Water/Wastewater Application

INTRODUCTION

The global utilities market (Water/Wastewater, Energy, Oil & Gas) size of IIoT reached $29.6 billion in 2019 and is currently forecasted for a compounded annual growth rate of 13.5% through 2025; peaking at a market valuation of $55.8 billion. Not only is this a clear indicator that IIoT technology has been widely accepted by utilities, but also its impressive growth arc proves that its working.

With IIoT, utilities can reap the benefits of optimizing their resources, eliminating operational inefficiencies, and increase the benefits of their services for the population. The adoption of IIoT technology in Water/Wastewater utility could not have come at a more important time.

THE WATER/WASTEWATER UTILITY PROBLEM

Population growth and limited resources for potable water are the primary concerns for the water industry. Most Water/Wastewater treatment plants are relatively small and operate on legacy equipment. A typical plant may have only a handful of 400-600 horsepower motors powering its pumps that are critical for supplying water to the population.

When **motors fail** at a local treatment plant, the **city's water supply faces the risk** of a **shortage.**

Due to fears of breakdowns, especially during high-demand intervals like summertime, maintenance personnel are manually inspecting their plant's motors multiple times per week. If a motor fails unexpectantly, the pump that it powers can be down for as long as 3-4 days as the plant sources replacement parts and performs repairs. In 2022, these concerns have heightened due to supply chain issues making it even more difficult to find replacement parts than normal.

THE WATER/WASTEWATER UTILITY SOLUTION

Through the application of IIoT continuous monitoring devices, the allocation of Water/Wastewater treatment plant resources could be redistributed to other priorities.

Furthermore, early detection of an impending failure in a critical motor can provide the necessary preparation time to source replacement parts. Once a motor is equipped with a vibration and temperature sensor, its data is captured in real time from that point on.

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These analytics are pushed to a cloud-based system and can be viewed through a browser-based user interface. Most importantly, the moment a sensor detects anomalous behavior within a motor, it will issue an alert to maintenance personnel via SMS/email. This alert helps maintenance personnel pinpoint the issue immediately based on feedback from the sensor about what the exact problem is.

Application of these IIoT solutions will transform Water/ Wastewater treatment plants in the following ways:

- Alleviate the stress of reactive maintenance scenarios and longer downtime periods that will result in a water shortage for a population.
- Reallocate resources to other plant priorities to allow full coverage of other legacy equipment maintenance needs.
- Allow maintenance teams to plan accordingly for an impending failure within a critical motor, source replacement parts far in advance, and minimize downtime during repairs.

ABOUT THE GRACESENSE™ PREDICTIVE MAINTENANCE SYSTEM

The GraceSense™ Predictive Maintenance System is an IIoT asset condition monitoring system that utilizes wireless sensor technology integrated alongside wired sensors. Advanced data analytics provide asset managers with deep insights to machine health to effectively prioritize resources and maximize the value of their maintenance spend.

GraceSense™ technology improves overall plant reliability, safety, and maintenance metrics by remotely monitoring asset health and sending timely notifications to plant floor personnel through SMS or email alerts with pre-configured, step-by-step remediation instructions when anomalous behavior is detected.

GS-PMS-CS2-EN 2206