Recife’s urban trains system carries around 400 thousand passengers a day – it is the third largest railway operator in number of users in Brazil. To ensure a safe journey for passengers, it is imperative to increase the subway security with modern technologies and monitoring equipment.

The main challenge was to adapt the technology to the specific conditions such as lighting, people flow and speed of a subway station while not interrupting the transportation service. Therefore, ease of operation, installation and high availability of the system were prerequisites for choosing the surveillance solution.
**Surveillance Operation Development**

With a contribution of BRL 61.5 million to invest in the improvements for the Pernambuco subway, Companhia Brasileira de Trens Urbanos (Brazilian Urban Trains Company, CBTU) has started a recovery plan for stations, trains, electrical systems and permanent pathways last year. It then inaugurated a new phase of the surveillance operation with the acquisition of 1380 high-resolution cameras from Dahua Technology for the deployment of the surveillance system.

*The Dahua intelligent surveillance system with embedded video analytics monitors 52 places scattered all over the 71 km of the railway line*

The Dahua intelligent surveillance system with embedded video analytics monitors 52 places scattered all over the 71 km of the railway line at the capital and the metropolitan region. The project led by Grupo Avantia from the publication of the bidding contest until the installation combines four models of network cameras from Dahua: DH-IPC-HF5231EN-Z-S2; DH-IPC-HF5231EN-S2; DH-IPC-HDBW8231E-ZS2; and DH-SD65F230FN-H – all equipped with H.265 compression and video analytics.

**Efficient Processing Format**

These cameras work every day capturing and identifying images. With an amount of data that needs to be analyzed daily, the H.265 video compression pattern, a format twice as efficient as its predecessor (H.264), is essential since it uses only 50% of the bandwidth, maintaining the same quality.
The equipment using the main features of Dahua (H.265 compression, analytics, Starlight) has reinforced the security of the Central and Southern lines of the Pernambuco Subway and has allowed the operators to obtain detailed views of the subway operations, especially at peak hours or during tourist events, such as Carnival.

**Starlight Surveillance Solution**

Day and night, under difficult lighting conditions and even in points with extreme low light, Dahua exclusive Starlight cameras deliver sharp and colorful images to the surveillance center to guarantee the best performance in conditions of very low luminosity (0.005 Lux).

Technology strengthens user protection in a general way, because it avoids intrusions into vital areas of operation, depredations or other occurrences that could hinder the passenger transportation. With video analytics, even if the video surveillance operator is not tracking the images of a specific camera, the system automatically identifies and alerts a detected movement in a restricted region, for example.

“In addition to the high technology, Dahua also provided professional technical support to guarantee the success of the installation process”

**Professional Technical Support**
In addition to the high technology, Dahua also provided professional technical support to guarantee the success of the installation process, which did not hinder the operation of the subway. As revealed by Avantia’s Operational Director, Mr. Hamilton Valentin, “The partnership with CBTU has been very successful, due to the peculiarities of the implementation of the security system. It was a major deployment challenge, since all the systems of the stations were in full operation. It was a result of an outstanding team effort with the full support and partnership of the client, so that the implementation would occur in the best way possible and with minimal interventions in the subway system”.

With the help of Dahua network cameras, the coming and going of passengers from Central and Southern lines now have the protection of the security teams in multiple locations throughout the subway’s operation. The new video surveillance system was designed to operate in a centralized management, which differs completely from the previous single-management model. Thus, with this change, it became possible to take better advantage of the human resources of the security team at the 37 stations.

**Improved Quality Of Service**

The whole system of Dahua video surveillance was thought to ensure not only the physical safety of each user, but also to avoid a common problem that causes a high impact to the quality of the service: vandalism. On some occasions, a window broken by a user can delay the routine of thousands of passengers. With the video surveillance cameras, it is possible to identify suspects, trigger the maintenance service in a more agile way and minimize the impact on the operation.

The video footage of occurrences that happen inside the System of Urban Trains’ facilities can be shared with the Military Police which, if necessary, can conduct searches in the image database and use resources such as Zoom to capture details that help in the investigations. The operators themselves can alert the authorities depending on the incident.
This is the first CBTU project, which also manages the urban rail transport in other Brazilian capitals, such as João Pessoa, Maceió, Natal and Belo Horizonte.

**Smart Video Surveillance System**

This is the first CBTU project, which also manages the urban rail transport in other Brazilian capitals, such as João Pessoa, Maceió, Natal and Belo Horizonte. “*With this case, Dahua Technology ratifies once again its expertise in projects for the public segment. The solution offered will enable the end client to have a fully smart video surveillance system that will provide optimal lighting in dark environments, 24h protection of restricted areas, occurrence alerts and high performance to operators. All this will focus on prevention and alerting possible situations that endanger the subway system as well as the security of its users*, Fabio Lopes, Channel Sales Director of Dahua Technology Brazil.

“The cameras are being installed and monitored centrally, in a control room. In the future, we intend to achieve a cost reduction for the company, since with the cameras we were able to reduce in local surveillance at some subway stations, but the great advantage will be seen in the safety of our passengers. The images help us identify crimes in the stations and send this information to the law enforcement. We are in the implementation phase and starting to operate with smart technology, the results have already started to be seen – we have already managed to identify and arrest suspects, forwarding them to the police. We are employing all efforts to train and hire new agents and I am sure we will achieve greater gains in the future*, commented Leonardo Villar Beltrão, CBTU Recife Superintendent.

**Minimal Interventions For Deployment**

“The partnership with CBTU has been very successful, due to the peculiarities of the implementation of a state-of-the-art security system. It was a major deployment challenge, since all the systems of the stations were in full operation. It was a result of an outstanding team effort with the full support and partnership of the Client, so that the implementation would occur in the least possible way with minimal interruption in their operations.”
"This project is of extreme importance to Spectra. We have been close to Avantia and Dahua Technology throughout the implementation process, providing them with all the necessary support in the delivery of solutions", Reginaldo Mattos, Director of Spectra Systems.
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