CASE STUDY

Axis IP cameras validate vehicles on Argentine toll roads.

Autovía del Mar has succeeded in automating the identification of license plates at its toll plazas.

Organization:
Autovía del Mar S.A. (AUMAR)

Location:
Buenos Aires, Argentina

Industry segment:
Transportation

Application:
License plate recognition

Axis partners:
Telectrónica, Neurallabs

Mission

In July 2011, a new concession was created for 647 km of highway linking Routes 2, 11, 63, 56, and 74. Within this corridor there are 4 tollbooths: Samborombón, La Huella, Gral Madariaga, and Mar Chiquita. The Concession Agreement stipulates that users residing within a 10 km radius of a toll plaza are exempt from tolls, and there is a different rate for those who live in certain parts of the coast. About 16,000 vehicles fall under these conditions, and therefore AUMAR needed to implement a control system that would allow it to validate passing vehicles to ensure the proper assignment of this benefit.

Solution

The Telectrónica systems integrator chose to recommend the use of LPR (license plate recognition via artificial vision) technology designed by Neurallabs to identify the vehicles qualifying for exemption or special rates.

After several tests, the chosen solution was completed with AXIS M1113 Network Cameras, with image control and shutter control software. Initially eight sets were installed: four at the La Huella toll plaza, two at the Madariaga plaza, and two at the Mar Chiquita plaza.

Result

With the implementation of LPR technology and Axis IP cameras, AUMAR succeeded in automating vehicle identification for most residents within the zone in question, and the system achieved an extremely high recognition rate. Furthermore, the solution allowed the concessionaire to improve both its auditing processes and security thanks to photos and video data captured by the Axis cameras.

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"At first we were a little skeptical regarding recognition rates and processing speed after everything was integrated into the toll collection system; we even thought that cars might have to stop for the system to recognize and authorize them. But the numbers show us that the recognition rates are excellent, and users can go through the plazas without stopping, just as if there was a free-flow type system in place."

Claudio Reynaga, Autovía del Mar S.A. System Administrator.

Cutting-edge technology at the best price

The AUMAR-operated toll plazas along the 600 km corridor of highways in the province of Buenos Aires required a technological upgrade that would give them the capacity to identify and automate the passage of vehicles registered to residents so as to ensure they would be properly exempted from tolls or receive payment credits.

At first, different technologies such as ID cards or RFID tags were considered to meet this need. However, these options involve high investment costs that are difficult to recuperate. It was therefore decided to test LPR technology with different types and brands of cameras. The results were successful, and the Axis cameras were considered the most suitable equipment for taking the clear and precise images required for vehicle identification.

"This solution combines the efforts of 3 companies—Telectrónica, Neurallabs, and Axis—to arrive at a technology product that provides almost immediate benefits, that is easy to implement, and that requires very few changes from the point of view of engineering infrastructure. This simplifies installation and putting the system into service," said Sergio Iannone, Toll Manager, Telectrónica.

High performance of Axis cameras

AXIS M1113 is a professional and affordable fixed camera suitable for a wide range of video surveillance applications; it stands out for its:

> Excellent image quality
> DC iris varifocal lens for outdoor light conditions
> Multiple H.264 sequences
> Powered over Ethernet
> Easy installation with pixel counter

"We chose Axis for the excellence of its product, its brand reliability, and the ability to incorporate and model its complexity," said Sergio Iannone. Meanwhile, Damián Gurski, Neurallabs' Sales Director for Latin America and Brazil, stated, "The choice of Axis cameras has been a real success. As Axis development partners, we have broad experience, and we recommend them; that is why many of our customers integrate them with our software."

Future expansion

Following these excellent results, AUMAR evaluated the use of the same technology for other applications. "LPR technology is very interesting to us and allows us to think of many applications: for example, to measure average vehicle speed between toll stations, or using it as a backup in electronic toll lanes when the device tag is not recognized but the license plate is," concluded Claudio Reynaga, System Administrator for Autovía del Mar S.A.

"We believe that the success of this project will encourage other customers to use LPR technology in similar applications. At Neurallabs, we have strong expertise in the development of optical character recognition software (OCR)." Damian Gurski, Neurallabs Sales Director for Latin America and Brazil.

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