

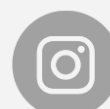
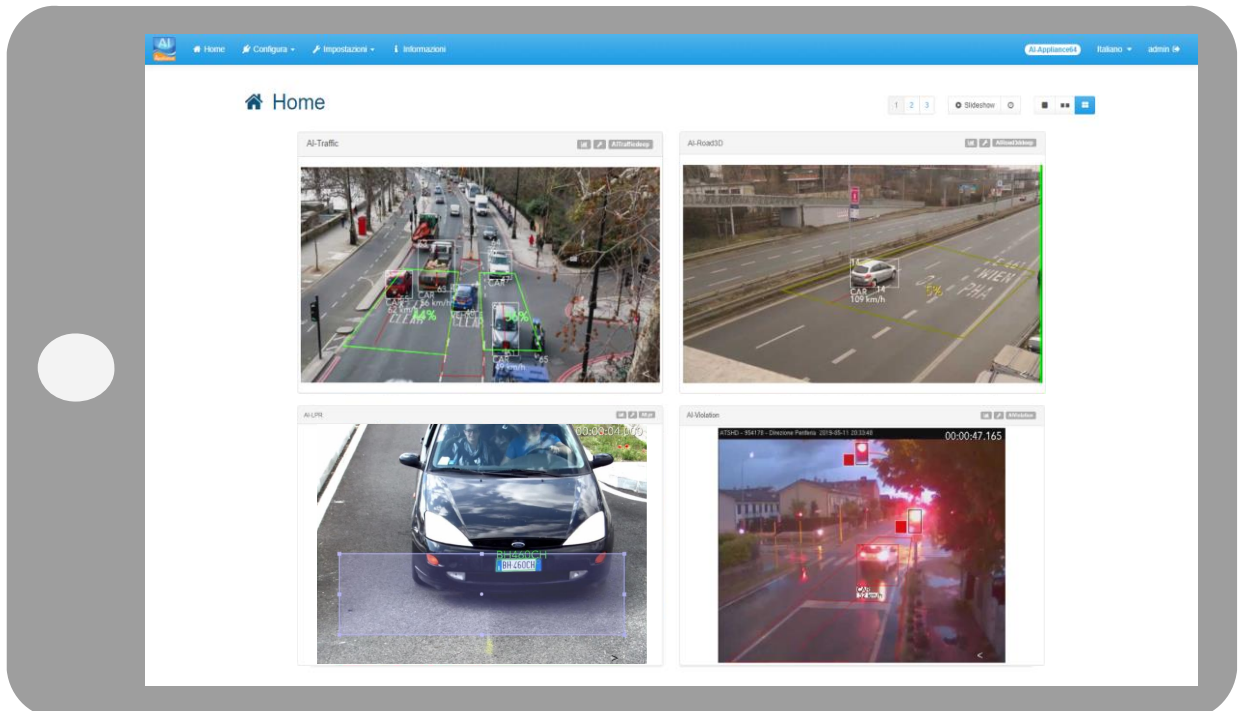


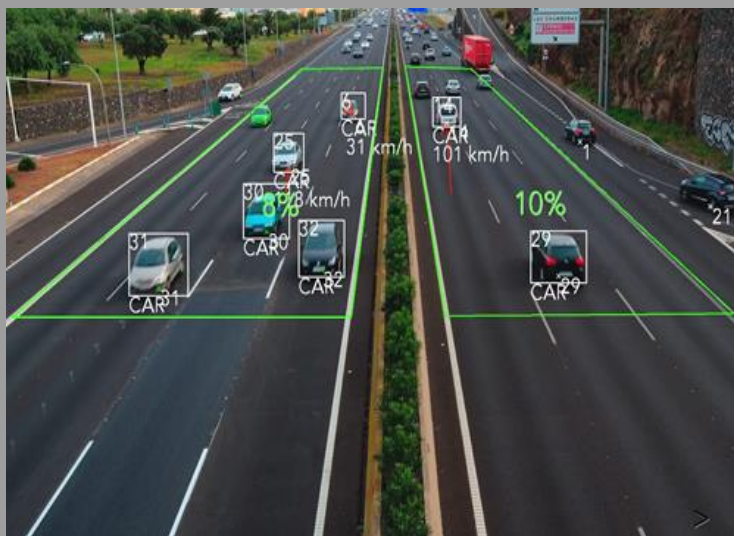
AI-SMART TRANSPORTATION



AI-Smart Transportation includes all the plug-ins needed in a modern smart city; it features intelligent traffic monitoring through 3D detection of pedestrians and vehicles with their complete identification by reading number plates, classifying them into categories, identifying the model and make and characterising their motion by estimating their speed and the lane they occupy. Detection of anomalous situations, such as accidents, congestions, traffic violations, pedestrian gatherings further enhance the solution.

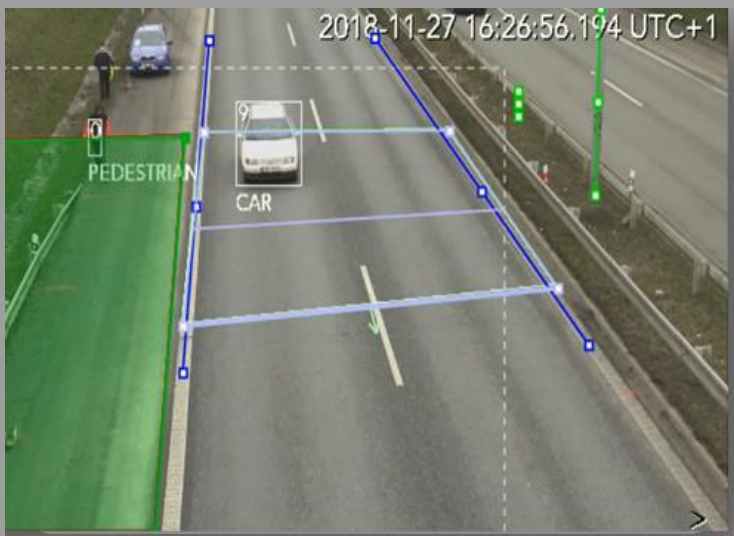
APPLICATIONS





AI-ROAD3D

Counting and classification of vehicles, color and speed detection [average and above]



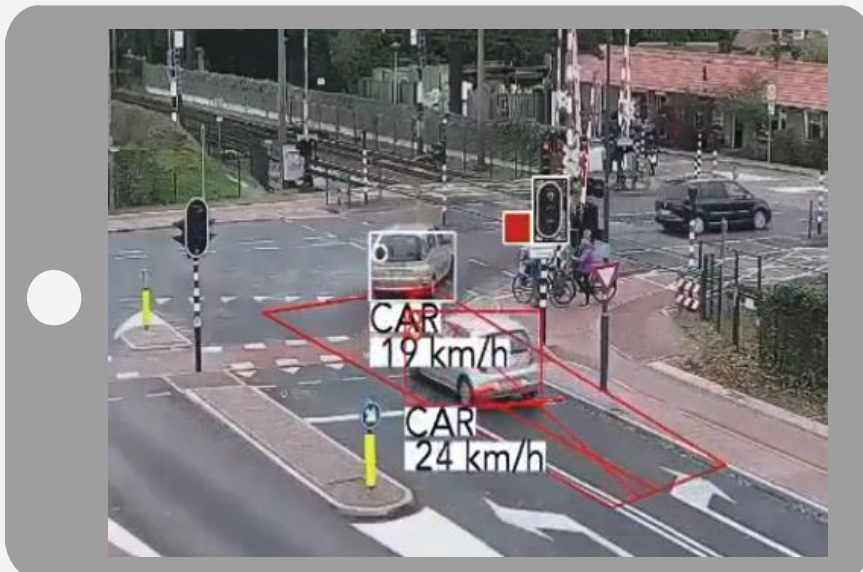
AI-INCIDENT

Automatic Incident Detection [AID]



AI-LPR

License Plate Detection and Recognition



AI-VIOLATION

Traffic red light violation detection



AI-ROAD3D is a video analytics app that allows counting and classification of vehicles passing by a virtual sensor in a given direction. Three vehicle classes are considered: motorbikes, cars and trucks. The app also identifies the color and average speed of each vehicle, and generates an alarm if this speed exceeds a certain threshold chosen by the operator. It is also able to assess traffic volume in real time.

AI-ROAD3D combines an advanced 3D calibration and reconstruction mechanism of the scene with the most advanced artificial vision and artificial intelligence algorithms.

The application is available in two versions: **AI-ROAD3D** uses the latest deep learning algorithms to classify moving objects; whereas **AI-ROAD3D[-DEEP]** uses these algorithms for both object detection and classification, guaranteeing high accuracy even in extremely complex scenarios, such as in tunnels or crowded city streets, at night or in severe weather conditions.

USE CASE

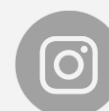
Where can we use AI-ROAD3D?



AI-ROAD3D makes it possible to meet the needs of any city that would like to be defined as 'smart'. It provides the possibility of understanding and analyzing vehicle flows in the various city arteries by counting the various categories of vehicles. Analyzing the average speed of vehicles on the various routes allows the identification of roads crossed with a higher average speed (possibly higher than a set threshold), thus suggesting an optimal position for positioning surveillance patrols or automatic systems that can be used for sanctioning purposes.

AI-ROAD3D can also be used to monitor tunnels or motorways.

Finally, in combination with the **AI-DASH-PRO** dashboard, the app can be used to monitor car parks by counting vehicles at the gates.





AI-INCIDENT is a video analytics app that can detect anomalous situations on the road, such as vehicles driving on the wrong side of the road, stationary vehicles, or pedestrians standing in forbidden zones. It is also able to assess tailbacks in real time.

AI-INCIDENT combines an advanced 3D calibration and reconstruction mechanism of the scene with the most advanced artificial vision and artificial intelligence algorithms.

The application is available in two versions: **AI-INCIDENT** uses the latest deep learning algorithms to classify moving objects (distinguishing vehicles and people); **AI-INCIDENT-DEEP** uses deep neural networks for both object detection and classification, ensuring high accuracy even in extremely complex scenarios, such as in tunnels or crowded city streets, at night or in severe weather conditions.

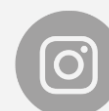


USE CASE

Where can we use AI-INCIDENT?

AI-INCIDENT makes it possible to meet the needs of any city that would like to be defined as “smart”. It provides the possibility of identifying potentially dangerous situations on the road, such as: queuing, vehicles crossing the wrong way, or the presence of pedestrians on the road.

AI-INCIDENT can also be used to monitor tunnels or motorways.





AI-LPR is a video analytics app that utilises an advanced artificial intelligence algorithm to perform license plate detection and recognition. Thanks to the use of an innovative engine based on semantic technologies, it also enables automatic correction of license plates based on the specific nationality of the plate [*].

The solution can detect vehicles up to a maximum speed of 230 km/h [depending on the chosen hardware platform] and can be used both indoors [e.g. for monitoring car parks] and outdoors [e.g. for monitoring city streets].

* Countries for which the semantic engine is currently available: Italy.

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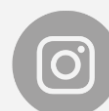
USE CASE

Where can we use AI-LPR?

AI-LPR is a video analytics solution designed to meet the demands of licence plate reading. The application has various usage scenarios.

The first is in car park management, as it is a fundamental tool for managing black and white lists, or even simply for associating number plates with parking tickets.

AI-LPR-DEEP can also be a valid support in logistics, detecting the number plates of the various vehicles entering a port, a factory or a landfill site. At the same time, the application is also very useful in city scenarios. In fact, thanks to its ability to detect number plates at speeds of up to 230 km/h, it can be used to detect access to restricted traffic areas or access to reserved lanes.





AI-VIOLATION is a video analytics app making it possible to **detect traffic red light violations**, i.e. vehicles that cross the stop line when the traffic light is red.

AI-VIOLATION also allows the classification of the vehicle that has committed this infraction (into car, motorbike and truck), as well as the estimation of the **color** and of the **average speed**.

The detection and the tracking of vehicles is based on the use of deep neural networks, together with the analysis of the traffic light status. In fact, the application is able to automatically determine the status of the traffic light (red, yellow, green), by only using artificial intelligence algorithms applied to the processing of the video acquired by the camera, **without the need for any physical connection with the traffic light**.

USE CASE Where can we use AI-VIOLATION?



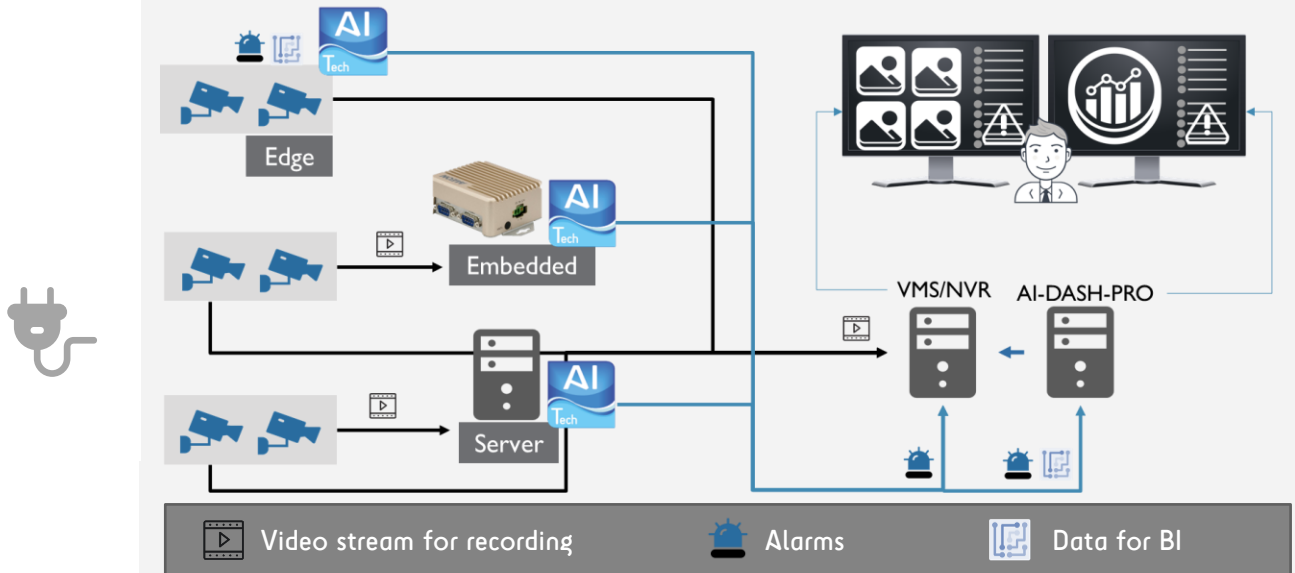
AI-VIOLATION is the **key tool for public administration**, since it allows them to identify irregularities related to vehicles passing red lights. Understanding the areas where these violations occur can be a useful indication for the public administration, in order to decide the most suitable position where installing the device that will be used for **sanctioning purposes**.

Also, AI-VIOLATION can also be considered the ideal solution to be integrated into whole systems approved for fining purposes.



ARCHITECTURE

Where can we install the apps?



The detailed list of specific compatible platforms can be reached via the link on the right.

INTEGRATION

Where can we notify the events generated by the app?

Events can be sent to external servers using over 20 different mechanisms, which include third-party VMSs, standard protocols (such as HTTP, FTP, MODBUS and MQTT) and also A.I. Tech proprietary protocols, which allow the notification of events to the dashboards of A.I. Tech. More information via the link on the right.



THE SOLUTIONS OF A.I. TECH



**AI-SMART
RETAIL**



**AI-SMART
SURVEILLANCE**



**AI-SMART
PARKING**



**AI-SMART
TOTAL**

AWARDS



CIOApplications europa TOP 25
ARTIFICIAL INTELLIGENCE
SOLUTION PROVIDERS - 2017

THE MOST **Innovative**
10 ARTIFICIAL
INTELLIGENCE
SOLUTION PROVIDERS
2018



A.I. Tech

2020 Award Winner

Most Innovative in Video Analytics

