

Technology keeps cameras rolling in Rangiora

The installation of an upgraded Waimakariri District Council Wireless Street Camera System in Rangiora provides a snapshot of how advances in technology can revive the effectiveness of older closed-circuit television surveillance systems.

Waimakariri District had an existing analogue CCTV system located on the main street in Rangiora. The system was controlled from the local police station and monitored by a group of volunteers. The main objective of the existing – and the new system - was crime prevention. However, the older system suffered from the following issues:

- limited storage capacity - i.e. the number of days recorded
- the difficulty of removing video footage onto portable media, i.e. a CD ROM for evidential purposes
- the recorded video was of poor quality, mainly due to video compression. Also the number of frames per second was low compared to today's standards
- the analogue wireless network suffered from regular outages, caused partly by environmental changes and hardware failure
- there was no room to expand the system or add additional cameras in the future
- the system was not intuitive to use, and some volunteer operators could not use the system to full advantage.

The WDC approached Retail and Industrial Surveillance Company (RISC) to design and implement a new generation wireless IP camera system.

RISC's Peter Moore says the council has a strong internal IT team and this enabled the council to understand the product from a technology perspective as well as assist with the design. RISC, along with a wireless network specialist, designed a system to overcome the current issues and provide many new features. The objectives were to design a wireless network that provides coverage around the town centre. The network needed an element of fault tolerance as well as being able to provide high-speed network connectivity.

"With the wide area of wireless coverage, this allowed us to place cameras in critical areas around the town centre. Also, additional cameras could be added in the future – something the existing system could not accommodate," says Mr Moore, who lists the main features that were required:

- provide a more user friendly interface for the camera system so that anyone could easily learn how to use the system
- have sufficient storage capacity to enable video images to be stored for around 1 month
- supply higher-specification cameras to provide better quality images in both day and night

- ensure the system had simple archive methods, that would allow police or volunteers to easily remove or store critical video events design a system that can be expanded in both the number of cameras as well as storage capacity.

“The recommended system was based on a product called Milestone (www.milestonesys.com) This software manages the monitoring and recording of the cameras. The software is a windows-based package and so provides an easy-to-use interface that is familiar to any computer user,” says Mr Moore.

“The physical camera hardware is manufactured by Sony (model RX550). These cameras are PTZ or Pan Tilt Zoom cameras that can be moved on demand by the volunteers at the police station. The cameras are also configured to ‘patrol’ the area on a preset tour. This means the cameras move to predefined positions when unattended.”

Mr Moore says the control equipment is located in the same location as the older equipment in the police station.

“As physical space was an issue we specified the use of 3 LCD monitors rather than larger CRT monitors. This saved on space as well as improving the aesthetics and ergonomics of the work area.”

Advantages:

- easy to use windows interface - users can easily view live images, control PTZ cameras and view recorded video
- the number of recorded days increased dramatically over the old system
- the new wireless network allowed cameras to be located in ‘trouble hot spots’ around the town
- the system is linked to the WDC IT network which allows for remote administration.

Problems:

- wireless interference from other wireless networks around the town - because the system is based around an ‘unlicensed’ frequency it was difficult to manage interference. This was overcome with the use of specific antenna designs
- time frame – the existing system was only functioning around 30 per cent of the time, this put pressure on the installation team to get it in and working in a limited time frame
- locating the cameras in their best vantage point is always difficult as there are many obstructions in the middle of a small town. Trees, Power poles, potential building sites etc
- because of the location of the cameras and wireless equipment, a large amount of hardware had to be installed on buildings that are not owned by the council. In each case the owner of the building had to be approached and asked if the equipment could be located on or in their building. Immediately they could see the obvious advantages of having a street camera system located on their building, they were very co-operative.

