CASE STUDY

On the right track with video monitoring.

Axis network cameras provide optimum passenger guidance on the Matterhorn Gotthard railway.

Organization:
Matterhorn Gotthard Railway

Location:
Brig, Switzerland

Industry segment:
Transportation

Application:
Passenger information system, safety and security

Axis partner:
Ruf Multimedia AG

Mission

The Matterhorn Gotthard Railway network (MGBahn) is certainly one of the most scenic lines in Europe: over 144 kilometers long, the narrow-gauge track runs in narrow serpentine loops, passes through 33 tunnels and galleries, and over 126 bridges. The majority of passengers are tourists who come to the Valais canton of Switzerland to hike in summer and to ski in winter. To make the journey more comfortable, in 2011 MGBahn issued a request for proposal for a stationary customer information system. Together with two partners, in 2012 general contractor Ruf Multimedia AG began implementing the project, which extended from the control system in the company's control room via voice and information panels, and display screens at the stations, to video surveillance. An important function was video surveillance using Axis network cameras.

Solution

Ruf Multimedia has collaborated with Axis Communications for many years. The company has already installed its powerful network cameras on trains and stations throughout Europe and the world, so once again Axis was the logical choice as a reliable project partner.

In the 2012 pilot phase, Ruf installed video surveillance cameras at the first eight stations between Eyholz, Brig and Fiesch.

Result

Axis network cameras form part of the passenger guidance system that Ruf Multimedia AG will be installing at all MGBahn stations by the end of 2014. For the manufacturer, Axis not only promised high image quality and night vision functions, but also that the cameras are extremely robust and require little maintenance. Even in the first year, they have already proved ideal and survived the Swiss winter. "We opted for the Axis E-series, which is ideal for outdoor use", explained Project Manager Schraven. "The cameras have plug-and-play function so that our customer could independently carry out the mechanical installation, virtually overnight. We then allocated the IP addresses via Notebook and adjusted the resolution."

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"On the catenary masts in particular, maintenance of network cameras is very difficult since first the power must be switched off and operation interrupted. So it was important for us that the cameras be especially low maintenance and reliable – for the Matterhorn Gotthard Railway, a decisive cost factor not to be underestimated."

Sven Schraven, Project Manager at Ruf Multimedia AG.

Groups of hikers crowd the platform at Fiesch in brilliant sunshine. The station is one of a total of 44 on the Matterhorn Gotthard Railway, which passes through the Swiss Alps and climbs to an altitude of over 3300 meters. Fiesch was one of the first eight stations to be equipped with video surveillance in 2012: Two Axis network cameras monitor what is happening and transmit directly to the control center, which responds immediately with an announcement about crowding, and schedules a special train.

Know what's happening at the stations

MGBahn ordered the new stationary passenger information system from Ruf Multimedia AG, who offers high performance technology and has many years of experience in the field of stationary and mobile passenger information systems.

"Previously, MGBahn had no view of the situation at individual stations", explains Sven Schraven, Project Manager at Ruf Multimedia AG. "In summer and winter, huge numbers of hiking groups and skiers arrive, so it was in the interest of the passengers to optimize customer guidance." Through an interface to the control system, the control center now always knows the location of the cars, and from this can calculate accurate departure times and delays. In this way, the trains can be scheduled as required and the vacationers in the mountains are kept informed in good time via monitors and loudspeaker announcements.

Immediately ready for use: Axis cameras on the pilot line

Video monitoring on the pilot line was first performed using AXIS P1344-E Network Cameras which were mounted on the catenary supports and signal masts. At some covered sites, Ruf also installed AXIS P3344-E Dome Network Cameras. Thanks to the PoE function (Power over Ethernet), the cameras are automatically powered via data cables so that the railway operator doesn't have the complexity and cost of network cables.

The cameras are perfect for outdoor use: thanks to temperature-regulated heating, they easily tolerate fluctuations between minus 40 and plus 70 degrees. In addition, they have special protection from dust, rain and snow.

Superior image quality both day and night

Another criterion in the decision was the high image quality of the Axis cameras and the possibility of switching between different resolutions. The cameras record locally at one megapixel in HDTV quality, but then transmit the live image to the control center in VGA resolution, which significantly reduces the data volume. Both AXIS P1344-E and AXIS P3344-E have a wide dynamic range (WDR) and offer day/night functionality. As a result, they deliver clear images around the clock, even under poor visibility conditions such as falling snow. The cameras are also ideal for dark areas of the station.

Elegant solution – and the next step with new Axis cameras

When installing the network cameras, the experienced team encountered a hurdle typical of railway stations: "The platforms are often up to 200 meters long", reports Sven Schraven. "Beyond a range of 100 meters, the digital signal is no longer adequate and must be amplified. We solved this by placing a range extender inbetween." By 2014, Ruf will have equipped the remaining railway sections to Zermatt and Disentis with customer information systems. "To simplify the overview in the control center further, the new network cameras should all point in one direction", says Schraven, explaining the concept. MGBahn will be relying on Axis P13 Series Cameras with up to 5 megapixel resolution, which easily cover even very large areas of the station. Since these network cameras have multiview streaming, if necessary several detail areas of an image can be defined and zoomed. Video monitoring is also planned for the new MGBahn cars.

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