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# New surveillance equipment adds to mining efficiency

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10th September 2010

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Axis Communications South Africa country manager **Roy Alves** says that mines have traditionally been receptive to video surveillance technologies, particularly to enhance perimeter security systems. However, advancements in video surveillance technology offer a new range of services to increase mine production and protection.

He explains that the company supplies digital video cameras that are controlled through the Internet. "This dramatically increases the functionality of the cameras. We have moved beyond mere analogue video footage being broadcast to a control centre. Cameras are playing an increasingly important role in the management of mining systems and controls," Alves says.

Through video motion detection, mines increasingly use cameras to monitor the flow of products on conveyor belts, especially if products are transported over long distances. The cameras, connected to an integrated equipment control system, are programmed to look for a specific product, or its absence, such as when a conveyor belt has broken. The camera will prompt an alarm and the operation is stopped.

Further, Alves reports that mines also increasingly use digital cameras for equipment surveillance in yards. The video motion detection function is also used to monitor primed blast sites, just before blasts take place, to ensure that there are no lives in danger.

Through the programmable motion detection capability of the cameras, various types of alerts can be automatically generated to notify management of any abnormalities. This may entail sending an SMS or email alerts, or through any other system. Escalations in the emergency contact list are also possible, such as when the primary contact does not respond to the initial alarm, enabling other employees to take action.

Alves adds that the company is also currently looking at making the cameras able to focus on sound to monitor machinery performance.

Further, for increased security at night, Axis Communications South Africa also offers thermal imaging cameras. The cameras can 'see' heat up to 300 m in darkness and can incorporate video motion detection for increased security.

"Our equipment is developed and built to military requirements, enabling mines to benefit from high-tech equipment," he adds.

The company reports that its cameras each receive a unique IP address, enabling operators to communicate with and control each camera individually. The cameras are connected through a wireless network that is broadcast by microwave dishes, or transmitted by leaky-wires underground, to form a mesh network.

Further, the equipment carries an IP 66 rating, meaning the stainless steel camera casings can protect equipment from the often harsh and destructive mining environment. Alves notes that the cameras can operate under extreme temperatures down to -40 °C, while units operating in Africa are equipped with cooling fans and micro dust filters.

Further, the cameras are available with optional outdoor housings with cleaning mechanisms comprising of a wiper motor blade and liquid spray to provide clear images in adverse environments.

Alves says that the advantage of using digital equipment, when compared with old analogue equipment, is evident in the quality of the images seen in the control room. "With analogue equipment, there was a certain degree of quality lost through the transmission process. There was also no possibility to enhance the functionality of cameras, or even control its movements from remote locations," he says.

With the digital camera networks, operators are able to access and control cameras from laptop computers or mobile telephones from anywhere in the world. With telemetric functions, other mining equipment may also be remotely controlled.

Video footage can also be stored on computers for later analysis. One camera requires about five gigabytes of hard drive space for each day it records and systems can be configured to record in 30 day cycles, continuously recording over the last day's information.

Further, Alves points to a feature where memory cards can be inserted into the cameras, so that they can still record locally on the camera, even if the network is not functioning. Information may then be retrieved at a later stage.

Another important feature is the ability to shape the quality of the image received, from high definition to low quality, to suit the available bandwidth of local Internet networks.

"The company is now focusing on developing a function to automatically count products. The technology is still in the development phase, but may help to increase control of products in warehouses, and may also allow for incoming and outgoing trucks to be accurately counted in the near future," Alves concludes.

Edited by: **Brindaveni Naidoo**



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MOVEMENT DETECTION Digital surveillance video cameras are able to detect motion, or the lack thereof, to help monitor conveyor belts



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THERMAL VISION Axis Communications South Africa supplies mines with thermal cameras to enhance perimeter surveillance at night


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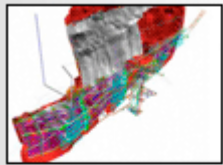
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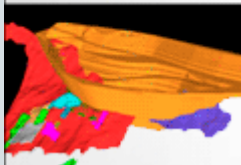
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