



Case Study - Airport ANPR

Automated Number Plate Recognition: Airport Security

Requirement

Provide a secure wireless communications system featuring high data bandwidth with compressed video streams in a compact design.

The Solution

The planning and implementation of an integrated system utilising WiSystems units. The unit deployed on the terminal building are specially modified and are an example of the type of engineering that can be deployed rapidly to solve operational issues.

The purpose of the system is to ensure that all vehicle number plates can be read and identified on any of the approach roads to the airport complex.

The use of various methods of installation and communication were investigated, but due to the large area to be covered and the congestion problems that would occur if implementing traffic management or road closure during installation, the decision was taken to implement radio based wireless communication infrastructure.

Successful trials utilising WiSystems equipment were conducted, the choice being based upon WiSystem's ability to provide high data bandwidth with compressed video streams. Size was also a major consideration as the authorities proposing the deployment wanted to minimise the visual profile of the radio units.

The deployment consists of 28 ANPR cameras and WiSystems radio units. All images are relayed back to the police station located on the perimeter road. These radios either link directly to WiSystems base stations located on top of one of the terminal buildings, or repeat via secondary radios located along the perimeter roads.



The repeaters are located on lamp posts, the height of which are no more than 4 metres. The radio is therefore focused along the roads and avoids crossing the airport complex. The ability for the WiSystems radios to perform in such locations is primarily due to the excellent multipath handling capability provided by the system software. Multipath is the effect of echoes that occur when an RF signal is reflected by moving vehicles, local buildings and the road surface, as a consequence of the low mounting position on the lamp posts.

All video streams are processed simultaneously and beamed towards the WiSystems base stations on the terminal roof. At this location, there are a number of base stations, each one receiving images for the satellite units positioned with the ANPR cameras based on geographic sectors. The base stations are in turn interconnected via a LAN infrastructure to a final link which transmits all combined data from the terminal roof to the airport police station.

Security

Following installation, local police services undertook a full security survey of the operational aspects of the ANPR system.

During this survey, conducted over a period of two weeks, the police were at no time able to alter transmitted images or block the system.

WiSystems units transmit data using inbuilt security handling by compressing data, stripping all normal IP packet information, encoding that information and creating a 'RF transmit' that effectively streams the data. To outside RF 'sniffing', the data would not be identified as a Wi-Fi style transmission and under RF interrogation would not exist as packet transmitted data.