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AI-SMART TRASPORTATION

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AI-SMART TRASPORTATION

AI-SMART TRANSPORTATION is the solution to meet the needs of modern smart cities with intelligent traffic monitoring through the detection of pedestrians and vehicles, license plate recognition, vehicle classification, model and make recognition, motion characterization by estimating the speed and the lane and flow analysis through origin-destination matrices. Furthermore, it allows the detection of anomalous and dangerous situations, such as accidents, congestions, traffic violations, pedestrian on the road and U-turns.

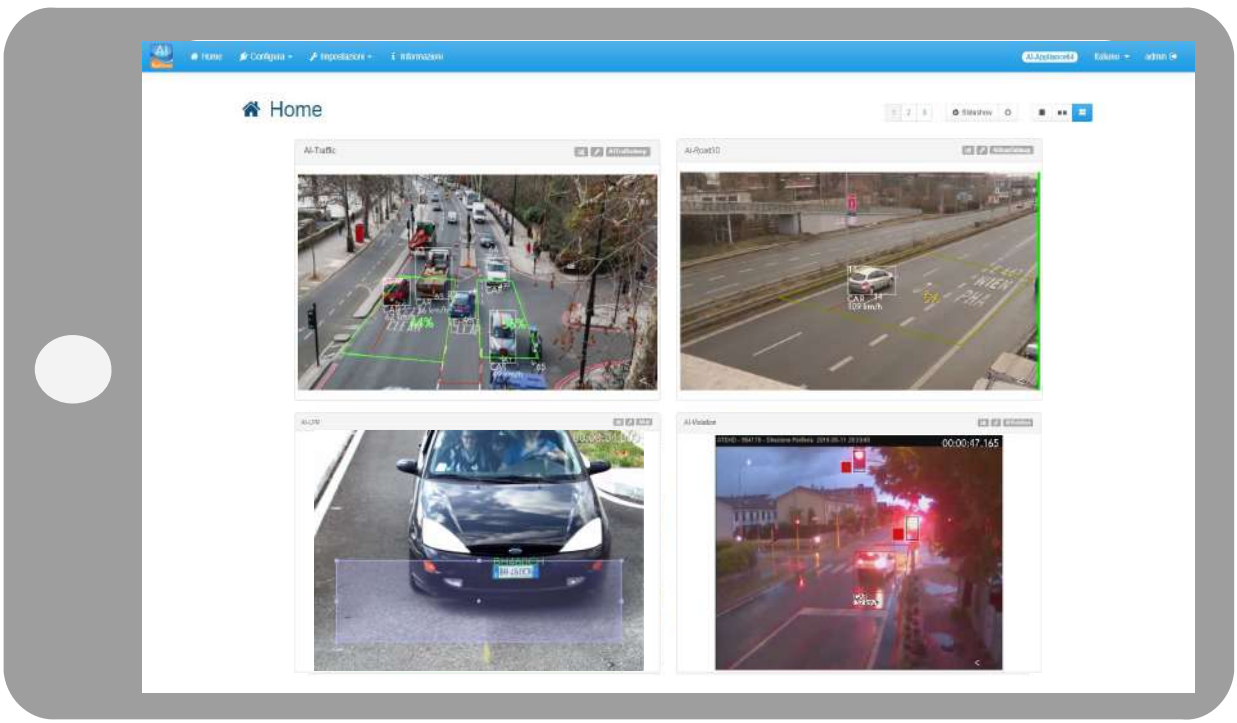
APPLICATIONS

AI Road3D

AI Incident

AI LPR

AI Violation



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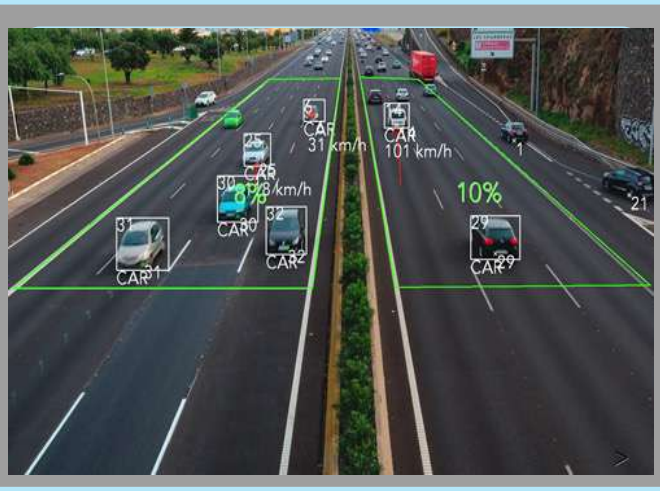
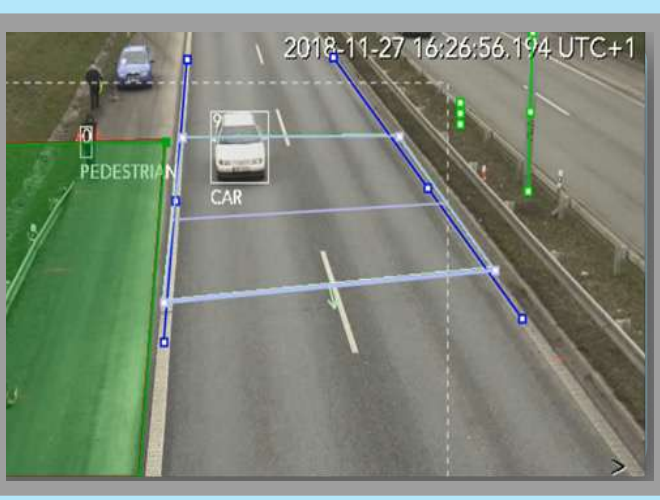


AI-ROAD3D

Counting and classify vehicles, estimation of color and speed (average and above)



AI-INCIDENT

Automatic Incident Detection (AID)

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AI-LPR

License Plate Detection and Recognition

AI-VIOLATION

Traffic red light violation detection

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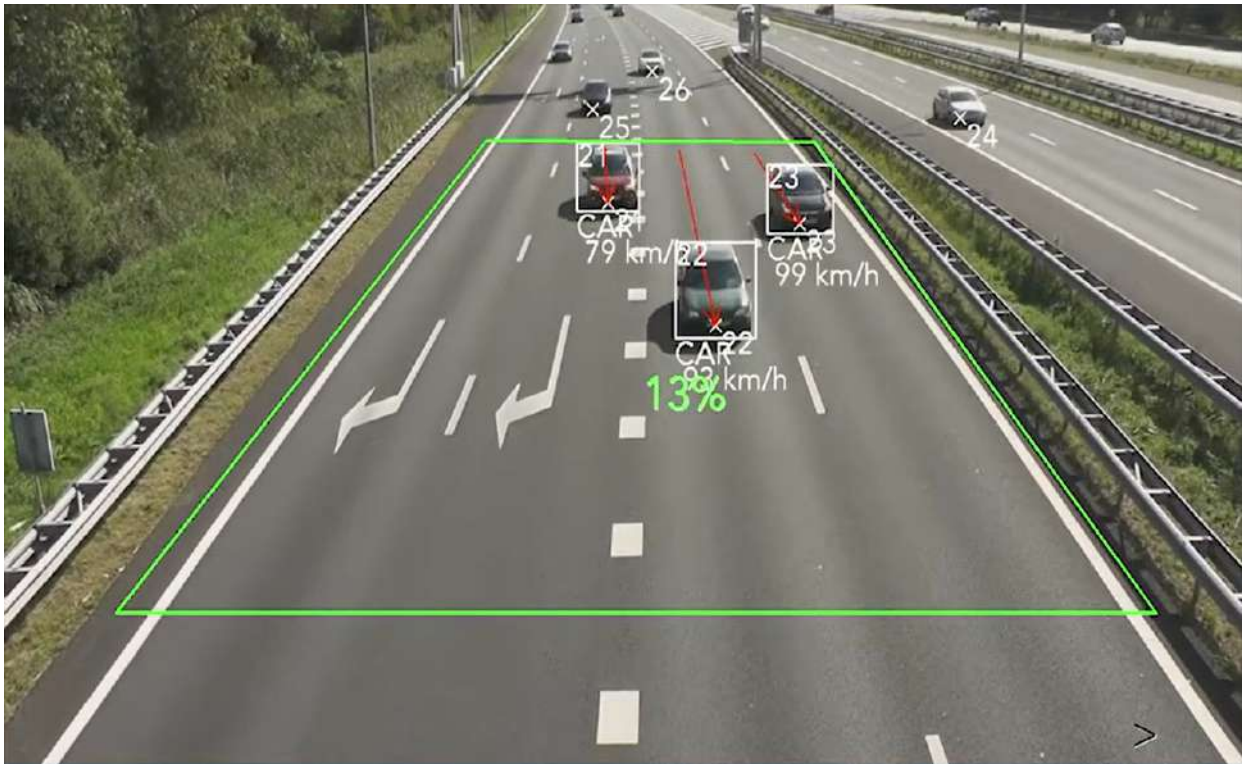
AI-ROAD3D

AI-ROAD3D is a video analytics application to count and classify vehicles crossing virtual sensors in real-time. It recognized three classes of vehicles: motorbikes, cars and trucks. The application also estimates the color and average speed of each vehicle and fires an alarm if this speed exceeds a customizable threshold. AI-ROAD3D can estimate traffic density as well as monitoring traffic flows through the origin-destination matrix.

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 uses deep neural networks to detect and classify objects achieving a high accuracy even in extremely complex scenarios, such as in tunnels or crowded city streets, at night or in severe weather conditions.



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AI-ROAD3D USE CASE

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, motorways, intersections and roundabouts.

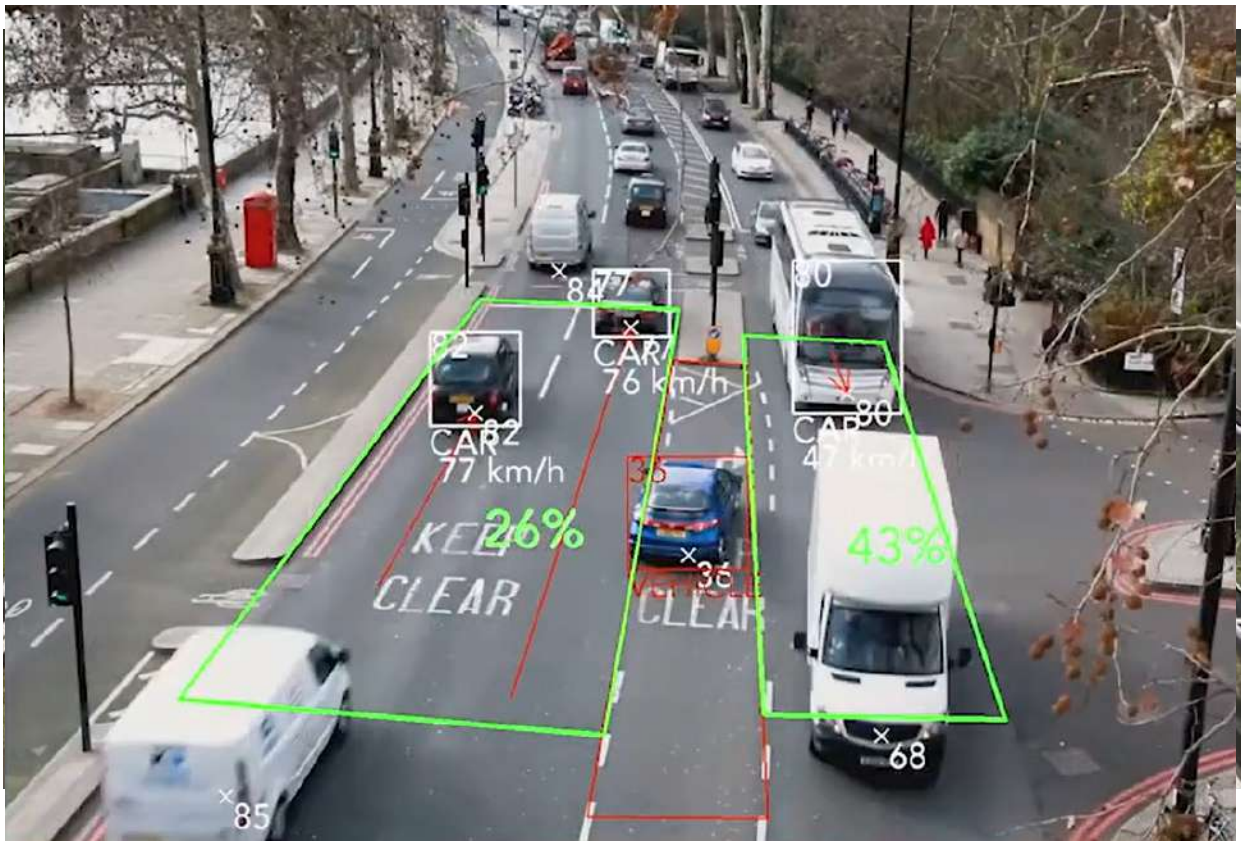
Finally, in combination with the ***AI-DASH-PRO*** dashboard, the app can be used to monitor car parks by counting vehicles at the gates.

AI-INCIDENT

AI-INCIDENT is a video analytics application to detect in real-time anomalous and dangerous situations on the road, such as vehicles driving on the wrong side of the road, stationary vehicles, U-turns, lane changes, queue or pedestrians in forbidden zones.

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 uses deep neural network to detect and classify objects achieving high accuracy even in extremely complex scenarios, such as in tunnels or crowded city streets, at night or in severe weather conditions.



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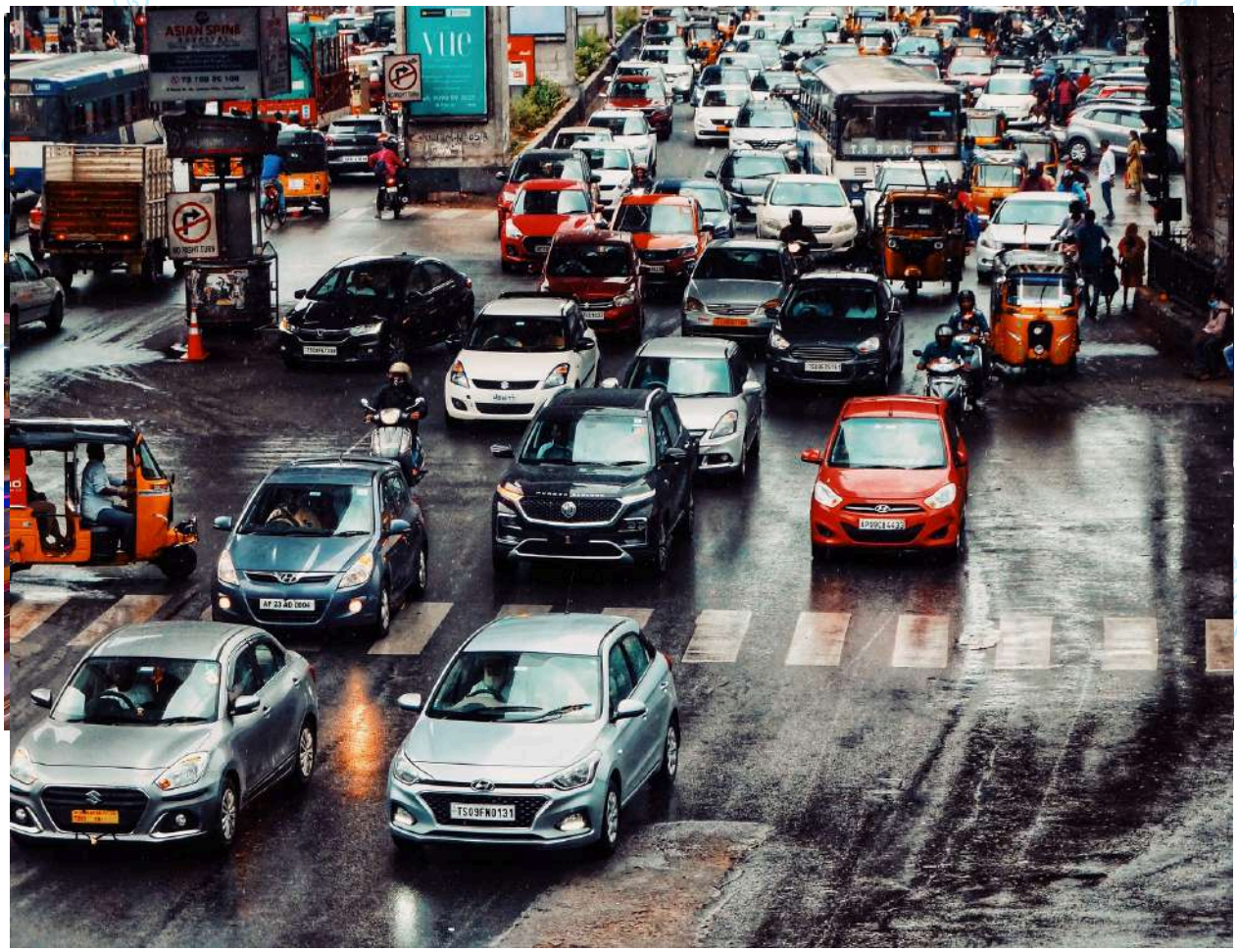
AI-INCIDENT USE CASE



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

AI-LPR is a video analytics application based on 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, France, Spain, Greece

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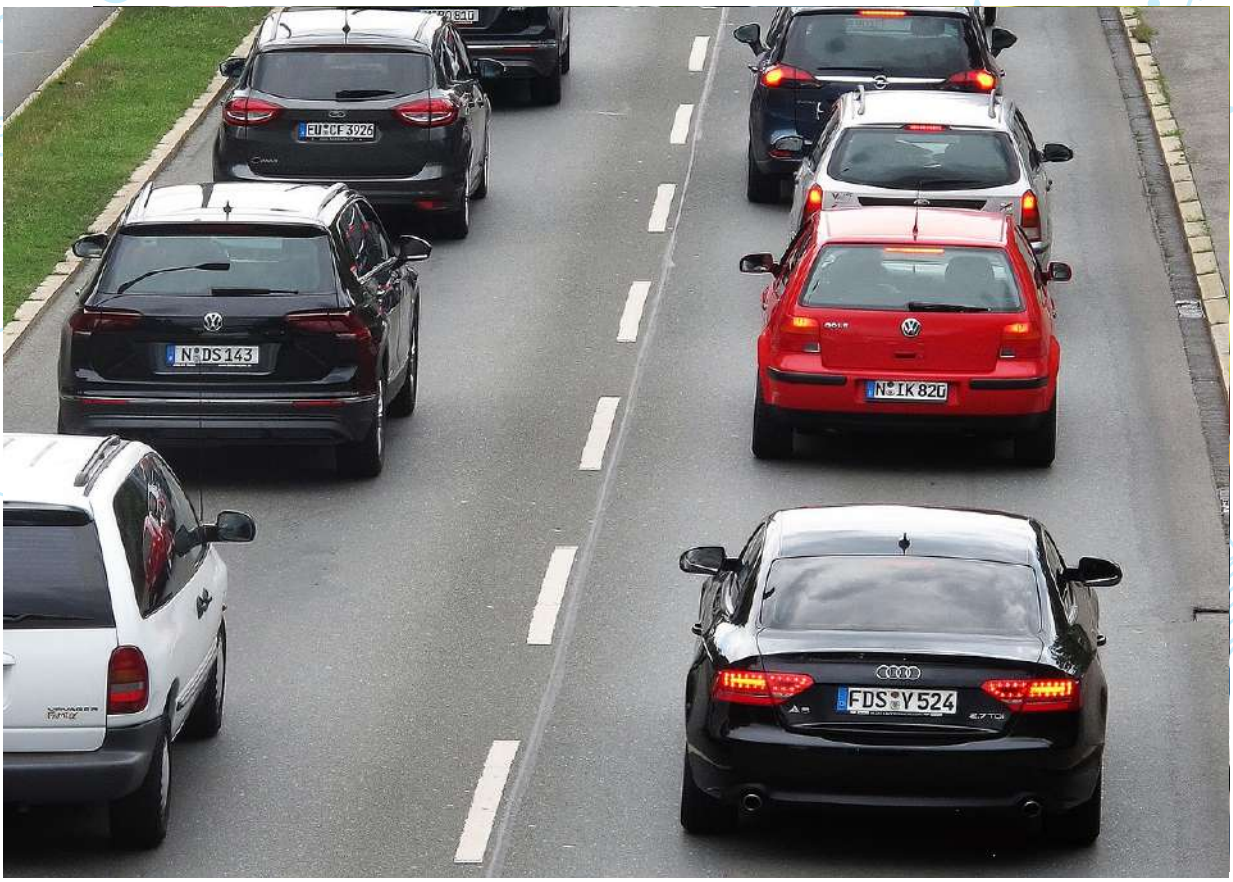
AI-LPR USE CASE



AI-LPR is a video analytics solution designed to meet the demands of license 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 whitelists, or even simply for associating number plates with parking tickets.

AI-LPR 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.

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AI-VIOLATION

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.

The application also allows the identification of the vehicle that has committed this infraction, its vehicle type among the categories of car, motor vehicle and motorbike as well as average speed and the time elapsed since the red was turned on.

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

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AI-VIOLATION USE CASE

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.

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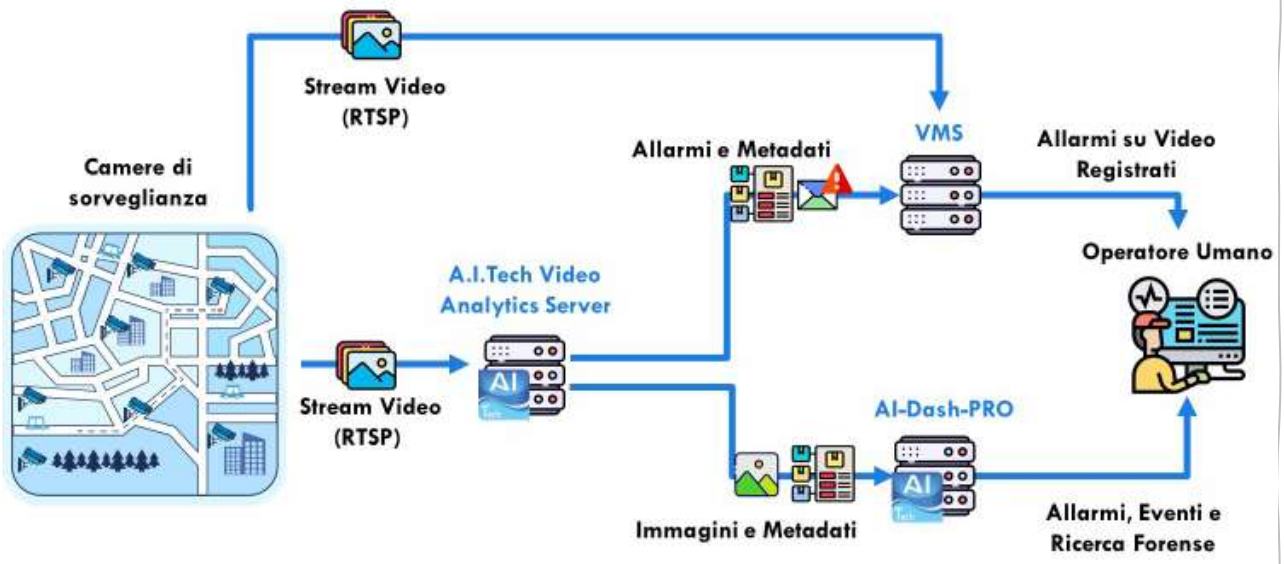
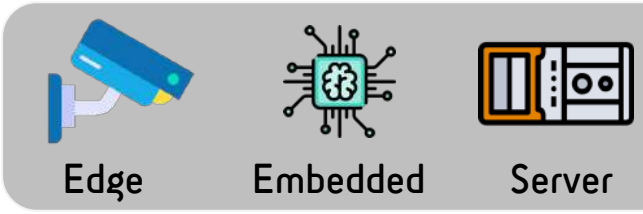
ARCHITECTURE
Where can we install the app?



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.

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AWARDS

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