

CASE STUDY

INDUSTRIAL MANUFACTURER TURNS TO IOT FOR REAL-TIME EQUIPMENT DIAGNOSIS AND SERVICING

THE CONTEXT

Our client is a global manufacturer and provider of industrial machines for industries such as food, mining, and recycling. The company has always been guided by a strong innovation and sustainability purpose which has driven them to turn to advanced technologies to continually find new ways to serve their clients better. As a manufacturer of highly sophisticated industrial equipment, our client sought to augment their capabilities by exploring IoT's potential.

The company oversees a significant suite of sensor-based machines which carry a high amount of unexplored data. Being unconnected, the machines can communicate very limited information on their health and status.

Our client needed an Industrial IoT solution that could enhance their intelligence by connecting the machines and making this data available to be further used for better monitoring and servicing. In the midst of an Industrial Revolution, the company recognised both the urgency and the opportunity to evolve from stand-alone products to smart connected ones to ensure their clients benefit from maximum uptime and productivity.

OUR CONTRIBUTION

Solution Architecture

User Experience

Development

Integration

Quality Assurance

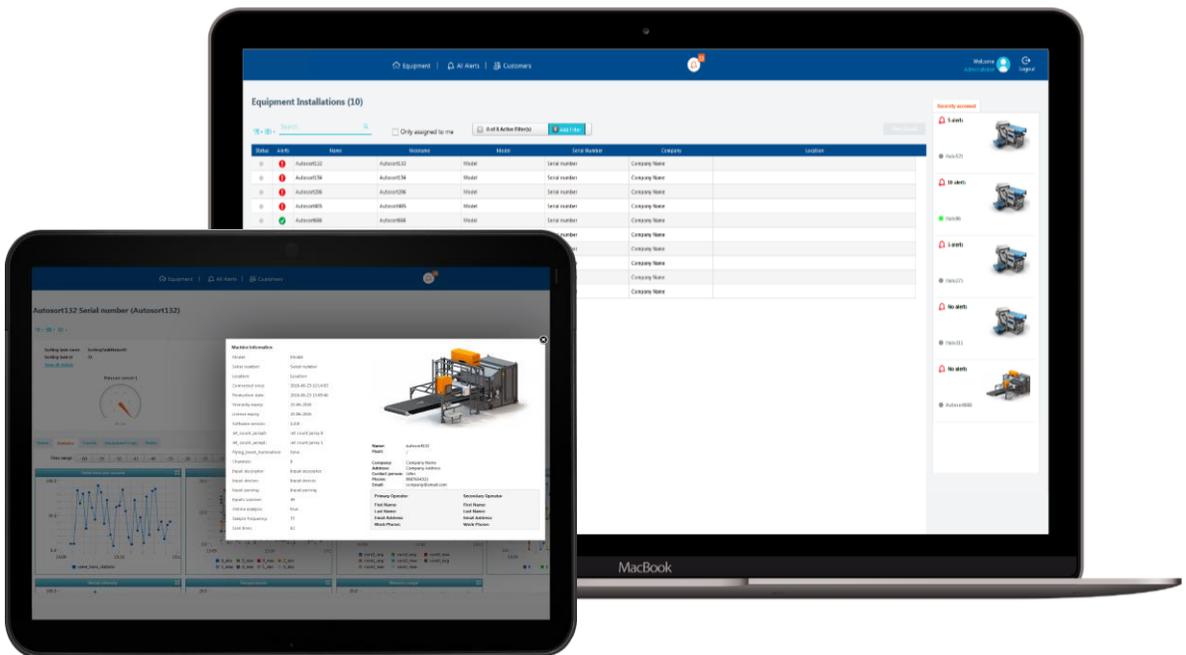
Project Management

THE WORK

We joined forces with our client's multidisciplinary team to define, design and develop a Remote Management Solution that could meet both their connectivity needs and their customers' equipment productivity expectations.

The Remote Management platform is a solution built on top of the PTC ThingWorx platform that enables data exchange and visualisation, remote access, and monitoring, leading to a timely equipment diagnostics and servicing.

The client's pronounced business particularities have driven our team to build and deliver a customised end-to-end solution, bridging the IoT's platform capabilities with the company's business and technical readiness. The Remote Management Solution covers a broad set of capabilities, which derive mostly from 2 main focus areas: Data Collection & Visualisation and Remote Access & Monitoring.



Data Collection & Visualisation

To connect the client's industrial equipment to the cloud environment, we built a software-based agent that was embedded in the machines. The agent serves as a connection point between the machine and the central platform triggering a communication and exchange process that enables data collection, processing, and visualisation. It gathers the equipment data and sends it to the IoT platform, where it is stored and then displayed in a dashboard for further supervision and interpretation.

The client's large-scale industrial equipment carries a variety of characteristics and draws a heavy load of parameters from its sensors. To be able to offer a comprehensive overview of all this information, our team built the solution in such a way that it would automatically accommodate any equipment type into the system and properly manage data of different nature, volume and complexity. Based on that, a custom-made dashboard was built that was able to dynamically reflect all forms of data and parameters to provide a clear view of the equipment's status.

THE WORK

Remote Access & Monitoring

Being able to remotely access and monitor the equipment data allows the operations and the servicing team to have a certain degree of control over the machines' performance. Implementing these capabilities aim to ensure a better maintenance of the industrial equipment. Operators and technicians can remotely access the machines through the dashboard, troubleshoot, configure and fix some of the issues remotely. This empowers the client to learn from the exhibited data, analyse and puzzle it out to identify irregular signs and behavior patterns. The dashboard displays the historical data for each machine and through an Event Log Manager unit, it generates and shows a record of all the key information regarding system insights.



To make the monitoring genuinely helpful, we have set in place a mechanism to connect the operations and servicing team with the ongoing status of the machine through a system of alerts and notifications. The Advanced Alert Manager is one of the solution's features that ensures a proactive equipment abnormalities detection by triggering an event-alarm which automatically sends a notification to the on- and off-site staff when a machine's parameter is off-key.

As the client's equipment carries complex, multidimensional data, our team committed to ensuring an intuitive and user-friendly administration interface delivered through a secure web application. The Remote Management Solution also covers a User Management component built for two reasons: first - to reflect the company's organisational structure and second - it offers to users different types of access, data visibility and permitted operations depending on their role.

THE RESULTS

The Remote Management Solution built by the iQuest team envisioned a clear-cut approach to our client's business needs.

Our client manufactures a wide range of industrial equipment that is further used in industries where flawless machine operation is essential to both a sound productivity and a high-quality final product. Any unplanned downtime impacts the customer's efficiency, and it further generates significant financial losses, making it critical for the equipment to be running properly for the entire scheduled work time.

With the Remote Management Solution, our client becomes more connected to their equipment and benefits from a valuable pool of data that empowers their team to oversee their machines better and react faster to incidents. More, it creates the opportunity to augment their equipment's capabilities to ensure it matches the industry's expected reliability and performance.



Comprehensive Overview

The connected network of machines offers real-time access to the data exchange between the equipment, sensors, users, and systems which ensures an accurate equipment supervision.



Early Detection

By remotely monitoring and accessing the machine our client can perform accurate diagnostics, react to its data, and detect failure indicators prior to an actual breakdown. This allows the operations and servicing teams to schedule multiple service operations in a single maintenance window if on-site presence is necessary.



User Experience

The Remote Management Solution has a well-structured, simple and user-friendly administration interface which gives users an intuitive navigation through all the essential equipment information.



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