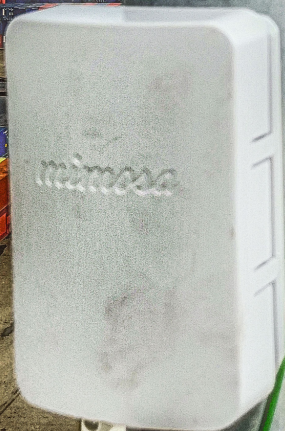




WIRELESS CCTV SURVEILLANCE

OVERVIEW



Located in the state of Penang, Peninsula Malaysia, Penang Port is the oldest and longest established port in Malaysia. It is the third busiest harbour in Malaysia in terms of cargo as of 2017, handling 1.52 million TEUs of cargo, as well as the busiest port-of-call within the country for cruise shipping.

Security plays an utmost important element in this busy port. They have approximately 256 units CCTV cameras for port surveillance system within the port. Some of these cameras are located on top of quay cranes. Connecting all these cameras together using cable is challenging due to its complex environment. The effective solution is using wireless technology to link all these cameras together.

To implement this, Penang Port has selected Mimosa Networks Point to Point and Point to Multipoint fixed wireless infrastructure to connect these cameras. Deployment using Mimosa wireless technology not just saves time and cost but more importantly the ability to set up cameras at remote areas where cable cannot reach.

OBJECTIVES:

Fulfilling their surveillance and security initiatives, Penang Port wireless CCTV surveillance solutions are designed based on the following objectives:

- The new CCTV surveillance system network at Penang Port must be robust and foolproof with redundancy backup without single point of failure
- Connecting surveillance cameras across sea waters without cables both at Penang Island and Seberang Perai mainland
- Using high capacity Gigabit wireless backhaul to cater for existing cameras and future expansion
- The infrastructure must be able to support state-of-the-art surveillance cameras with facial recognition and other crucial surveillance applications

THE CHALLENGE

Few challenges were presented during the initial discussion with customer in relation to the deployment of the wireless surveillance network:

- **Complexity** - Connecting more than 256 units HD cameras using wireless technology within the port poses great challenge especially mitigating radio interference
- **Obstructions** - Cameras are located in various locations and distances including quay cranes top and across sea waters poses difficulties in getting stable connectivity
- **Scalability** - Traditional wireless radio have low throughput capacity and unable to scale for future expansion
- **Manageability** - Large scaled wireless deployment requires an easily designed and management NMS system



THE SOLUTION

With such a large number of surveillance cameras' requirements yet having limited locations to lay cables, the fast and practical approach to solve this is using total wireless network infrastructure. A combination of different Mimosa radios were being deployed:

- Mimosa high-capacity wireless solution eliminates the need to lay physical fibre optic cables. The high-capacity wireless radios provide up to 1.5Gbps Point to Multipoint wireless network as well as Point to point backhaul on the 5GHz unlicensed band spectrum.
- To eliminate radio spectrum congestion, Mimosa B24, a 24GHz license free point to point backhaul radios that provides up to 1.5Gbps capacity were deployed as main backhaul. 24GHz channel is less congested allowing full utilization of the spectrum effectively.
- C5x CPE radios were deployed giving up to 600Mbps capacity to each camera. This flexible and cost effective radios allow quality images that require high bandwidth to be transmitted without dropping the performance



THE RESULT

With the high capacity Mimosa wireless solution deployed at Penang Port, the objectives are achieved with much lesser investment cost. Besides cost, the entire project deployment time took only less than two weeks to complete.

This project has exceeded customer's expectation. The excellence performance of Mimosa's wireless solutions fulfilled both Penang Port's current and future infrastructure requirements for CCTV surveillance needs.

Customer: Penang Port, Malaysia

Location: Penang, Malaysia

Applications: Wireless CCTV surveillance

Products deployed: Mimosa A5c Base Station, B24, B5c backhaul and C5x CPE

The Mimosa logo is written in a stylized, orange, cursive font.

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