MindSphere and Mendix Partner Use Case

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Preventative Maintenance of Production Assets

Reduce costs and downtime by scheduling machine maintenance activities

Summary

The discrete manufacturing industry is undergoing widespread digital transformation. Processes are being automated, equipment interconnected, and monitoring and control systems moving to the cloud. There are significant opportunities to analyze data, predict equipment performance, and help make informed decisions using technologies such as signal processing, data mining, statistical analysis, and artificial intelligence.

Plants may have fixed maintenance schedules for their machines, ad hoc maintenance, or they may be triggering maintenance activities when discrete sensor data goes out of normal operating range.

Analyzing current and historical time series data using advanced signal processing algorithms enables timely preventative maintenance decisions.

Efficient signal processing algorithms determine need for preventative maintenance

This solution use case is provided by Maya HTT, a MindSphere and Mendix partner. Central to the use case is the Maya HTT Smart Signal Explorer application, developed for deployment on MindSphere. It provides a toolbox of advanced signal processing math functions for use on IoT data from assets connected to MindSphere. Maya HTT and users can use Siemens' Mendix low code application development platform to extend Smart Signal Explorer capabilities (e.g., for real-time alerting, custom reporting, and building predictive maintenance algorithms).

The easy-to-use visualization interface helps users improve the health and condition of machinery by identifying performance degradation and recognizing the need for preventative maintenance. Workflows are accelerated through efficient signal processing directly within the MindSphere IoT platform, eliminating the need to work offline and enabling maintenance to be scheduled to minimize downtime.

Benefits

- Cost savings by scheduling maintenance activities when machines show early signs of performance degradation.
- Reduces unplanned downtime by facilitating data-driven maintenance schedule decisions.
- Leverages data for metrics used in efficiency improvement and cost-reduction initiatives.

Features

- Provides intuitive data visualization of asset telemetry data as well as processed signals.
- Evaluates performance by comparing IoT telemetry from single machines or between similar machines.
- Enables manipulation of IoT data using scaling operations, combinations, interpolations, and spectral analysis.
- Computes and reports signal statistics, and saves processed signals.

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MindSphere is the cloud-based, open IoT operating system from Siemens that connects real things to the digital world, and enables powerful industry applications and digital services to drive business success. Mendix is Siemens' low-code application development platform for building, deploying and managing cloud native enterprise apps.

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