SUCCESS STORY

DALLAS SELECTS LOADSENSING FOR WIRELESS CRACK AND TILT MONITORING++

COUNTRY:

United States of America

SECTOR:

Cities & Goverments

PROJECT TYPE:

Construction site monitoring

MAIN PRODUCT:

Loadsensing

loadsensing

WORLDSENSING

Challenge

The Katy Trail is a jogging, walking, inline skating, and bicycling path that runs through the Uptown and Oak Lawn areas of Dallas, Texas, following the path of the old Missouri‐Kansas‐Texas Railroad, which was formally known as MKT or the Katy.

The construction work to convert the unused 3.5 mile long railway track into a hiking trail took place between 2000 and 2007. Since its completion, the hiking trail has seen serveral expansions and is currently undergoing a final extension. The new part is 0.65 miles long and will include 2 pedestrian bridges.

The project requires unique engineering and structural monitoring approaches due to the fact that one of the bridges over Mockingbird Lane sits atop a DART tunnel. To push the bridge foundation away from the tunnel, a cantilever suspension bridge design had to be utilized . This step is crucial to monitor movements across the existing cracks in the tunnel lining and the rotation of the retaining structure.

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Loadsensing monitors cracks and structure's equilibrium using a wireless star network to automatically collect data from VW and MEMS sensors.

ADVANTAGE

- 20 VW crackmeters
- 11 uniaxial MEMS tiltmeters
- 11 LS‐G6 Analogue Datalogger 4channels
- 5 LS‐G6 VW Datalogger 5 channels
- 1 LS‐G6 FCC Gateway

Solution

The instrumentation and monitoring scheme was designed and carried out by HNTB and Rebcon Inc.

Our NJ partner, Specto Technology, supplied crackmeters, tiltmeters, our Loadsensing LS‐G6 wireless data units and gateway. Specto Technology used the Argus software and provided technical support to Rebcon Inc. related to the installation and commissioning of all automated instruments.

The deployed Loadsensing system consists of one gateway, 11 nodes for the MEMS tiltmeters and 5 nodes for the VW crackmeters. It also includes 92 prisms that were installed in and outside the DART tunnel, which are monitored by manual optical surveys.

Benefits

The Loadsensing wireless monitoring system LS-G6 was selected due to its long-range radio, low-power consumption, easy implementation and its capability to function inside the tunnel.

The system automatically and wirelessly collects readings from the crackmeters and tiltmeters. It sends data to the web-based management and reporting tool, called Argus software, which also integrates manual data surveys.

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