

Customer: Vietnam Expressway Corporation

Vietnam

System Integrator: ACIT

Modern infrastructure monitored by PcVue

Supervision of Truong Vinh Tunnel in Vietnam

Project context

Officially open to the public in September 2023, Truong Vinh tunnel is part of the North – South expressway project with a total length of 450m. It is a strategic, USD 193 Million, public investment, providing an economically strategic road link, between Thanh Hoa and Nghe An provinces.

It is a double boreholes conduits tunnel, each with 3 lanes and 14m wide, designed for driving speed of 80km/hour present and 120km/hour future.

The importance of efficient tunnel management and supervision

Efficient tunnel management and supervision are essential to ensure the safe and reliable operation of modern tunnel infrastructure. A Chau Industrial Technology JSC, (ACIT) was awarded the contract for the Tunnel automation system and elected to use PcVue SCADA software solution to control substations, generators, low-voltage panel cabinets, and various sensor technologies.

In the case of the Truong Vinh Tunnel, the complex nature of this transportation conduit demanded meticulous monitoring. PcVue provided a SCADA system installation, that allowed efficient Tunnel Management.

TECHNICAL POINTS

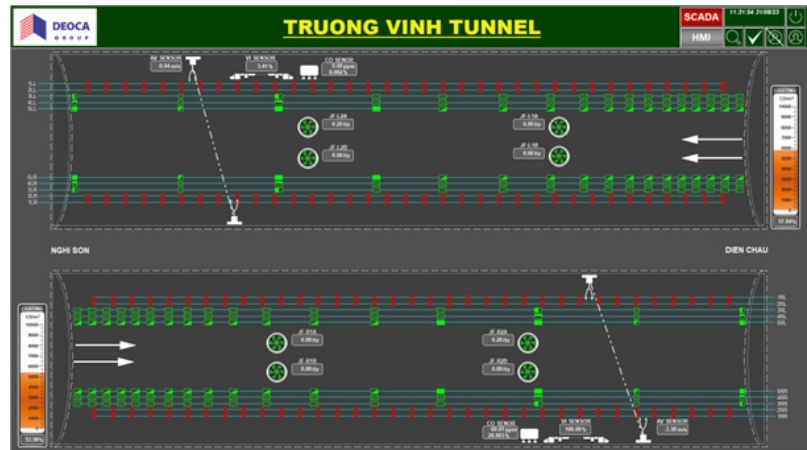
- ✓ 65,000 tags
- ✓ Hot-Standby redundant servers
- ✓ Modbus TCP and Siemens IP-ISO S7 protocol
- ✓ Open architecture concept for feature evolution



Ventilation, as a fundamental aspect of tunnel safety, is intricately monitored through the SCADA system. The ability to dynamically adjust airflow in response to changing traffic conditions is vital for maintaining air quality and visibility within the tunnel. Real-time ventilation control ensures that travelers experience a comfortable and safe journey.

Furthermore, PcVue system oversees the electrical distribution, particularly managing medium and low voltage components. Lighting is a critical component of tunnel safety, and the SCADA system provides the capability to control and monitor lighting in real-time. This not only enhances visibility but also contributes to overall safety and energy saving.

The traffic panels managed by the SCADA system are dynamic and responsive, providing up-to-the-minute information to drivers. This feature optimizes traffic flow and ensures an efficient and stressfree journey through the tunnel.



Emergency response also relies on the SCADA system, using visibility sensors to detect accidents or incidents in real-time, facilitating swift responses by emergency teams, thus contributing to improved safety for all tunnel users.

Technical specifications

The successful implementation of the Truong Vinh Tunnel project's SCADA system relied on precise technical specifications, carefully tailored to meet the unique demands of this tunnel infrastructure.

The system utilizes 2 Hot-Standby redundant servers and 2 surveillance operator stations, ensuring uninterrupted tunnel operations even in the event of system failures, maximizing uptime and safety.



The open standard SCADA system communicates using industry standard protocols such as Modbus TCP and Siemens IP-ISO S7 protocol ensuring future interoperability with any automation equipment manufacturer. Today the system already monitors above 20 000 parameters and could allocate up to 65 000 tags in the future thanks to its open architecture concept.

“This project is the result of efforts from our engineers and very effective support from PcVue’s technical support team. On behalf of ACIT, I would like to thank PcVue and the entire technical support team.” Chinh Mạc Văn, Expert, R&D Department - Power Transmission & Distribution Board at ACIT.

Results

User comfort is assured in terms of traffic flow and visibility

Traffic flows smoothly and problems are anticipated

In the event of an accident, emergency services can intervene rapidly

PcVue monitors and controls

- *1 transformer 35/10/0.4 kV, capacity 630kVA*
- *1 generator 0.4kV, capacity 660 Kva*
- *12 low voltage cabinet*
- *Sensors such as Carbon Monoxide, Visible Light, Air Flow Direction*

Close collaboration between ACIT and PcVue team ensuring a very fast implementation within just one month

Project ready for future evolutions

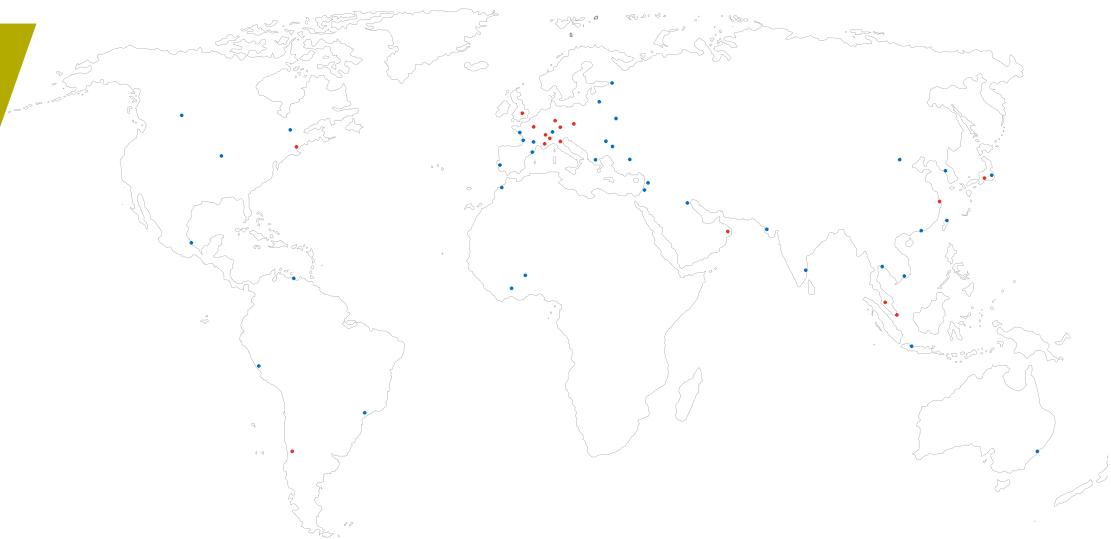


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