

St. Petersburg Underground introduces intelligent video surveillance.

Video analysis using Axis IP cameras supports heavy passenger flow and ensures transport security in St. Petersburg metro.



Organization:
St. Petersburg Metro SUE

Location:
St. Petersburg, Russia

Industry segment:
Transportation

Application:
Safety and security

Axis partner:
Aspekt Severo-Zapad JSC,
Milestone

Mission

The Saint Petersburg Metro is the main city traffic artery. It carries over 2 million passengers between 67 stations each day and among the European subways it ranks 4th for its passenger flow and 8th for its line length. The Metro needed an intelligent video surveillance system to ensure the transport security in challenging traffic conditions at all the subway areas open to the public – halls, underground stations, escalators. With the intelligent video surveillance system the subway security would have a better situation awareness and would quickly respond to any incident, run post-event analysis using video records from archive and automatically detect unauthorized passenger actions for further investigation.

Solution

The appropriate transport security system require to be formed on IP basis as backbone of the intelligent video surveillance.

The Axis network video surveillance system demonstrated the best reliability and functionality during the pilot testing and was selected for deployment of the video surveillance system, creation of a video archive and video analysis systems. The task for the system integrator Aspekt Severo-Zapad JSC was to create an archive and two continuous video streams for online monitoring, ensure video transition to several end users simultaneously (multicast mode) and ability of technology Power over Ethernet.

Result

The large-scale project was launched in 2014 and is still ongoing. For three years, the intelligent video surveillance system covered 24 subway stations with more than 3200 Axis network cameras installed. And there is more to come – 7 or 8 more stations are planned to be equipped in 2017. The system successfully completes its mission: video surveillance, video archive storage for minimum 30 days, automatic detection of abandoned objects.

“It is impossible to imagine an intelligent video surveillance for such a large transport system as the Saint Petersburg Metro without a remote access to online videos and video records from archive, remote monitoring and configuration of system components, as well as quick troubleshooting. Axis network cameras offer the full range of functionalities and allow for efficient system scaling.”

Fedorov Mikhail Romanovic, St. Petersburg Metro SUE.

Application of Axis IP cameras

The Saint Petersburg Metro service staff gained a great experience in using the video surveillance systems providing the transportation and transport infrastructure security. For example, analog-digital systems were used for quite a while to monitor the passengers getting on and off the carriages and escalators, etc. However, the current intelligent video surveillance project only involves IP cameras. It is motivated both by undeniable advantages of IP cameras over analog ones as for image quality and functionality as well as the requirements of regulatory authorities.

The customer selected IP cameras as they perfectly accomplish requested tasks. The reliable AXIS P13 Series Network Cameras with housings were installed at the subway entrances, in halls and along escalators. With digital PTZ control, multiple streams transmitted from several view angles and remote back focus control the Subway situation center staff can monitor all the critical objects from a single point using minimum displays. A perfect balance between sharpness and lens resolution offered by P-Iris, as well as the ability to adapt to challenging light conditions, ensure the precise video analysis results.

Vandal-resistant AXIS P33 Series Dome Network Cameras offering high resolution and light sensitivity were installed in passages between stations and other places where a compact solution is necessary.

Multiple vendor software support

The intelligent video surveillance system for the Saint Petersburg Metro is built on the Milestone Xprotect® platform. “The biggest challenge in the project was and still remains the video analysis in the context of heavy passenger traffic at the stations. The traffic capacity at some of the stations is over 100 thousand passengers per 24 hours. Our experience shows that not many software versions are suitable for such conditions. The video surveillance platform has to support the integration (also simultaneous) with various video analysis programs from different vendors,” – Dmitry Gaevsky, the Director General of Aspekt Severo-Zapad JSC.

Since Axis cameras can be integrated with software by most Russian and global developers, technical staff can easily complete the system with any software component.

Future evolution

The intelligent video surveillance system for St. Petersburg underground will continue to deploy gradually. By the end of the project the system will cover all the stations.

Apart from solving the daily tasks the new security system will play a significant role in 2018 when among other Russian cities, Saint Petersburg will host the FIFA World Cup and the subway will be flooded with tourists. It is interesting to note that Axis already had a similar case study: Axis network cameras were installed in São Paulo subway stations in Brazil for the official opening of the FIFA World Cup in 2014.



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