

Video surveillance for A Series. Parma's Tardini stadium selects Axis HDTV cameras.



Organization:
Parma Football Club
"E. Tardini" Stadium

Location:
Parma, Italy

Industry segment:
Leisure

Application:
Stadium surveillance

Axis partner:
MC Informatica e
Telecomunicazioni S.p.A.

Mission

The Ennio Tardini stadium is the heart of Parma Football Club. It is the location where the majority of the club's activities unfold, from home matches to meetings of the team's management. Until the late 1980s, the stadium was not able to host high-level sports events. The creation of a modern and efficient building in fact followed on from the successes of Parma: the current layout is the result of the changes made in the past decade thanks to the direct contribution from the company.

In 2002, the club was entrusted with the management of the site for the next thirty years: an agreement which allowed Parma to equip the stadium with new services for supporters and for all residents of Parma. Video surveillance, which is an indispensable tool for pursuing this objective with efficiency and certainty, had to be implemented with high-quality equipment capable of producing smooth and sharp images, both live and recorded.

Solution

For the design and implementation of the system, Parma F.C. turned to MC Informatica e Telecomunicazioni, to meet their IT, communications and security needs. To meet the demands of its client, MC Informatica decided to partner with Axis.

Result

"Axis proved itself to be equal to our expectations: its cameras provide high-definition images with truly impressive results," stated Giancarlo Vadruccio, Project Manager of MC Informatica: the optimal image quality allows the continuous monitoring of the entire building, creating a detailed tool for high-definition surveillance.

Technical data of installed products

AXIS Q1755 Network Camera

The lens of the AXIS Q1755 is 5.1–51 mm, and its F is 1.8–2.1. This lens has an automatic day and night IR filter with autofocus and a great angle of horizontal view: between 5.4° and 50°.

This camera is efficient with minimum illumination conditions: 2 lux at 30 IRE, F 1.8 for color images, and 0.2 lux at 30 IRE F 1.8 for black and white images. The zoom in total is 120x: 10x optical and 12x digital and allows identification of faces from distances between 3 and 130 meters. A flexible and high dynamic zoom was mandatory to achieve an efficient system; it is impressive to see from the control room what happens, for example, in the far bleacher seats: it is possible to keep an eye on what is happening out there.

The video compression for the AXIS Q1755 is H.264 (MPEG-4 Part 10/AVC) and the frame rate is 25 fps, even at the used resolution HDTV 720p 1280x720. Parma FC also uses the security functionalities, such as password protection and IP address filtering. The camera has been chosen mainly for its superb image quality but also for its intelligent video features, including video motion detection, active tampering alarm, audio detection, and the Gatekeeper function.



AXIS 233D PTZ Dome Network Camera

The lens of the AXIS 233D is 3.4–119 mm zoom, F 1.4–4.2, with autofocus, automatic day and night functionalities and a horizontal angle of view between 1.7° and 55.8°.

The camera can work efficiently even in hard light conditions, with a minimum illumination of 0.5 lux at 30 IRE for color images and 0.008 lux at 30 IRE for black and white images. AXIS 233D has great dome functionalities: E-flip and 100 preset positions are available. It has a capability of 360° endless panning with a speed of 0.05 – 450°/s, and at the same speed it can tilt up to 180°.

Thanks to its 420x zoom (35x optical and 12x digital), the camera offers clear images of people and objects at a distance. The guard tour and control queue functionalities complete the PTZ performance. The frame rate is 25 fps, in all resolutions. Parma FC uses advanced image settings functionalities like Wide Dynamic Range (WDR), Electronic Image Stabilization (EIS), privacy masks, and also security protection features such as password protection and user access log.

AXIS T8310 Video Surveillance Control Board

AXIS T8310 Video Surveillance Control Board is a modular system with three separate joystick, keypad and jog dial units. With AXIS T8312 Video Surveillance Keypad the user in the Tardini control room can quickly navigate between workspaces, cameras, views and PTZ presets. AXIS T8313 Video Surveillance Jog Dial is also used for navigating through recorded video. AXIS T8311 Joystick is a 3-axis joystick with a turn knob and six application defined hotkeys as well as 12 preset keys. The extreme ease of use enables any authorized personnel from the security service and police force to use it without specific training.





AXIS Camera Station

AXIS Camera Station is the application chosen for monitoring and recording the system. It offered to the Parma FC an easy installation and setup with automatic camera discovery, a powerful Event Configuration Wizard and efficient management of the Axis network video products in the system, at all resolutions and frame rates.

AXIS Camera Station offers flexible live view configuration, support for the 4 full HD monitors used, hot-spot, camera/view sequence, and control of the dome cameras using the joystick area zoom and digital PTZ programmable hot-keys. To facilitate the use of the cameras in an easy and dynamic way, Parma FC uses the mapping functionality.



The software is able to search for recordings based on camera, date and time, timeline visualization, smart search, bookmarks, manual and scheduled export single images in JPEG format or video sequences in ASF format, digital signature on exported recordings, external inputs, manual trigger or system triggers.

AXIS Camera Station is installed on a dedicated server in the server room. Personnel from the Operative Security Group are in the control room where there are two client PCs, but only those responsible for stadium security have access to the recorded images, thanks to the password protection functionality.

"The high resolution of the AXIS Q1755 Network Cameras allows every detail to be captured of events taking place on the stands and at the gates. From the control room where the Security Operations Group works, it is possible to keep the entire stadium under control in real time."

Stefano Perrone, General Services Manager and Security Officer of Parma Football Club – E. Tardini Stadium.

The importance of high definition

The guaranteed security of spectators depends on the ability to constantly monitor every sensitive area of the stadium: stands, turnstiles, exits, corridors and emergency exits. The stadium already had a hybrid video surveillance system consisting of both analog cameras connected to video encoders and native IP cameras, but the solution needed to be expanded and improved because not all areas were covered: strategic areas such as the North and South bleacher seats and the entry turnstiles, for which constant and uninterrupted monitoring was required. Specifically, the surveillance cameras for the turnstiles had to have sufficient sensitivity to ensure the identification of the physical features of any spectator, whereas those for monitoring the bleachers had to be able to check the behavior of the fans.

"After a careful survey of customer requirements that led to the definition of the technical and economic constraints, we turned our attention to evaluating the most suitable cameras. The best ones turned out to be Axis network cameras," explained Vadruccio from MC Informatica. "During the project engineering phase, we selected the most suitable values for the optical parameters by taking the distances into account, in order to guarantee the correct viewing angles for the zones subject to video surveillance, and we subsequently decided to install sixteen AXIS Q1755 cameras and one AXIS 233D."

Thanks to its characteristics of flexibility and maximum adaptability, AXIS Q1755 proved to be the perfect choice. "Thanks to its HDTV resolution and powerful 5-50 mm varifocal zoom, only this camera allowed us to manage the monitoring of the area," declared Vadruccio. He added, "Bearing in mind that some cameras were even positioned at a distance of 130 meters away from the areas

they cover, whereas in other places the distance is reduced to only 3 meters, we were therefore looking for a product equipped with a highly dynamic zoom, capable of providing optimal images from a distance but at the same time offering a wide-angle view for areas more nearby, while always maintaining high image quality. AXIS Q1755 completely satisfied this requirement."

"Another advantage we appreciated in this product is the autofocus feature that simplified the installation operations and reduced maintenance costs. Some cameras were positioned at a height of 20 meters and are therefore difficult to access, so it is important that some calibration functions can be managed rapidly and easily from a remote location," concluded Vadruccio.

The partially pre-existing network infrastructure was sized appropriately by calculating the bandwidth requirement of the video streams. It was expanded with the use of optical fibers and Ethernet network cables interconnected with media converters and switches that send the images to the control room containing two client machines connected to four 32" HD viewing monitors. In conformity with the Pisan decree, the control room houses the Security Operations Group (GOS) that supervises the coordination of all security-related matters.

Images are recorded and managed with AXIS Camera Station software installed on a dedicated server. The recordings, which are stored for a maximum of 7 days, can be accessed and viewed exclusively by the security supervisor of the stadium. "In this case too, the resolution and frame rate of the Axis cameras resulted in impressive quality," noted Vadruccio.

