



Homeland Security & Critical Infrastructures

AUTO-DETECTOR ANPR/PLATE HUNTER ALPR

The Auto-Detector vehicle licence plate reader has been designed to satisfy law enforcement needs by exploiting the experience and technology developed by Selex ES. The Auto-Detector draws on Selex ES's experience in optical character recognition, video surveillance, Information Technology and system integration.

By continuously reading the licence plates of vehicles in its field of view - independently of whether they are moving or parked, in any weather and light conditions, both during the day and at night - the system (which is available in mobile, fixed and portable versions) checks vehicle permits and identifies licence plates that have been reported stolen or flagged by police forces.

The Auto-Detector has been used for several years now by law enforcement agencies in Italy and the USA, where Selex ES is market leader and has completed thousands of installations, and is now growing in popularity throughout the world (South America, Europe and Asia).

THE SYSTEM

Auto-Detector is an integrated system that automatically reads vehicle licence plates. Its compact size means that it can be used in installations that are fixed (mounted on existing supports like traffic lights, lamp posts, etc.), portable (on tripods or stationary vehicles) or mobile/transportable (on moving vehicle or integrated in light bars).

Images are obtained from two micro digital video cameras, one black & white or grey-scale combined with an infrared illuminator, and a colour camera to provide context. The infrared illumination system means that Auto-Detector can read vehicle licence plates in all ambient and light conditions, even when vehicles are travelling at high speed.

The optical character recognition system and advanced image processing techniques used mean that the system is very versatile and can be adapted to meet the needs of different local situations.



AUTO-DETECTOR SOLUTION SUITE

Mobile and redeployable installations

This type of installation is typically used for territorial control operations performed by mobile patrols, so that immediate action can be taken when suspect or reported licence plates are identified. In this case the device is mounted on the roof of patrol cars in two possible configurations:

- Permanent, in which a vehicle is permanently fitted with the device (inside police or emergency vehicle light bars, for example);
- Redeployable, using an installation kit that allows the unit to be removed and adapted to any vehicle without modification.

Auto-Detector processes the images acquired, extrapolates the licence plate data, displays plate numbers on the patrol car monitor and compares them in real time against a hotlist of reported vehicles stored locally in the vehicle. The hot-list is updated when the vehicle starts a mission by means of hardware (USB memory stick) or over a wireless link (protected by security certificates) with the central database.

The automatic recognition system can read almost any type of character, with 0.5% uncertainty: all in a compact unit with low energy consumption. Versions submitted for assessment by authorised laboratories have been certified as complying with UNI 10772 standard recognition class A.

Reduced consumption and the use of wireless connections mean that each device can be equipped with its own power supply/communication module, to ensure the operating autonomy needed even for applications in which a power supply is not available. The device's remarkable versatility means that it can be used in a broad range of applications in the fields of security, territorial control, access to restricted areas, traffic control and fine issue.

Specialist software applications are also available at operating centre level to handle a variety of additional functions, so that units can be deployed in a broad range of situations.

The system memorises a grey-scale image (and colour if the system is fitted with a colour camera) of the vehicle and its licence number, as well as the date, time and geographical location as reported by a satellite navigation system. If a reported licence plate is identified, an acoustic alarm sounds to enable the officers in the vehicle to take action, and concurrently the memorized information is sent to the operating centre for vehicle positioning.

The unique feature of the Auto-Detector, at the present time, is its total self-sufficiency. In order to operate, the system requires no sensor training or other adjustments: all recognition operations are performed automatically during patrols, without distracting service personnel in any way from their normal duties. This feature improves performance and is highly appreciated by operators.





Fixed installation

In this case the system is installed in a fixed position on a suitable roadside support. This configuration is used to control access to restricted traffic areas and car parks, and in all cases in which a fixed monitoring infrastructure is needed (territorial control, traffic monitoring, etc.)

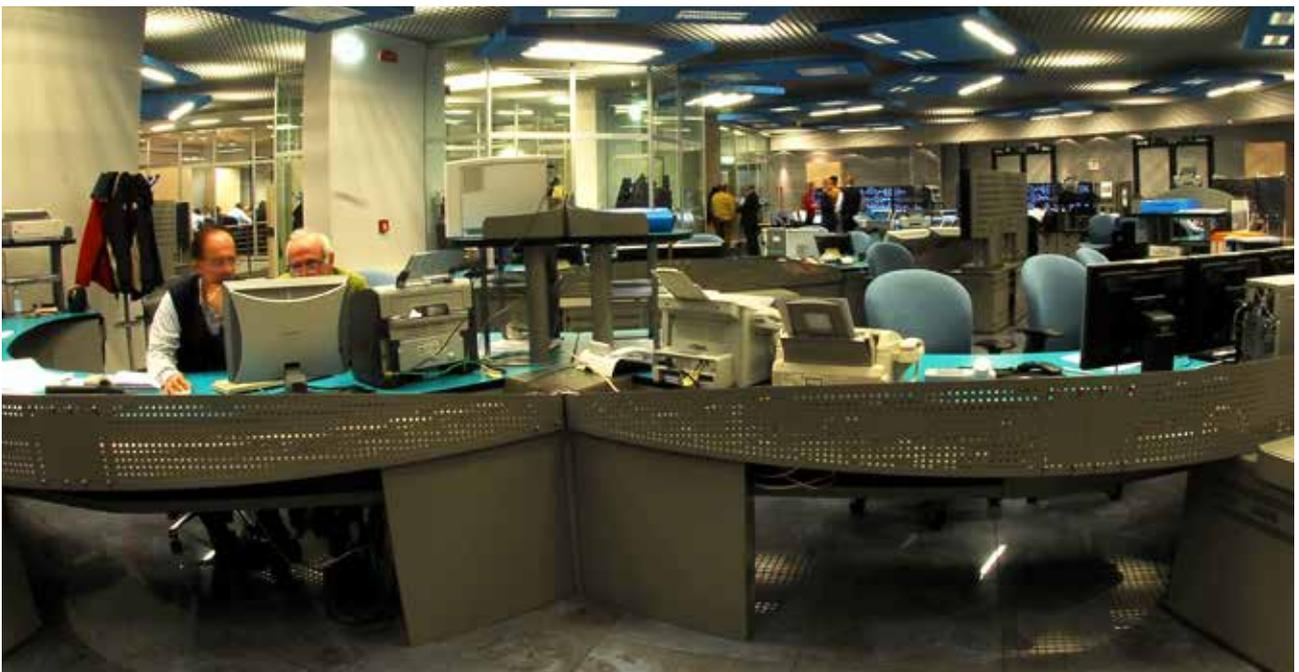
As the system is fully modular, it can be expanded to monitor more lanes or gates as required by adding hardware and software components to the existing architecture. Fixed installations are completely unattended, performance and is highly appreciated by operators. Auto-Detector is type approved by the Italian Ministry of Infrastructure and Transport for monitoring access to Restricted Traffic Zones.

Portable installation

To offer the greatest possible flexibility, a portable version of the system has also been developed. In this case the unit is mounted on a mobile support like a tripod or directly on the roof of a vehicle parked at the roadside.

The unit can be powered directly from the vehicle's cigarette lighter, or through a battery system housed in a special container installed in the immediate vicinity of the tripod.

This installation is generally used when controls are needed in different physical locations, because it allows the unit to be repositioned with ease. Installations of this type are generally attended by an operator.



OPERATING CENTRE

In parallel with rising demand for security and territorial monitoring, there has also been an increase in the number of "operating centres" to protect against and identify unlawful behaviour.

An operating centre is a distributed software platform offering services that can be accessed over an intranet, and in many cases over the internet, using a web browser (Internet Explorer, Firefox, Safari, etc.).

Selex ES offers its customers an operating centre to monitor vehicle traffic using the plate reader (fixed or mobile) as peripheral sensor. The system mainly comprises two components: a patrol geo-location station and a station to store and consult the information gathered by the peripheral devices.

The main functions offered by the operating centre are:

- control and monitoring of peripheral equipment (gate plate readers and PCs)
- real time display of alarms from all devices
- management of all vehicle lists - hot lists (reported) or white lists (plates with permits for restricted traffic zones) - with periodic updating
- infrastructure validation by a public official
- interface with external information systems, typically to import lists of plates with restricted traffic zone permits and to export violation reports.

The operating centre provides a user-friendly interface for performing application tasks. There is a special focus on ergonomics and the needs expressed by users to make procedures for operating centre operators as simple as possible.



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