Customer Application Story

Sports Entertainment

Phoenix Contact industrial wireless Ethernet technology creates reliable communication in Lucas Oil Stadium

Customer Profile

Uni-Systems

Uni-Systems began its business creating moveable architecture solutions for the aerospace industry over 40 years ago and recently expanded into the sports entertainment industry. The company provided total solutions on retractable roofs for several stadium projects in North America. Five major stadium projects included Uni-Systems' expertise for their designs, including The University of Phoenix, Minute Maid Park, Reliant Stadium, Lucas Oil Stadium and the new Dallas Cowboys stadium.

Summary

- Uni-Systems, a company specializing in moveable architecture solutions, needed clear communication to and from cameras and the control center on a retractable roof and a kinetic window wall with six moving wall panels in Lucas Oil Stadium, home to the Indianapolis Colts.
- Several Phoenix Contact industrial wireless Ethernet radios were installed in multiple locations within the facility to create reliable, accurate communication.

Ethernet radios with antennas monitor video from the stadium's kinetic wall

A view of the kinetic wall inside the stadium during construction

Challenge

Lucas Oil Stadium, the new home of the NFL's Indianapolis Colts, opened in August 2008. The stadium features a state-of-the-art retractable roof and a kinetic window wall with six moving wall panels.

The following issues were presented:

- **Two retractable roof panels with four cameras each, separated by at least 600 feet**
- **A window wall panel with a variable frequency drive (VFD) and an I/O module required fast, reliable communication to the control wall**
- **The stadium's steel frame and window wall blocked video signals from the cameras to the control system and between cameras**
- **A single location for a fixed radio to communicate with all six panels while the roof and wall panels moved was not possible**

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Solution

To create clear communication for the cameras on the roof panel, one main radio with 10dBi outdoor omni-directional antennas was placed on the fixed structure between the bi-parting roof panels, directly in line with one pair of cameras on each roof panel. IP54 industrial wireless Ethernet radios were set to transmit in the 5GHz RF spectrum because there is less noise interference in this spectrum.

To fix the issue with the wall panels, a DIN rail-mountable radio unit and a single 10dBi omni-directional antenna were installed on each panel for a total of eight industrial Ethernet radios controlling the six paneled walls. Two fixed radios communicate with the individual moving radios on each panel.

Outside view of the kinetic wall at Lucas Oil Stadium

Construction of the retractable roof controlled by Phoenix Contact Ethernet radios

Results

Phoenix Contact's industrial Ethernet radio solution proved a success for Uni-Systems at Lucas Oil Stadium. The kinetic window wall easily, accurately and reliably transmits data without losing line of site and without the hassle of a hardwired method. The retractable roof is monitored reliably via a streaming video feed, preventing any unwanted issues. A preliminary view of the roof can be seen through the video feed without endangering a worker for manual inspection.

Industrial Wireless Ethernet technology enables additional monitoring and control capabilities that would not have been practical using traditional hardwire methods.

For more information on industrial wireless Ethernet, visit:
http://www.phoenixcontact.com/signal-level-matching/31240_15481.htm

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