arsenal research

Application Report

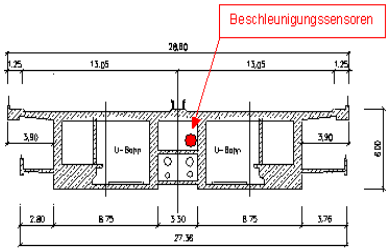
Arsenal Research

Permanent Monitoring of the “Reichsbrücke” bridge in Vienna

On a Sunday morning in August 1976 the Vienna Reichsbrücke was destroid by a natural frequency oszillation. The bridge was built up 1937, so the age was only 39 years. A new bridge was built to lead the automobile trafic and the rail way of the metro. To avoid such dramatic situations at the new bridge a monitoring system has to be installed to monitor permanently the condition of the bridge.

Old bridge

New bridge



Cross section

The whole monitoring system was developed by the Gantner partner company **Aplica**.
Four requirements leads to the decision to use e.bloxx modules:

- Decentralized structure of the measuring units because of the long distances and the very small signals (strain, temperature, acceleration).
- Synchronized (20 µs) measurement and acquisition of the signals to detect interrelationships of the signals.
- Rough environment conditions and high degree of reliability.
- Conditioners to measure 12 accelerations, 4 strain gauges and 6 temperatures.

The single modules are connected via long distances to an e.gate. A Linux server collects the data and transfers the results via Internet to the monitoring system. For the data acquisition the Aplica software Green Node is in operation.

Due to the fast LocalBus which connects the module to the e.gate and due to the synchronisation with a max. jitter of only 20 µs, first time a bridge monitoring system can be realized by the use of fieldbus technology.

Exclusive for this bridge project a homepage is installed: www.reichsbruecke.net

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