Cameras,
Height of Installation = 30 feet
Cameras installation parallel to the road
Moving traffic (no-congestion) scenario.

Camera Setup Option 2 - for Illegal Parking Detection



Angular Camera / Overhead Cameras
Height of Installation = 30 feet
Cameras installed from a bridge over the road
Moving traffic (no-congestion) scenario.

Camera Setup Option 3 - for Illegal Parking Detection



Angular Cameras
Height of Installation = 30 feet
Cameras installed along the road.
Moving traffic (no-congestion) scenario.

Note: The height of camera is variable as it depends on lens coverage.

Feature Details	Camera Height	Field of View
With ANPR	Min 4 feet	
Without ANPR	Min 15 feet	100 feet (May vary)

TECHNICAL HIGHLIGHTS

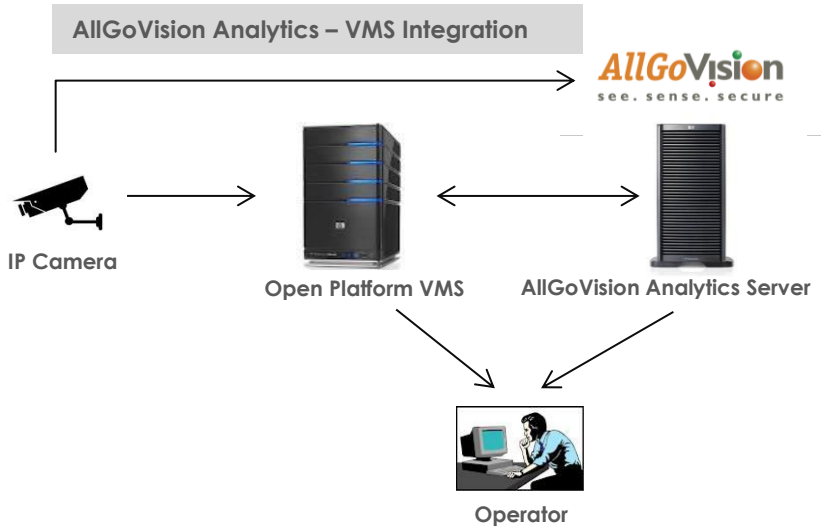
- ✓ Detects vehicle stoppage for a duration beyond permissible limit in an undesired or restricted zone
- ✓ User can specify the time limit which can range from few seconds to several minutes
- ✓ Can be integrated with license plate recognition feature to identify vehicle by their captured and recognized license plate along with the image of the violating vehicle
- ✓ Works in challenging environment with continuous and busy traffic
- ✓ Equally effective in city roads as well as highways
- ✓ User can mask part of the area for no alarm for stoppage in the same camera view
- ✓ Can detect illegal parking in any camera angle
- ✓ Normal surveillance cameras can be used for detection of illegal parking

INTEGRATION FLEXIBILITY:

AllGoVision Illegal Parking application is available in 2 flavours:

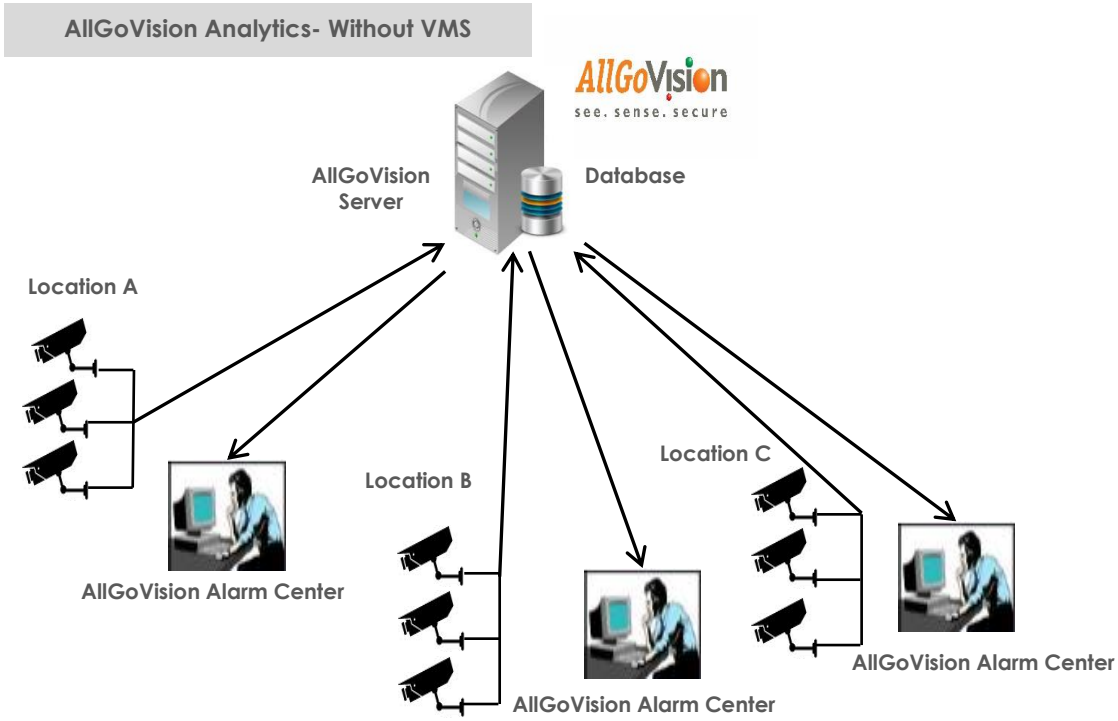
With VMS:

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



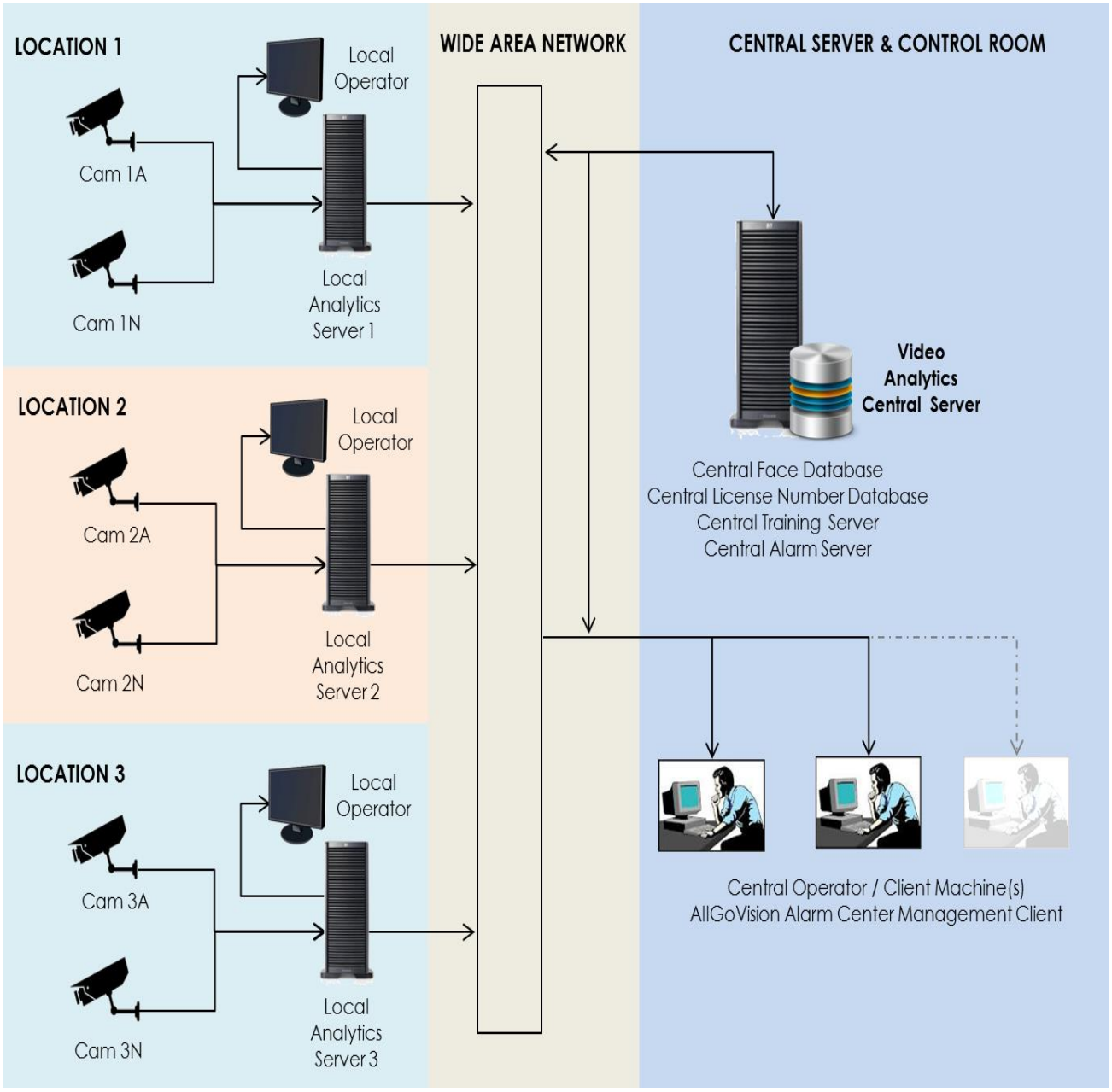
Without VMS:

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



Federated Architecture

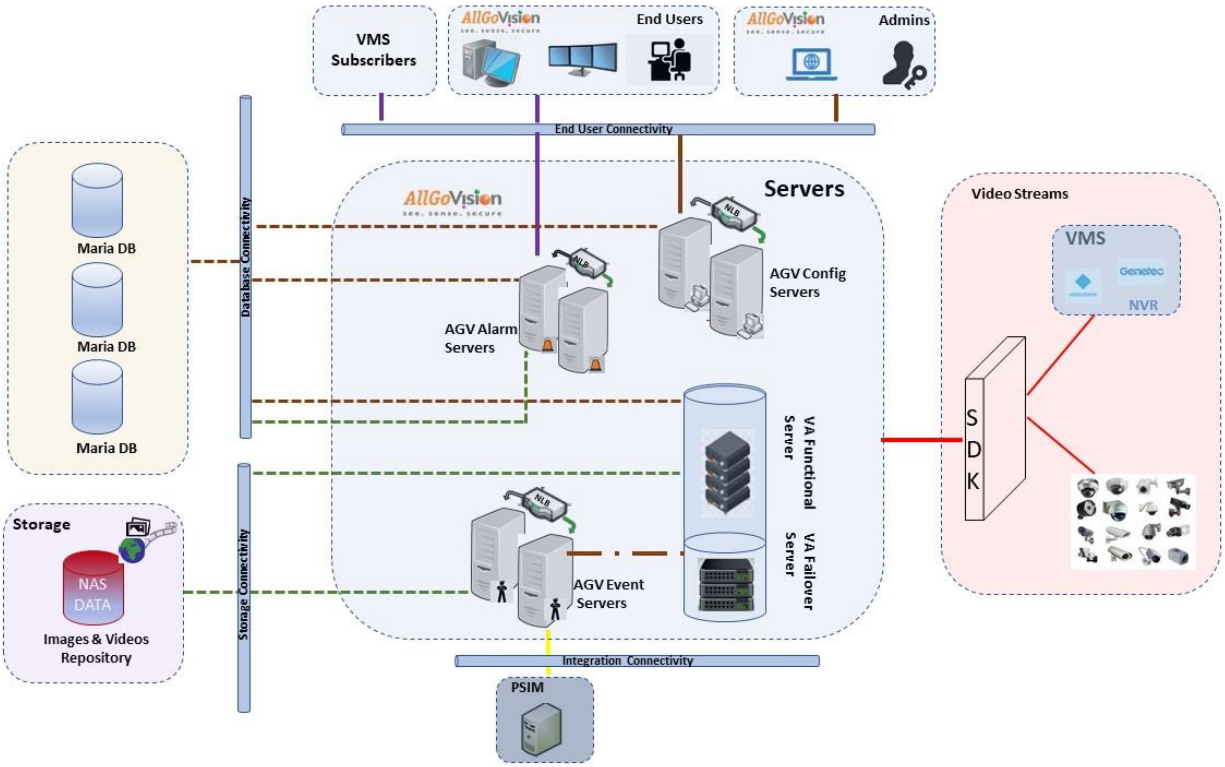
- With Federated Architecture, analytics can be done at local servers and viewed by local operators.
- A central server with a central operator can view all the alarms in the system generated by all the local servers.
- Alarms from different clients can be seen at the central Alarm Center and alarms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



Redundancy / Failover

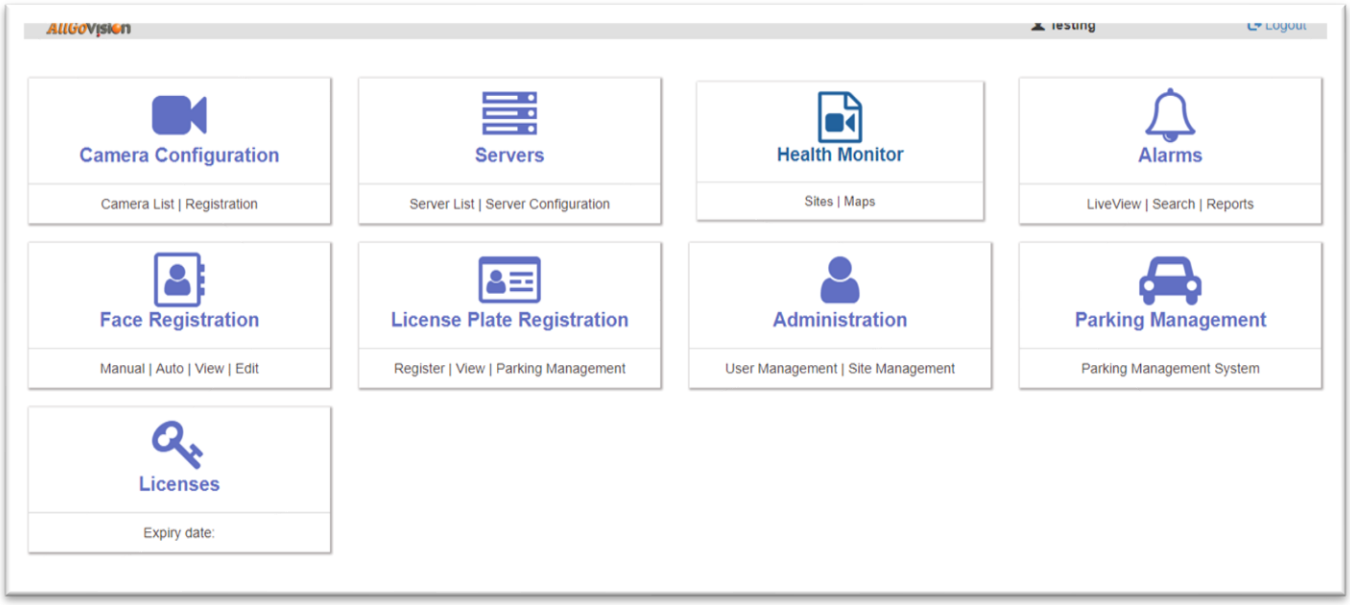
- Config Server can be setup for active/passive redundancy. NLB is used to manage the Active/Passive redundancy. When the active Config Server is up, all requests will be serviced by it. Only when it is down, requests are serviced by the passive Config Server.

- 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.

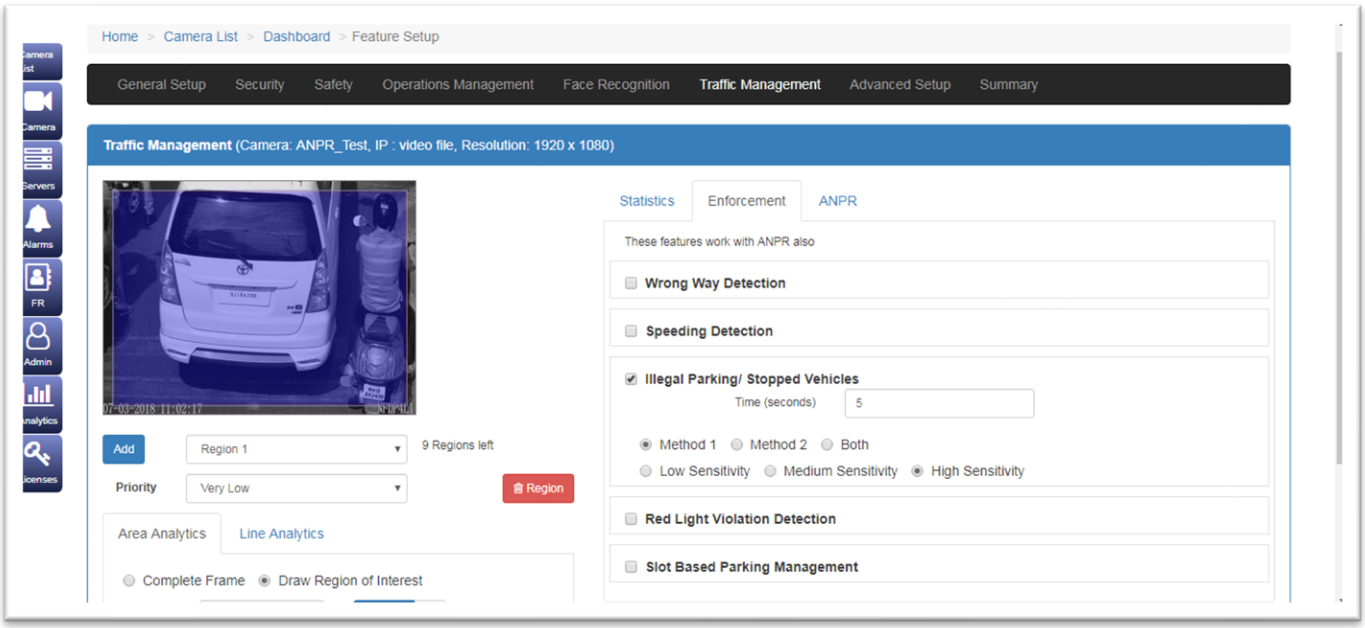


ALLGOVISION GUI

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.



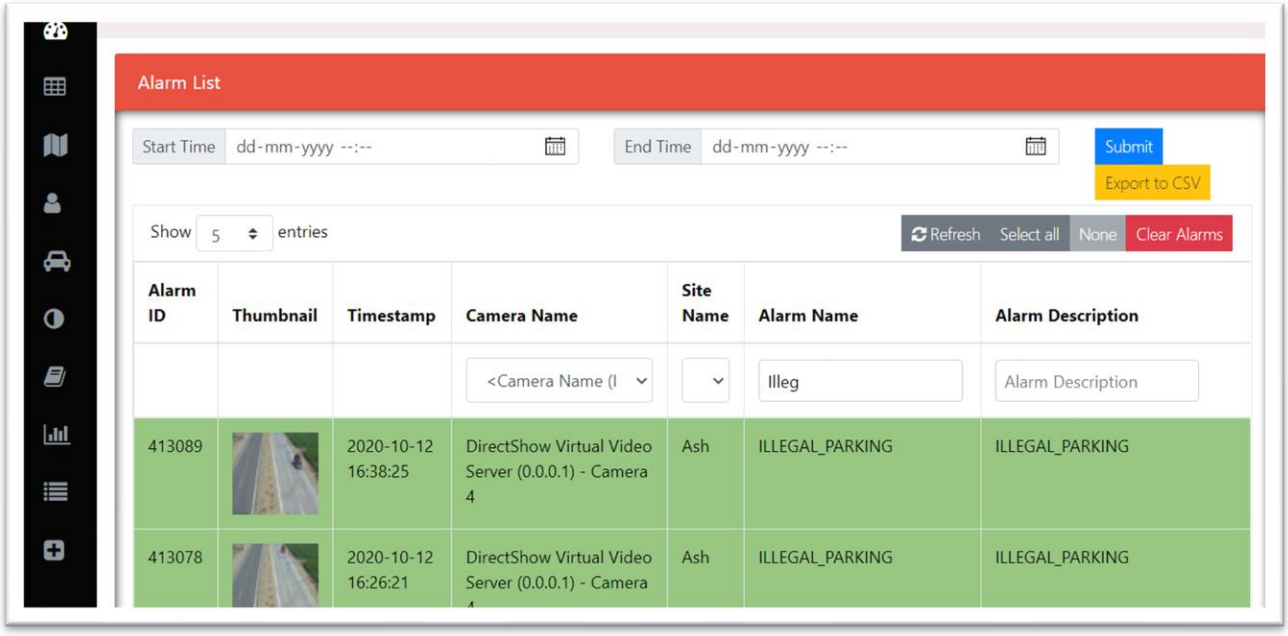
AllGoVision Dashboard



Illegal Parking Setup

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.



Illegal Parking Alarm in Alarm Center