

AMGIOT

Development of a Web Application for Monitoring CNC Machines with IoT Integration

Overview

Use Case 1: Monitoring the status of CNC machines in real-time, providing alerts for machine downtime, and indicating whether machines are active or offline.

Use Case 2: Displaying real-time progress details of work items completed by different CNC machines, providing comprehensive insights into machine performance.

Business Context

Our client, Ace Micromatic, required a partner to develop a web application that seamlessly integrates IoT devices with CNC machines to enable real-time performance monitoring. The objective was to deliver a solution that offers instant updates, alerts, and comprehensive reports on machine data, facilitating better decision-making and enhancing overall operational efficiency.

Solution

Softserve Global developed the "AMGIOT" application with the following features:

1. **Real-Time Data Updates:** Implemented real-time data updates for CNC machines using ASP.NET Web Forms and SignalR, indicating machine status and providing alerts for downtime.
2. **Prototype Application:** Utilized SignalR to create a prototype application displaying real-time progress of work items completed by CNC machines.
3. **Data Visualization:** Developed functionalities to display machine data using various charts (line charts, area charts, bar charts) with Chart.js and jQuery, allowing users to analyse data patterns over selected date ranges.
4. **UI Enhancements:** Contributed to UI enhancements and bug fixes to improve the overall user experience of the web application.
5. **PDF Generation:** Worked on generating large PDF invoices using ASP.NET Web Forms and iTextSharp.

Tools and Technologies

- ASP.NET Web Forms, jQuery, SignalR, Chart.js, iTextSharp

Business Benefits

- Real-time data updates and alerts improved the ability to monitor CNC machines, reducing downtime and increasing operational efficiency.
- The prototype application provided real-time insights into the progress of work items, enhancing transparency and decision-making.
- Data visualization tools enabled users to analyze machine performance patterns, leading to better-informed decisions.
- The overall user experience and interface improvements contributed to increased efficiency and satisfaction among users.
- The ability to generate large PDF invoices streamlined documentation processes, saving time and resources.

About Softserve Global

At Softserve Global, we offer Application Outsourcing Services, enabling our esteemed customers to garner higher and enhanced business value. Our approach is tuned towards ensuring greater operational superiority and strategic differentiation, thereby making our client's business a lot more competitive. We are at the cutting edge of key technology such as Cloud Computing, Application Modernization and Agility and are transforming our client's IT environments to leverage these next generation technologies, across their businesses.