

# Enhanced Predictive Maintenance of Wind Turbines for a Global Fluid Power OEM



## Problem Statement:

The client is a global supplier of hydraulic components catering to the wind turbine industry. Their components operate in rugged environmental conditions making their maintenance a safety and performance issue. They required a low/battery powered IoT solution for real-time data acquisition of sensor data for predictive maintenance of their components.

## Challenges

- The turbines operated at ambient temperature range (- 40°C ~ + 60°C), high altitude (1500m above sea level) and installation height (120~180m above ground) making it a safety concern for service engineers.
- Frequent component replacements leading to increasing maintenance costs
- Continuous inflow of sensor data from multiple sources affecting the end-user data aggregation and analytics process



## Our Solution:

Utthunga developed an IIoT product with sensor module/hub comprising of wireless smart sensor hardware, data collection & data transmission (gateway) modules. The device supports

- Secure and continuous transmission of sensor data between IIoT Gateways (uplink), data collection module and the smart sensor (multiple nodes) hardware over Wireless BLE 5.0
- Leveraged Javelin, Utthunga's proprietary IIoT portal for data visualization and data analytics to derive actionable insights for enabling predictive maintenance
- Real-time remote configuration and monitoring of high frequency vibration sensor & object temperature data, notification intervals
- IP65 rated ensures the sensor components are protected against water from any direction, as well as condensation and water spray.
- Runs on a low power battery/external power source

## Benefits:

- An easily configurable, long lasting and self-powered product with guaranteed 1-years of operation (Using battery or external power source)
- IIoT portal ensured continuous cloud accessibility, simplified data transmission, aggregation and data viewing of sensor data to derive actionable insights for predictive maintenance
- CE marking ensured the product conformity with health, safety, and environmental protection standards.
- Significant reduction in industrial application maintenance costs due to predictive maintenance and real-time condition monitoring