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Efortech's Real-Time Pump Station Monitoring System Improves Efficiency

Accelerated industrial development and resulting climate changes have made water management increasingly challenging. Given the rate of population growth and increases in agricultural output, pumping stations are critical pieces of modern water management infrastructure. Typically, to ensure optimal conditions, single engineers will monitor and report the condition of individual pumps in a station. Although this allows inspectors to identify equipment in need of periodic repair and maintenance, reactive maintenance is inefficient and labor-intensive.

IIoT wireless I/O and sensor modules for data acquisition

The Indonesian government water agency was tasked with optimizing and maintaining the country's inefficient and outdated pumping stations. To accomplish this, they sought a total solution that would enable remote real-time monitoring and diagnosis of pump stations and other key infrastructure. It was provided by Efortech,

Established in 1994, Efortech specializes in water management, transportation, energy, mining, and automated production applications. The company's realtime pump station monitoring system leveraged their indepth domain knowledge and expertise, combined with Advantech products, specifically, cloud IoT technology and device-to-cloud solutions.

For this solution, Advantech's WISE-4000 IoT wireless I/O modules and ADAM-6000 Ethernet I/O modules were installed in various locations to acquire sensor data. ADAM-3600 intelligent remote terminal units (RTUs) were deployed for data preprocessing via WISE-PaaS/ EdgeLink. Data was then transmitted to local WebOP2070T operator panels installed with WebAccess/HMI software and an ACP-4000 SCADA server via the MQTT protocol. ADAM-3600's multiple I/O were used for monitoring current, voltage, frequency, pump start/stop states, inlet/outlet pressure and flow, water levels, and water quality.

Easy integration with existing platforms and WebAccess/SCADA dashboard

With the client's static IP network server setup, the ADAM-3600 RTUs and WebAccess/SCADA software used the MQTT communication protocol to maintain an active connection to the server side. Without this active connection, the server would be

unable to obtain monitoring data for remote management. Another requirement was to integrate existing software platforms compatible with HTML5. Using HTML5, real-time data could be accessed and visualized on the WebAccess/SCADA dashboard.

This solution offered the water agency several benefits, including reduced cost and labor requirements, while increasing productivity. Now, the water agency can remotely monitor geographically disparate pump stations in real time and conduct centralized management via their WebAccess/SCADA powered dashboards. In collaboration with Advantech, Efortech reduced the time required to maintain pumping stations by providing a cost-effective, feature-rich solution that exceeded the agency's usage needs.

According to Efortech, selecting Advantech as a partner transformed their offering from a basic product to an added-value solution that satisfied the client's industryspecific infrastructure requirements. "When expertise meets advanced integration, savings and increased productivity are the added value," said Hanggar Cahya Kusuma, Managing Director of Efortech.

The success of this project can be attributed to the integration of Efortech's industry expertise, products and solutions. Efortech is offering more solutions based on the WISE-PaaS cloud platform. By fulfilling demands for industrial IoT across Indonesia, Efortech is expecting positive future growth.

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