Gallarus
Connection to Innovation

Case Study
Wind Turbine
IIoT Platform

Introduction

Gallarus embarked on a groundbreaking project to revolutionize the wind energy industry by digitally transforming wind turbines. The vision was to harness the power of cutting-edge technology to optimize wind turbine performance, streamline maintenance processes, and gain valuable insights through real time data analysis, extending the lifetime of the wind turbine components over the industry standard warranty period of 5 years.

Project Objective

The primary goal of the project was to conduct an inventory of the Wind Turbine assets and identify the prerequisites for intelligent testing through a Proof of Concept (POC). The Gallarus team set up advanced equipment within the substation, granting them remote access to perform essential configurations and setups.

With seamless integration into 11 turbine controllers, the IIoT (Industrial Internet of Things) platform became the backbone of the project, serving as the conduit for data collection, analysis, and communication.

IIoT Platform - Empowering Wind Energy

Figures 1, 2, and 3 showcased the futuristic IIoT platform architecture, designed to propel wind energy into a new era of efficiency and intelligence. Rigorous tests and simulations were conducted to ensure the platform's robustness, aligning with the project's scope and objectives.
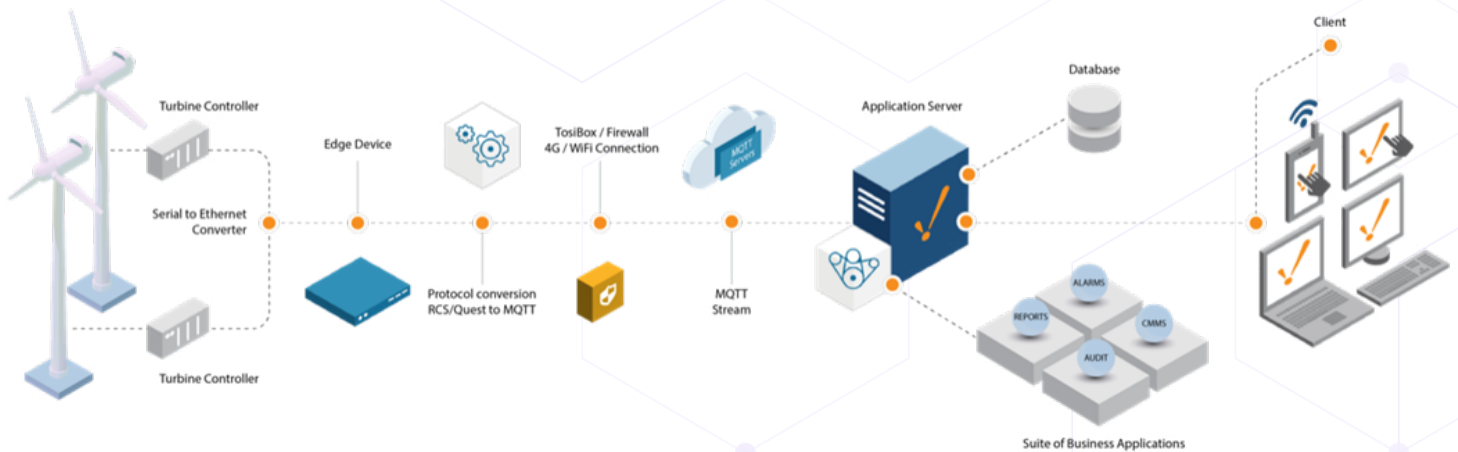

Figure 1 IIoT Platform – Final Architecture

Platform Benefits

The implementation of the IIoT platform brought forth a host of tangible benefits, transforming the way wind turbines operate and are managed

Empowering Reporting
Continuous data collection and automated reports through the IIoT platform bolstered accuracy and decision-making.

Real-time Insights & Alerts
Historical and real-time data provided a profound understanding of turbine performance, minimizing downtime events, and optimizing operations with alerts to the maintenance team.

Seamless Integration
The IIoT platform seamlessly integrated disparate SCADA systems from other wind farms, uniting them under one cohesive system.

Liberation from Vendor Lock-in
Leveraging the open-source Ignition IIoT platform empowered IT teams to maintain and customize the system without any vendor constraints.

Cyber Security
The IIoT platform adopted state-of-the-art cybersecurity measures, ensuring a safe and protected environment for data and operations.

Enhanced Efficiency & Control
Data analysis enabled improved turbine performance management and asset maintenance.

Cost Savings and Downtime Reduction
The IIoT platform optimized operational efficiency, resulting in substantial cost savings and minimized turbine downtime, extending the lifetime of the wind turbine components over the industry standard warranty period of 5 years.

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Summary

Through their visionary approach and the implementation of a robust IIoT platform, Gallarus is poised to revolutionize the wind energy landscape, driving the industry towards a more sustainable, efficient, and intelligent future.

Join Gallarus on their journey as they set new standards for wind energy transformation, pushing the boundaries of what's possible through innovation and technology. Together, let's harness the winds of change and power a greener tomorrow.