apulum

APULUM USES IOT CAPABILITIES FOR REMOTE MONITORING AND SERVICING

THE CONTEXT

Apulum is a porcelain manufacturer with 40 years of experience in the European market. It produces 50 million porcelain items per year covering a diverse portfolio, from houseware to hospitality industry.

The technological advancements in the field of porcelain firing and isostatic presses, along with heightened competition from Asia and strict schedule demands from their clients, made Apulum shift to new digital technologies. To keep production running optimally, they implemented an automatic production process by integrating robots into the operational flow.

iQuest proposed an end-to-end Industrial IoT solution to connect the machines and extract insights out of the collected data, further used for increasing quality in manufacturing and servicing.

OUR CONTRIBUTION

Requirements Analysis

UX/UI

Implementation

Deployment

Support Services

THE WORK

In some production lines, the human workforce has been replaced by robots, but there were still many where labor was done manually, which made the time-consuming effort prone to human error. Another critical problem was the absence of real-time information regarding production status. The plant is operating 24/7, in three shifts and the only production reports used for tracking the progress of each shift were on paper.

Without proper monitoring, the comparison of the production load between shifts was a challenging and unproductive assignment.

THE WORK

Taking all these issues into consideration, the manufacturer required an effective system to keep track of all the data, to gain more control and know the overall system status at any given time.

After carefully examining the business and technical requirements, we designed, developed and provided support for an IoT solution that enables data collection, visualization and monitoring, leading to a timely equipment diagnostics and servicing.

The proposed solution based on Microsoft Azure platform aimed to leverage the advantages of a cloud solution, which can be implemented without an initial investment in hardware. To connect and extract relevant data from pieces of equipment, we developed an on-premise component using libraries provided by Azure Cloud. Using edge processing, we selected the relevant data to be sent and analyzed in the Cloud using real-time stream processing. This feature prepares the data to be displayed in the user interface and detects anomalies based on the configured rules.
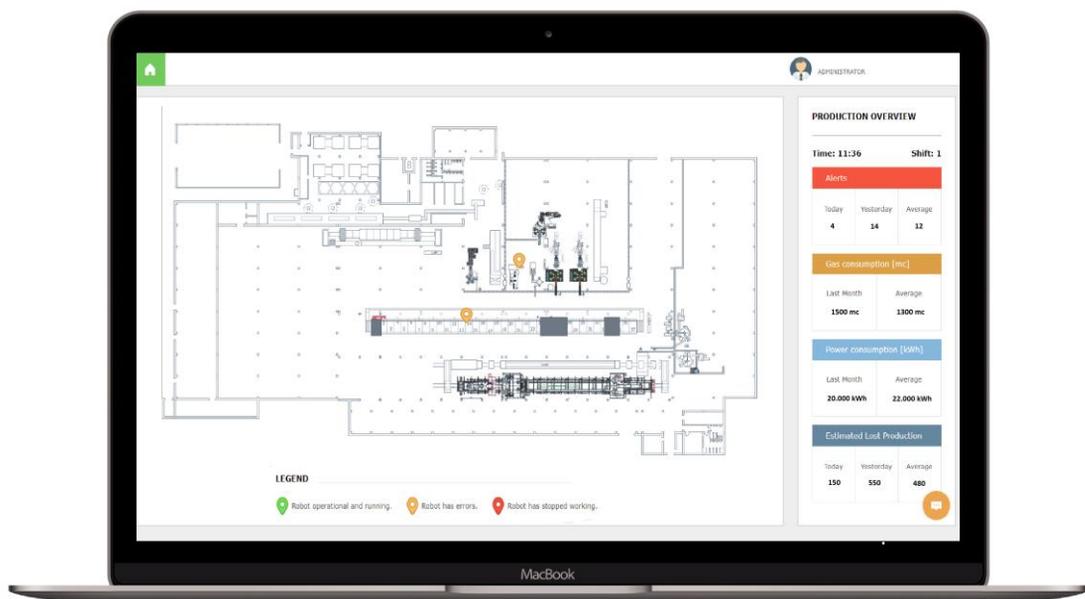
The plant employed a variety of equipment models, but the machine park was fragmented and consisted of robots, isostatic presses and ovens. One of our goals was to connect a production unit composed of two robots, a ceramic press and a ceramic oven.

The solution monitors the unit's operating parameters and displays them in dashboards. It also enables push-notification alerts in real-time, based on preconfigured rules, for critical events, categorized by risk levels for on and off-site staff. Interventions can be made immediately, therefore production downtime that is generated by equipment error can be kept at a minimum.

THE WORK

Using a business intelligence solution like Power BI, we built a tool that generates production and OEE reports, monitors production speed, stop time, numbers of products per shift on each equipment from the factory, cost per each item. Real-time telemetry data empowers reactive maintenance so that a quick response time minimizes interruptions and improves delivery time.

THE RESULTS

Apulum started the transition from analogue to digital by deploying IoT technology to collect, measure and act on data. The solution prepares the team for production planning, based on actionable insights. Having access to real-time monitoring also leads to downtime-prevention and faster time-to-market.

Real-time Monitoring

Enhanced control through a monitoring and reporting tool, which offers 24/7 accurate information, improves production quality, the overall production process and increases efficiency.

Early Detection

Constant access to real-time information ensures that issues are detected early on, providing immediate response in case of malfunction, decreased downtime and delivery delays prevention.

Discover more customer stories on iquestgroup.com.

IQUEST

iQuest is a trusted Software Services and Products partner for global brands such as Roche, Vodafone, Swisscom, Fresenius, Bank of Ireland, RWE, and the Financial Times. We provide the latest solutions for the Internet of Things and Digital Customer Engagement to support the digital needs of enterprises, and advance their IT capabilities through our core Software Engineering services.

iquestgroup.com