



Rogers Centre's Iconic Roof Gets an IoT Makeover

“Will the roof be open?”

The Rogers Centre opened in 1989 as the first stadium in the world with a fully-retractable, motorized roof. Composed of three moveable sections, the roof covers 8 acres, weighs 11,000 tons and reaches a height of 282 feet at its center. Although the roof had opened and closed consistently for more than 25 years, Rogers Centre engineers began to realize the legacy technology was becoming out of date and not as reliable as it once was.

“A lot of the components and parts that control and drive the roof were no longer being manufactured,” said Dave McCormick, Manager of Engineering at Rogers Centre. “What this project was about was getting this structure and the operating system back to a state where it could sustain for the next 15 to 20 years.”

To do just that, the Rogers Centre engineering team wanted a contemporary network and industrial control system that could efficiently and reliably open and close the roof while providing high availability, fault tolerance, self-diagnostics, and mobility. In 2015, a massive retrofit of the roof infrastructure was commissioned, including a new Operational Technology (OT) network and industrial control system.

Rogers Centre selected JMP Engineering and partners for the project. JMP Engineering worked in partnership with Gerrie Electric, Cisco and



Rockwell Automation to design a new, Ethernet-based solution and control system that would meet the strict safety requirements of the stadium and improve the fan experience.

“Not only did the new solution need to ensure the safe operation of the roof in winds up to 40 MPH, but it also needed to do so reliably and quickly,” said Steve Szamocki, Executive Vice President of Sales and Marketing for JMP Engineering. “To meet these requirements, we installed a secure Internet of Things (IoT) network and industrial control system built on Rockwell Automation Stratix Switches, supported by Cisco network technology, and FactoryTalk® SE system.”

The solution also included a new mechanical and electrical system, Rockwell Automation PowerFlex® 750 VFDs, a rooftop weather station and Cisco ASA Firewall. The two year, \$10-million roof retrofit project was completed in the summer of 2016 and has returned the renowned roof to its former glory. Operation of the roof can now be monitored by one person and can be completed with a 46 per cent

improvement in speed.

The enhanced functionality of the contemporary control system and OT network now provides fault tolerance, self-diagnostics, and reporting previously not available, allowing the operator an easy and quick way to troubleshoot and rectify any issues, should they arise. Cisco Industrial Ethernet switches also ensure the network remains secure and operational year-round.

To ensure the reliability of the new Ethernet-based system, the roof completed over 60 opening and closing cycles as part of commissioning and site acceptance testing, and functioned without issue throughout the 2016 Major League Baseball Playoff Season.

So what is the answer to the question on the lips of every Blue Jays fan? While the answer still lies with Mother Nature, the Rogers Centre team can now make their decision knowing the roof will perform, regardless of the weather. Play ball!

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