CASE STUDY

Video encoders and decoders from Axis facilitate the transition to digital surveillance systems.

Ruukki is modernizing the surveillance system at Raahe, its Finnish plant.

Organization:
RUUKKI

Location:
Raahe, (Oulu), Finland

Industry segment:
Industrial/Manufacturing

Application:
Safety and security, process control

Axis partners:
Noatek, Mirasys, EET Nordics

Mission

Finnish company Ruukki Metals, a part of Ruukki Group, produces, processes and supplies metal-based solutions to the construction and engineering industries. Ruukki Group has 11,700 employees and operates in 27 countries. The company's headquarters are in Helsinki, and the net sales amount to approximately EUR 2,400 million. The production processes and the planned area are monitored from several control rooms by cameras. The older analog surveillance systems had reached their maximum capacity and needed to be modernized. There was also the need for better picture quality and the possibility of intelligent features in the cameras.

Solution

The analog systems had been upgraded to their absolute limit; but replacing all of the cameras at the same time was not an alternative. Both due to cost reasons and because surveillance must be kept operating around the clock, seven days a week. The solution Ruukki Metals chose was to install video encoders and decoders during the transition phase to be able to modernize the systems and to achieve the benefits an IP-based solution provides; a scalable system, cost efficient with possibilities to add intelligent functions. The solution can be compared to a virtual video matrix that has a simple user interface and the advantage offered by an IP system of being able to grow indefinitely. The video encoder converts the camera's analog signals to digital. The video decoder makes it possible for the monitor or the TV screen to display the images.

Result

In 2010, Axis partner Noatek began with the installation of Axis video encoders and decoders. The project is expected to last for ten years and eventually, all analog cameras will be replaced by network cameras and the entire surveillance system will be IP-based. Calculations show that Ruukki will save 50% of the cost by replacing the analog matrix systems in favor of video encoders instead of installing additional analog matrix systems to cover its needs.

AXIS COMMUNICATIONS

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"Axis Communications' solution with video encoders and decoders, allows us to modernize our camera system at the same time as round-the-clock surveillance is maintained. We also find it positive to be able to replace our analog cameras over a period of time. It is too large an investment to replace the cameras before the end of their working life."

Juha Korpela, Technical Expert at Ruukki.

Why cameras in production?

Ruukki's largest steel mill in Finland is located outside Oulu, south of Raahe. The mill primarily produces and refines hard steel for the automotive industry. Iron ore is taken from several different mines, including Kiruna, and each year 800 ships, 55,000 trucks and 30,000 rail wagons arrive and depart to and from Ruukki with loads which contain iron ore and processed steel.

At Ruukki's plant in Raahe, surveillance used to be carried out by people who were often working in exposed and dangerous situations. Crane operators controlled their cranes from a crane basket. Today the crane is controlled from a control room with a camera filming what is happening from the basket, which makes the workplace a lot safer. The cameras are used to keep an eye on what is going on in the production line, for example, to see if a transportation line is empty or full. The cameras are also used to monitor Ruukki's facility. The department working with video is responsible for all areas within the plant and consists of about ten people involved in the maintenance and planning of surveillance systems.

A major project

Planning of the new surveillance system began in 2009 and installation started in 2010. The installation of the video encoders and the new IP cameras will continue over the next few years. As of today, one of the 40 control rooms is equipped with the new system. Over 100 Axis video encoders are installed to transform the analog camera streams to IP. The models used are AXIS 241S (single channel) and the rack-mounted AXIS Q7406 Blade (six channel). A simple custom user interface has been developed to monitor live video which completely replaces the old matrix technology. Instead of each monitor being connected to a PC, Axis video decoders are used.

Benefits of decoders

Video decoders are also used to display video on large screens in the control room. They were chosen because they are easy to control from the proprietary software and so that the number of PCs with software in the system can be minimized. This improves the stability and in addition, they continue to display the video even if the software in the PC system is updated. Overall, this provides a very stable and simple platform. For continuous recoding, Mirasys' video management software can be used. "Being able to update the software without interrupting the video display is of the utmost importance to us. Using decoders makes this possible," says Juha Korpela.

Cost-effective system provides high image quality

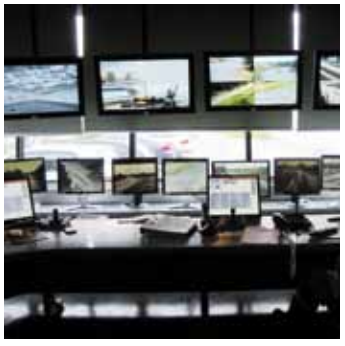
Calculations show that Ruukki will save 50% of the cost by using video encoders instead of installing additional analog matrix systems to cover its needs. Most of the work can also be done indoors, which saves time and money as the climate in Oulu is very severe. Another advantage is the improved video quality which the new IP cameras and the stored images from the old analog cameras offer. "The video encoders provide a new lease of life to the analog cameras. The future really is IP," says Antti Nousiainen from Noatek.

Testing the use of thermal network cameras

Cameras can be used in many areas in this type of industry. Among other things, Axis thermal network cameras have been tested and are now being used to further enhance the safety of the plant. Thermal cameras monitor the dangerous gas which is emitted when steel is melted to make iron. The gas cannot be seen with the naked eye and it must be burned as soon as it comes up into the chimney. The cameras monitor the process.

Models for the future

The project at Ruukki's plant in Oulu is in full swing and tests have begun with several different IP cameras. The climate and the extreme circumstances that prevail at the plant in Oulu place high demands on product quality. The AXIS Q60 Network Camera Series is used for area surveillance and thermal cameras are used to detect fires and gas. In the future it will also be possible to install so-called "low light" cameras in the ovens.



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