



Taiwan Railway Administration (TRA) Streamlines Rail Travel with AlertWerks Solution

BACKGROUND

Taiwan Railway Administration (TRA) just celebrated its 130th anniversary. To provide safe and reliable transportation services to all passengers and employees, TRA decided to upgrade their data center remote monitoring system.

The railway has more than 60 data centers next to the major train stations, separated into 4 sections: Taipei section, Middle Section, South Section, and East Section. This project covers the Taipei section with 18 data centers.

CHALLENGE

We all want to be safe when we travel, protected from excessive heat and humidity, and possible mass human tragedies caused by fire or smoke. Timely notification of errant conditions is of the utmost importance when it comes to protecting human safety. Businesses in the transportation sector also want to safeguard restricted work areas from unauthorized trespassers. The same businesses also strive to secure equipment against malfunction and keep employees safe, while also maintaining timely, efficient, and cost-conscious routing of passengers throughout the transportation system.

Taiwan Railway Administration shares these business challenges. However, monitoring environmental conditions for public safety in the transportation sector can be a difficult task without the right equipment. Many sensors that monitor temperature, humidity, smoke and fire, and door access exist on the market today, and not all of them deliver state-of-the-art results. To keep pace with changing industry benchmarks, improve employee workflows, and deliver a superior customer service experience, Taiwan Railway needed to upgrade their older PLC System that used I/O modules and customized software to monitor environmental conditions.

Problems with the existing system were numerous: the system over time proved to be difficult to modify and maintain. It could not integrate with other systems or devices such as IP cameras and networked devices. Because all the signals were concentrated into RS-485, the sensor response time was slow. The system did not have a flexible notification algorithm and sent too



CLIENT:
TAIWAN RAILWAY
ADMINISTRATION

REGION:
TAIWAN

INDUSTRY:
TRANSPORTATION/
RAILWAY

SOLUTION:
REMOTE MONITORING
SOLUTION/ALERT-
WERKS EME144A-R2
AND RELATED SENSORS.
ACCESS PRO CENTRAL
MANAGEMENT SOFT-
WARE.

SERVICES :
HARDWARE INSTALLA-
TION AND SOFTWARE
CONFIGURATION, MAIN-
TENANCE.



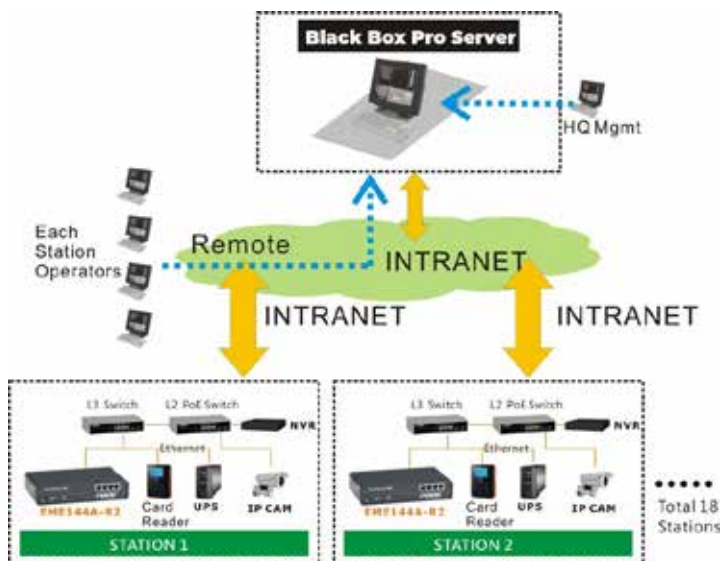
CHALLENGE (CONTINUED)

many false fault alarms. The system was only manageable via programming – it did not have a GUI interface.

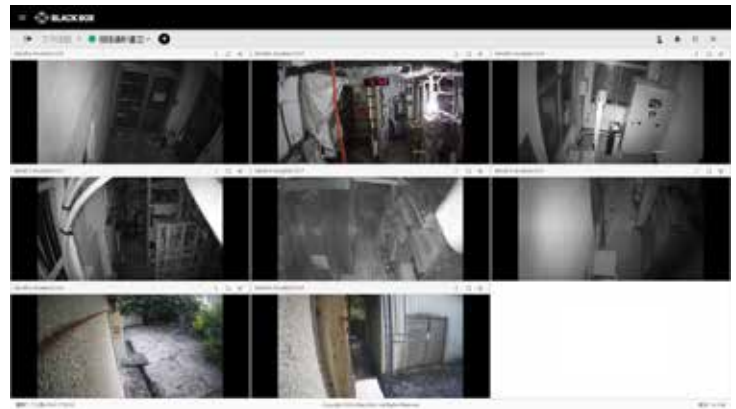
The railway's existing remote monitoring system was more than 10 years old, and some of the hardware was damaged, plus the software was out of date. Because the existing system used customized software, the railway could only go back to the original supplier if they wanted to fix the existing hardware and software. TRA did not want this kind of proprietary software for their new solution. The customer turned to a Black Box reseller to find a new solution, and the reseller recommended the Black Box AlertWerks Wired Monitoring System.

SOLUTION

Black Box answered the call to protect travelers and employees who use and work with the Taiwan Railway, keeping them safe, secure, and on time. Deploying AlertWerks Wired Monitoring System sensors helped the railway overcome its outdated environmental monitoring shortcomings. To address the railway's request for a system that needed to be easy to modify and maintain, Black Box engineers selected the AlertWerks ServSensor V4E Lite hub. The hub enables the railway to monitor environmental sensors and SNMP devices in one seamless remote monitoring system.



The eighteen control rooms have an identical setup. In each control room, up to eight intelligent sensors plug into the hub's RJ-45 ports that automatically configure and go online, ready to report any status change. An expansion hub adds more sensor ports to go beyond the main hub's limit of eight ports. Dual temperature/humidity cable sensors (four in each control room), smoke detector sensors (four in each room), and door access sensors (one in each room) made the monitoring system affordable. Additional third-party components rounded out the deployment. The entire system is managed by a GUI-enabled software program, so it's easy for administrators to initially configure and for all



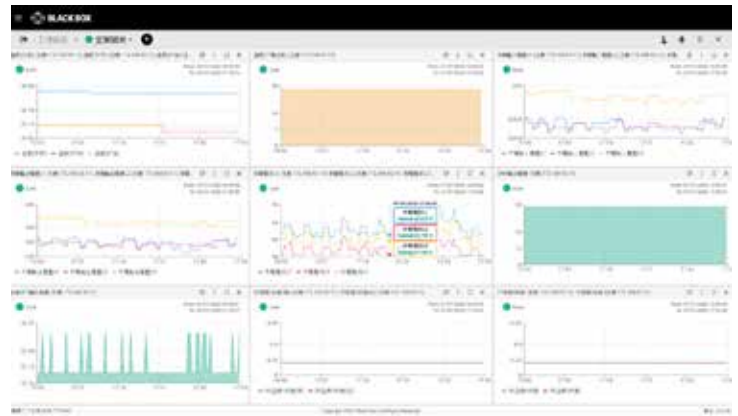
The new system integrates with other systems or devices such as IP cameras and networked devices, and the sensor response time is instantaneous. The system also eliminated the problem of false alarms.

The AlertWerks embedded system is architected to provide more reliable, secure operation. It complies with industry standards, such as Modbus and SNMP. Expanding hardware and software is simple, and an intuitive GUI interface is easy to set up, operate, and maintain. The system's distributed architecture can be centrally managed and supports multiple languages.

The Black Box solution gave us a flexible system that we can expand or change easily when we change our IT infrastructure facilities, for example, when we add a UPS or Air Conditioner. We can just change the configuration or wiring in a minute to monitor the new devices. Also, the whole system is easy to maintain, with no need for professional training, so anyone with basic network knowledge can configure and maintain the whole system. We are especially happy that the system can support our local language with a user-friendly interface.

Mr. Chen Qián fú
Manager of Electricity section





RESULTS

With the Black Box solution in place, Taiwan Railway is proud to offer its passengers and employees an environmental monitoring system that they can trust to keep them (and all relevant equipment) safe and operational before, during, and after a railway trip. The new system supports the latest industrial standards, including Modbus and SNMP. The company was pleased that the system supports a user interface (UI) delivered in the local language and managing user rights is flexible. The simple UI enables anyone to easily monitor each server room's real-time sensor status

without special training. Instantaneous alarms guarantee that the operator is notified of any environmental hazards immediately. The affordable system is easy to expand or change, especially when IT infrastructure changes, for example, when new UPSs or air conditioners are installed. The new system protects passengers and staff, improves employees' workflows, is easy to manage, provides a user-friendly GUI in the local language, and positions the railway for future growth.

