AGRICULTURE

DATA ACQUISITION SYSTEM FOR AN INDUSTRIAL SUGAR PLANT

Customer
Rusagro

Country
Russia

PROJECT DESCRIPTION

Rusagro engaged Tibbo to maximize the uptime of the pumping unit nodes in their sugar beet factory by monitoring the health of the units to predict potential equipment failures. Tibbo deployed dedicated sensors to collect a range of vibration and temperature data from node components, including bearings, column, setting, and the electric motor cooling jacket. That data was critical to evaluating runout — slight but potentially critical bearing errors.

The system also input the collected data into a custom algorithm to measure the health of each operating unit against stored historical values.

SOLUTION IoT Platform

Once set thresholds were exceeded, the system generated user emails and SMS notifications with a detailed failure description.

HARDWARE / DEVICES

Domestically produced sensors were installed on each unit. Magnetic base vibration sensors were attached to each unit node component — the bearing case, the engine column, and the setting mounting stud. Data from the sensors was collected by a hub that transmitted that data to a gateway every minute via a wireless network. The gateway then published the data in JSON in the cloud MQTT-broker.

The MQTT-broker, in turn, connected to a remote AggreGate server, located safely in a customer server room or cloud service provider data center.

BENEFITS

- Real-time monitoring allows for comprehensive predictive maintenance in this high-complex industrial environment
- Ongoing data collection facilitates benchmarking of unit loads and overall component health
- Alarm notification helps engineers quickly troubleshoot and resolve equipment failures, using expedited parts replacement as required

Tibbo SYSTEMS