

Kazakhstan's smart intersections.

Axis network cameras provide traffic safety in major cities in the Republic of Kazakhstan.



Organization:
Ministry of Internal
Affairs of the Republic of
Kazakhstan

Location:
Republic of Kazakhstan

Industry segment:
Transportation

Application:
Traffic monitoring and
safety

Axis partners:
Abris, NTC New Projects
Ltd., Integra-S

Mission

Police in the Republic of Kazakhstan tasked the integrator with designing and installing a system that would automate surveillance of traffic safety as much as possible in the country's large cities that have complex road infrastructure. The key functions of the new system were monitoring traffic, preventing and detecting traffic violations, and quickly responding to such violations.

Solution

In order to meet the challenges of this project, an automated "Smart Intersection" system was developed based on a video network built using AXIS P1354-E and AXIS P1357-E Network Cameras. Integrated with the existing video surveillance system of the Center for Real-Time Management of Police Forces and Equipment, the new network, which currently includes 246 cameras, has allowed the police to quickly respond when a wanted vehicle shows up on the screen. For smart video processing, the developer chose software from Integra-S.

Result

Implementation of the new system with Axis network cameras resulted in a significant reduction in fatalities and injuries for motorists on the monitored road sections. Police specialists believe this was a result of the powerful preventive impact of the operating video surveillance system on drivers who have a tendency to violate traffic rules.

“Kazakhstan’s regions have a severe continental climate, with large temperature swings. From the moment the system went on-line, Axis equipment has proven to be highly reliable, simple to connect, and easy to set up. It has high image quality and good light sensitivity.”

Agzashev Orynbek, Head of the Automation and Electronic Services Department of the Republic of Kazakhstan Ministry of Internal Affairs Administrative Policy Committee

Origin of the project

The constant growth of the number of vehicles in Kazakhstan’s cities has brought some negative consequences: the number of traffic accidents and violations has increased. These changes created the need for a new smart system that could not only detect violations, but also prevent accidents. In addition, police needed a tool for quickly finding vehicles on the road that are wanted in connection with a crime.

Equipment selection

The main requirements set for the client regarding the system were:

- > Equipment reliability and dependability
- > Resolution up to 5 MP for recognizing license plates and specific items
- > High-quality video signal processing
- > Ability to simultaneously transmit several streams in H.264 format
- > Wide range of parameter settings, pixel counter, remote focus
- > Automatic day/night mode
- > PoE camera power supply for operation at temperatures ranging from -40 °C to 50 °C
- > Camera protection class of at least IP66
- > Fast, qualified technical support

These requirements limit the selection to IP equipment only. Although options with analog cameras were considered at the beginning of the project, they were quickly rejected because installing them would require connecting an additional signal converter and laying a power supply network, which in turn would entail significant additional costs.

Why Axis?

The client reviewed proposals from leading suppliers and, in the end, chose Axis equipment. The key selection criteria were reliability, image quality, full compatibility with the IP network using the ONVIF protocol, and functionality meeting the most needs.

What is a “Smart Intersection”?

The basis of a “Smart Intersection” is two Axis cameras. The 1-megapixel AXIS P1354-E Network Camera can detect and record a violation or accident: running a red light, parking in a no-parking zone, or collision. The 5-megapixel AXIS P1357-E can record a vehicle’s license plate at any point within the road’s width.

The recognized license plate number is automatically checked in the police database, and if the vehicle is wanted, a signal is sent to Headquarters for a rapid response. If a driver violates traffic rules, data is transmitted from the intersection to a traffic police processing center for processing and automatic issuance of a ticket with fine, which is then sent to the violator by mail.

In addition to surveillance and search functions, the “Smart Intersection” system can measure traffic statistics including quantity, intensity and direction. This information is very useful to transportation authorities for optimizing traffic light timing and managing traffic in general. It is also notable that the “Smart Intersection” system is currently certified within the Republic of Kazakhstan as a measuring tool, so that images from cameras are legally valid and can be used as evidence in court.

