

PS.SPEICHER

“Our task was to refine the video-audio solution designed by PS.SPEICHER and the KBI engineering firm, integrate it into the design of the exhibition, and overall to come up with an application that works reliably and is easy to operate. For this, we combine network cameras from Axis with video analysis software from Aimetis, along with the specially developed audio modules.”

Hans-Wilhelm Balsen,
SPIE Fleischhauer GmbH



Customer Profile

Location: Einbeck, Germany

Application: Safety and security, loss prevention

Partner: Axis Communications, SPIE Fleischhauer, keydel bock ingenieure gmbh

Mission

On six floors, in eight halls, the former granary in Einbeck contains a number of exhibits on the history of motorized transportation. The exhibit's core objective is to make technology understandable and to let people experience it barrier-free. For this reason, the exhibits are neither behind glass nor velvet ropes, but are in the middle of the exhibition space and freely accessible to visitors. Despite this openness, the exhibits' security must be assured without deploying a large number of security personnel.

In July 2014, the city of Einbeck, in northern Germany, opened the PS.SPEICHER exhibition experience. The museum is unusual for many reasons. The motor vehicle exhibits are unique, the location in an old granary is impressive, and the museum's design relies on proximity of the visitors to the often irreplaceable items shown.

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Overall, the grounds cover about 25,000m², and PS.SPEICHER is the architectural core of the exhibition. The 1898 former granary has been expensively and faithfully restored and now has six floors that are perfect museum space. The exhibits were collected by Einbeck businessman Karl-Heinz Rehkopf in barely six decades. Now PS.SPEICHER contains the world's largest collection of German-brand motorcycles and more. And one thing is especially important to the donor of the items. They should not appear behind glass or security markers, but bring the history of motorized transportation back to life in the middle of the museum. But how can this idea be reconciled with the security precautions needed?

This was the challenge faced by Jörg Weber, head of security and IT for the granary cultural foundation. How could a video security system be realized within these spatial and cultural conditions without ruining the esthetics of the rooms? The goal was an interaction of video, audio and analytics to allow visitors to experience the historic exhibits, but also to protect the items.

A unique solution: One system housing combines audio, video and analytics

SPIE Fleischhauer GmbH developed a system housing in which the network cameras, the sensors and an audio module, including speakers, can be connected together.

Because this was an old half-timber building that was under historic protection, the housing had to be installed with extreme care. The housings that SPIE Fleischhauer GmbH developed can be latched into the existing running rails. Thanks to Power over Ethernet (PoE), electricity is supplied through the existing data cable.

The housing and cameras are lacquered black and go outstandingly with the museum's spatial design. Only a small green ring reveals that a security camera is in use. The cameras are installed directly over the exhibits.

A horn and a friendly voice

If someone gets too close to an exhibit, a clearly understandable audio file plays. And a little fun comes with it: Depending on the exhibit, this could be accompanied by horns, sirens or even the typical sound of the exhibit items.

Solution

To monitor the exhibits, reliable technology had to be found — one that was unobtrusive and that went well with the building's historic architecture and the exhibit design. To meet this challenge, Aimetis GmbH used a network camera with specially configured video analysis. A security camera is located with it, and a speaker in a specially designed housing.

Result

The combination of video, audio and software was specially developed for PS.SPEICHER. Video analysis allows the exhibits' contours to be monitored. What is special is that visitors can approach within a few centimeters of the pieces exhibited. If they pass this security perimeter, an audio file plays. This varies with the historical era shown in each space — it could be a horn or bell signal. In a charming but effective way, this lets visitors know that they have come too close to an exhibit.

The process behind it shows perfect coordination of the camera, analysis software and speaker. “Symphony” software from Aimetis is behind the analysis of the exhibits and the visitors who come too close to them. The software runs on a central computer and analyzes the incoming video streams in real time, adjusted for each exhibit. But there is something special here too: The defined security area around the exhibits can be understood as a mask that follows their contours at a small distance. Normally a wide zone is drawn around the exhibit, and when it is entered, an alarm is set off.



So it doesn't matter if a person is 20 or 50 centimeters away. With the flexible security zones, now even the details of the exhibits can be viewed close up. However, if the boundary is passed — the zone defined for analysis — the speaker and custom announcement come into play.

Additional security is provided by the PTZ cameras installed in each room. Anytime an event triggers a voice announcement, a movable camera automatically swings toward the predefined area and shows it to security personnel at the control station. Security personnel can take a picture of the situation and decide whether on-site intervention is needed. The control station is the monitoring center where the recordings from all cameras in all rooms come together on the monitors.



Economic advantages

Visitors appreciate the unobtrusive security concept and find the recreated historic horn and bell signals unique. The friendly announcements over the speaker are also well received. Moreover, the innovative interplay of audio, video and analysis also offers economic benefits.

The expansive areas and somewhat winding exhibition spaces would require more than 10 security guards at the same time. This was an enormous cost issue for the museum and would have been an extreme burden.

Only the symbiosis of intelligent technology paired with the right custom personnel concept made it possible for PS.SPEICHER to create the unique experience of a museum without borders.

Thanks to the analysis software, the personnel burden is no longer necessary, and the system automatically receives an alarm. Security personnel at the control station can see at a glance what is happening where and decide on what to do next. Naturally, data protection is important. The cameras do not record the live view — they only save the video data as documentation if there is an incident.

