Customer Application Story

Irrigation and Fertilization

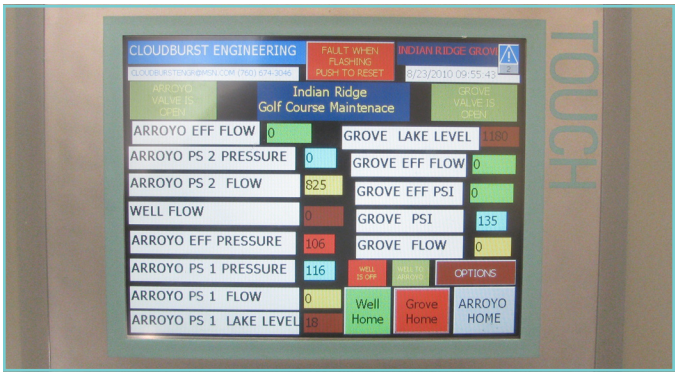
Keeping the greens green: Wireless technology links irrigation/fertilization system at golf course

Summary

- A golf course located in the desert needed a more reliable automated irrigation/fertilization system to keep the course in top condition
- By installing Phoenix Contact RAD-ISM-900-EN... radios, Cloudburst Engineering improved the reliability of the water and fertilizing pumps without interrupting golfers during rounds of play
- The new system reduced maintenance costs and improved course conditions

Customer Profile

Cloudburst Engineering in Palm Desert, Ca., is an engineering firm specializing in pump repair, irrigation, and system control. One of Cloudburst's customers is Indian Ridge Country Club, an exclusive gated community with two championship golf courses designed by Arnold Palmer. They also service several other high-profile golf courses in and around Palm Springs.



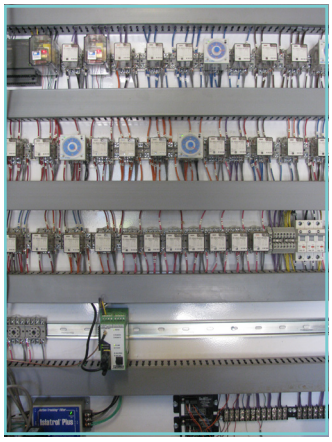
The HMI at the control station makes it easy to monitor irrigation and instrumentation status in one convenient location.

The automated pump irrigation/fertilization system keeps the course in championship condition, despite the dry desert conditions.

Challenge

Palm Desert boasts 350 days of sunshine and just 3.38 inches of rainfall per year. These dry conditions practically guarantee a sunny day for golfers, but they make it difficult to maintain a healthy course. To ensure the championship-caliber conditions that members expect, Indian Ridge needed a dependable fertilization and irrigation system.

The club already had an automated system consisting of PLCs interfacing to remote pump sites via another company's radio solution. However, the radios were unreliable due to local interference. The golf course was suffering due to inconsistent watering and fertilization. The club needed a new system, but did not want to interrupt play to dig trenches for wiring.



The master radio at the control center communicates data from each of the slaves to the system's PLC.

Solution

Cloudburst Engineering worked with Phoenix Contact and Steven Engineering, a Phoenix Contact distributor. Together, they designed a system that used Phoenix Contact radios at six locations to control irrigation, fertilization and water feature control around the course.

The system consists of one master and five Phoenix Contact RAD-ISM-900-EN... bus slave radios with I/O, each located at a remote pump station on the course. Using the Modbus protocol, each slave radio reports data back to the central control building. Here, the master radio communicates the Modbus data with a Siemens PLC and HMI with a web browser.

The system's primary function is to monitor the water levels at the ponds around the golf course and to turn on and off pumps to maintain a specific water level. The system also monitors timed irrigation and instrumentation status, relaying the information back to the central HMI.

In addition to the RAD-ISM-900-EN..., the system also included Phoenix Contact analog I/O modules, MINI power supplies, lightning and surge protection and antennas in the design.

Cloudburst Engineering evaluated several other radios, but cited Phoenix Contact's service and product reliability as key points in their decision.

An engineer from Cloudburst stated, "This was our first chance to use Phoenix Contact radios, so we experienced a small learning curve. We received great technical support from both our local distributor and from Phoenix Contact personnel. Since the first installation, we have installed Phoenix Contact in other projects, and we've needed less follow-up and support calls on our subsequent projects."

Five remote pump stations maintain specific water levels at various sites around the course.

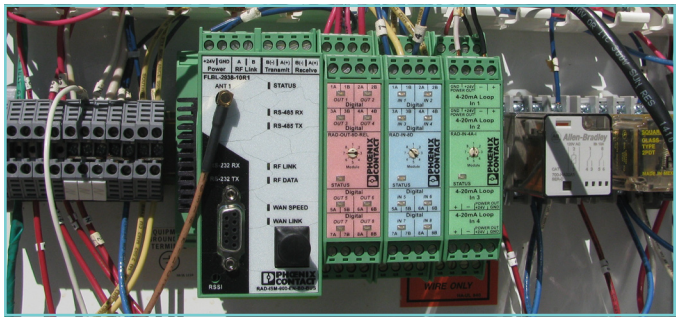
Results

The golf course saw an immediate return on investment. The entire installation never interrupted rounds on the course. Revenue was never impacted, and facility managers were very happy with the entire project.

Although interference was a problem in the original system, the RAD-ISM-900-EN... radio's robust frequency-hopping proprietary technology performed very well within an interference-prone environment where the other radios failed.

The old system required a high level of monitoring and maintenance, but the new system has reduced maintenance costs considerably, even in the hot and dusty desert environment. Because the system is so dependable, Cloudburst now uses the installation as a showcase for prospective clients.

Art Grimes, Application-Solution Engineer for Steven Engineering, helped coordinate the project. He reported, "There was zero impact to facility operation, and maintenance costs have been reduced. More importantly, the golf course looks incredible, and Cloudburst has a happy customer."



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