

Case Study Turin-Bardonecchia A32 Highway

VIDEO ANALYSIS FOR THE DETECTION OF STILL VEHICLES, QUEUES, TRAFFIC SPEED DROPS, VEHICLES TRAVELLING THE WRONG WAY

Aitek has developed a video analysis system for the video monitoring of the 73 km-long Turin-Bardonecchia A32 highway which employs software modules capable of automatically detecting dangerous events for road safety in critical points such as tunnels, junctions, emergency stop areas.



Real-time road safety and video monitoring

Software modules developed by Aitek for the analysis of live images are employed by **over 300 fixed video cameras** (both color and B/W) installed at highway junctions and inside tunnels.

Image processing algorithms perform the statistical analysis of changes in the scene and generate alarms whenever events such as still vehicles, queues, traffic speed drops and vehicles travelling the wrong way are detected. The modules check the time duration of each event: by setting parameters controlling the background update time and the system sensitivity it is possible to remove false or redundant alarms. In case of changes in video camera positioning, full functionality can be restored simply by redefining the location of the virtual sensors.

The solution interfaces with the control center of Sitaf, the A32 concessionary company, for the transmission and display of images directly on the monitoring center interface.

Queue and speed drop detection

The **Speed drop** software module detects vehicle speed drops in the scene. It generates an alarm when the average speed of vehicles travelling in the monitored area is less than an average value for longer than a certain threshold.

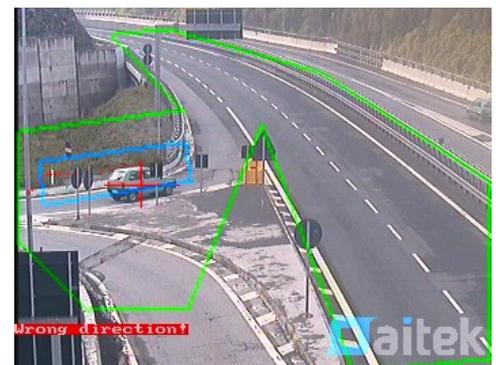
The **Queue** module rule allows to detect vehicle queues in the scene. The system generates an alarm when the lane is occupied for longer than a minimum threshold.

Vehicle detection inside sensitive areas

It detects vehicles inside “sensitive” areas (emergency lanes, emergency stop areas) by detecting changes in the scene and generating an alarm whenever a vehicle is parked in the sensitive area for longer than a set minimum time threshold.

Wrong way detection

This module detects vehicles transiting in a chosen direction. An alarm signal is generated each time a vehicle transits the wrong way through a sensor-defined area.



Features

- Over 300 color and b/w fixed cameras
- 24/7 monitoring in any operating condition
- Monitoring along the length of the highway of tunnel road sections, junctions, stop areas
- Automatic detection of traffic speed drops, queues, still vehicles on the carriageway, vehicles travelling the wrong way
- Single operator interface for video monitoring and alarm display



About Aitek

Aitek is a leading company in the design and implementation of innovative technological solutions. It designs and implements intelligent systems for transportation and traffic, video surveillance for security, digital signage for communications.

Since 1986 Aitek has consolidated its presence on national and international markets thanks to its continuing partnership with leading companies and its constant attention to technological evolution. Aitek is one of the few Italian companies to have been awarded by the European Union the prestigious IST Prize for technological production.

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