

a2-VCA

Automatic Incident Detection



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a2 Technology

Advanced Video Analytics



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Automatic Incident Detection

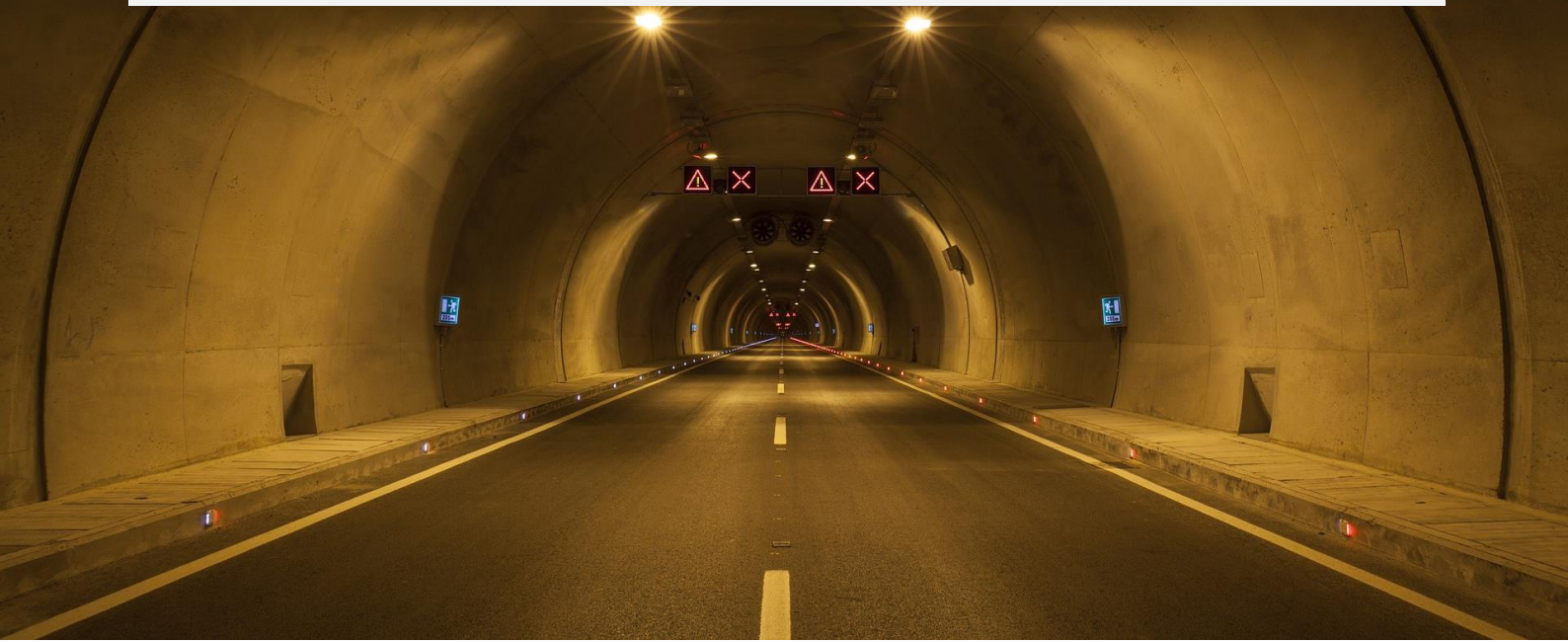
Roads that are used extensively for transportation are the riskiest transportation networks according to accident statistics. Especially unexpected events that may occur on the way increase the risk of accident remarkably. To prevent accidents, it is critical to be aware of the risk factors in the relevant route and to eliminate these risks.

Even a small accident can have severe consequences in areas with limited escape routes such as tunnels, highways and bridges. At the time of the accident, the delay of the intervention causes the results to become much more severe.

The a2-VCA Incident Detection System is video analysis based secure transportation solution that instantly detects incidents or accidents by real-time processing live images of the cameras that follow the road, and alerts operators with audible and visual alarms.

Safer and smarter cities with artificial intelligence

Cameras are turned into smart controllers with a2 video analysis software; accidents, incidents intrusions on traffic & security are detected automatically.



Always one step ahead!

a2-VCA Incident Detection System always makes a difference with its Artificial Intelligence-based advanced infrastructure and innovative features. It minimizes hardware needs with its unique and optimized algorithms.

Platform-Independent

It can work on PC with Linux or Windows operating system, on ARM-based embedded systems or integrated on camera.

Original Solution

It is the product of an original work that blends innovative technologies with traditional methods. All detection and analysis models are trained with original datasets collected from real application points.

Optimized Solution

a2-VCA has been developed with an optimum engineering approach. It can run up to 10 Licenses on 1 WorkStation.

Artificial Intelligence

Thanks to its advanced functions such as Artificial Intelligence and Deep Learning, detection and classification features offer a high level of accuracy.

Key Features

Improves Safety and Security

Server-Based

Camera-Independent

Flexible Integration Modules

Incident Analytics

- ✓ Stopped Vehicle
- ✓ Wrong-Way
- ✓ Pedestrian
- ✓ Debris
- ✓ Smoke
- ✓ Lane Violation
- ✓ Sudden Speed Drop
- ✓ Slow Vehicle

Traffic Analytics

- ✓ Vehicle Counting
- ✓ Vehicle Classification
- ✓ Traffic Density
- ✓ Travel Time

System Alerts

- ✓ Tampering
- ✓ Camera failure
- ✓ Connection Failure
- ✓ Logs



Wrong-Way



Pedestrian

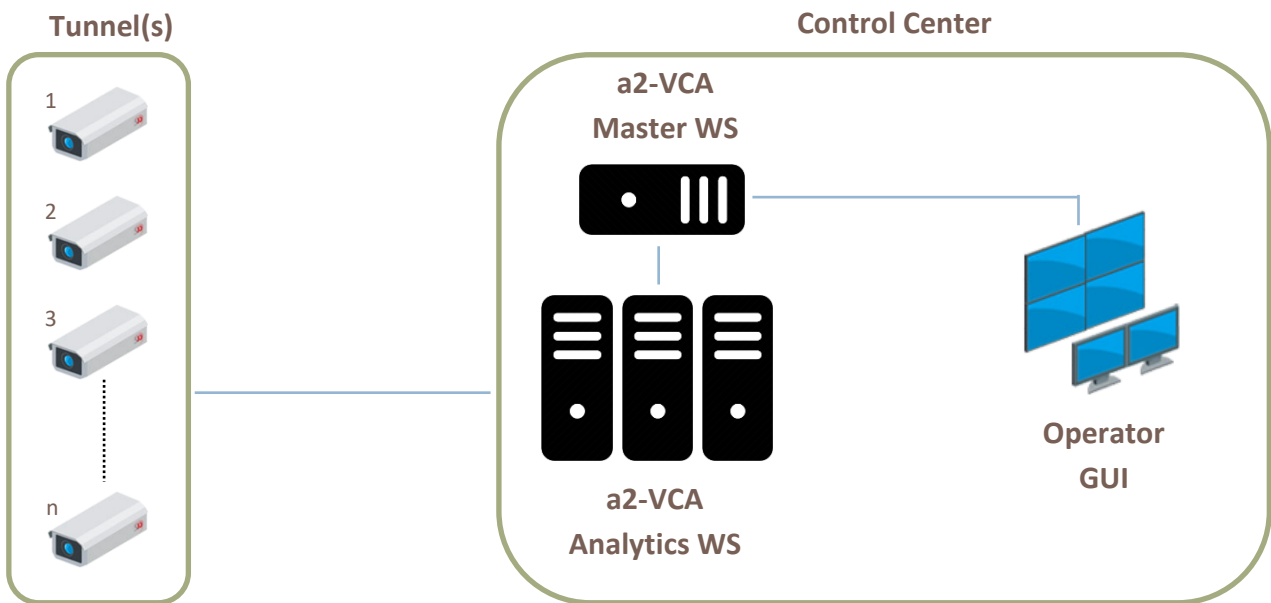
Architecture

a2-VCA can be implemented in various scenarios thanks to its flexible and strong architecture. System can be used stand-alone or integrated with SCADA & CCTV systems.

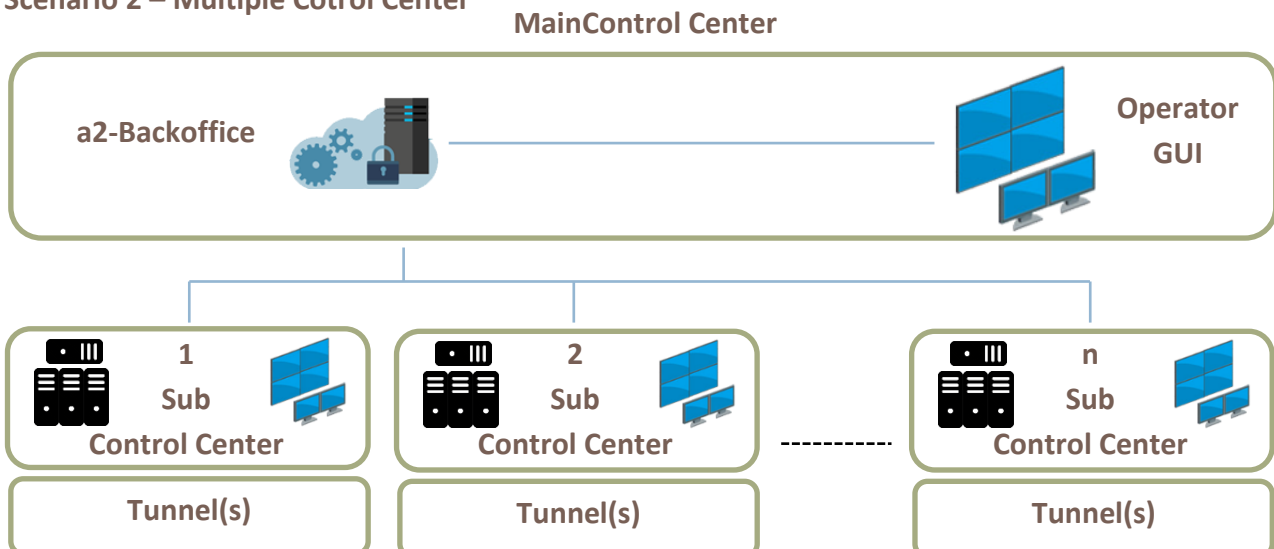
Server based solution is designed on Master-Client infrastructure. Master unit monitors and manages all client units and keep them in high availability.

Besides, a2-Backoffice Central Management System monitors and manages multiple tunnels. End-Users can reach to different tunnels from a single interface.

Scenario 1 – Single Control Center



Scenario 2 – Multiple Control Center



Specifications

System

Image Processing	Up to 25fps at 1920x1080	<i>*Depends on WS configuration</i>
Detection Range	Up to 65 meters	
Camera Per WorkStation	Up to 10	<i>*Depends on WS configuration</i>
Compatible Cameras	Onvif Supported Cameras	
Stream	RTSP	
SCADA Integration Protocol	Modbus, TCP/IP	
Database	PostgreSQL	

Analytics	Detection Accuracy (%)	Detection Time (sn)
Stopped Vehicle	> 95	< 10
Wrong Way	> 95	< 10
Pedestrian	> 95	< 10
Debris	> 95	< 20
Smoke	> 95	< 20
Lane Violation	> 95	< 10
Sudden Speed Drop	> 95	< 10
Slow Vehicle	> 95	< 10

Statistics

Vehicle Counting
Vehicle Classification
Traffic Density
Travel Time

Alerts

Tampering
Camera Failure
Connection Failure
Logs

Suggested Configuration✓	Analytics WS	Master WS
CPU	Intel Core i9-9900K	Intel Core i9-9900K
Memory	32GB DDR4 2666MHz	32GB DDR4 2666MHz
Disk	256GB SSD	256GB SSD + HDD*
Operating System	Ubuntu Server 18.04.4 LTS (Bionic Beaver)	MS Windows Server 2016 Std 64bit Ubuntu Server 18.04.4 LTS (Bionic Beaver)

**HDD Size depends on number of camera Cameras & recording period of alarms.*

✓ Optimized by **intel** OpenVINO™ Inference Engines

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