VIRTUSLAB

Success story

Ambient Intelligence platform for manufacturers

The client aimed to optimise the monitoring of their manufacturing process. The existing system relied on Programmable Logic Controllers (PLCs), which were limited and expensive to upgrade. VirtusLab implemented a custom Manufacturing Execution System (MES) and built physical IoT interfaces, which added new metrics for the client to track and increased the efficiency of the production lines.

The Challenge

Our client, a medium-sized manufacturer of custom labels, aimed to optimise their production processes. They could monitor only some parameters with Programmable Logic Controllers (PLCs). This solution had some limitations, namely:

- It required dedicated drivers which made PLCs expensive to run.

- Monitoring the linear production rate and the number of items produced per hour would require expensive equipment.

- The PLCs were incompatible with older machinery.

The client needed a solution that would both monitor and manage the production process. It should also integrate with the client's old machinery. Being a manufacturing business the client lacked the expertise in IT solutions and required a technological partner. They contacted VirtusLab to help them bridge that skills gap.

The solution

VirtusLab implemented our ready-made production management system that helps manufacturers streamline operations with built-in MES, APS, WMS & IIOT modules. Our engineers' customization efforts focused on improving the following functionalities:

- Order management

- Production planning

- Integration with the Enterprise Resource Planning (ERP) system

- Tracking resource allocation efficiency

VirtusLab also developed physical IoT interfaces. Our engineers assembled custom PCB boards, powered by Arduino microcomputers. The devices were created to monitor the parameters of the production lines by reading data from factory sensors and sending it to MQTT servers.

Similar interfaces were available on the market but, compared to our custom solution, offered a lower degree of customisation and were more expensive.

⭐ The results

The implementation of the production management system and the custom IoT platform has given our client the ability to better measure and visualise data. This client responds to monitored parameters and is more effective at optimising their production process in real time. Also, they noticed the following benefits:

1. Reduced idle time of production lines

2. Eliminating the need to purchase expensive PLC drivers

3. The ability to monitor additional parameters such as linear production rate or the number of production items per hour

The tech stack

/ Language

- Scala

/ Databases

- PostgreSQL
- TimescaleDB

/ Framework

- Play Framework

/ Library

- React

Scala · PostgreSQL · Timescale · play · React

About VirtusLab

At VirtusLab, we aim to lead in software technology, working consistently to enhance efficiency. Our profound commitment to research and development and a dedicated focus on emerging trends and inspirations fuels an innovative culture. This ethos precisely guides advancing our cutting-edge solutions, inviting collaboration to expand the boundaries of software technology collectively. We welcome you to be a part of this transformative journey.

Let's connect

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