Predictive Maintenance and Smart Operations

Real-time predictive maintenance for machine tools in precision manufacturing

Summary

When it comes to high-value essential components in manufacturing processes, getting it right the first time is essential, both from a cost and productivity standpoint. Manufacturing firms face challenges with visibility to wear and tear on tools used in these precision processes that can lead to higher failure rates.

With improved visibility to machine performance and wear data of tools while machines are running, better predictive maintenance schedules can be developed that help ensure manufactured components are not being built below spec due to tool degradation. At the same time, production uptime and productivity are improved due to more effective maintenance.

Continuous improvement through real-time data, cloud analytics and dashboards

This solution use case, provided by TCS on the MindSphere platform, enables predictive maintenance for machine tools in precision manufacturing processes.

With low-cost monitoring sensors and combined data streams linked through the MindSphere platform, customers gain a single access point for visibility into machine performance, faults and tool deterioration that enables your maintenance teams to be more effective. Taking a proactive stance to machine tool maintenance drives better production throughput and fewer high-cost reactionary maintenance cycles.

Run-time analytics give maintenance engineers the visibility they need to be proactive, while daily reporting provides insight to plant management and quality inspectors, including planned vs actual OEE, Tool costing, and First Time Right percentages.

Benefits

- Maintenance becomes proactive rather than reactive, reducing costs and improving productivity.
- Improve the First Time Right percentage of high value components.
- Real-time visibility to machine performance, faults, and tool deterioration information.
- Alerts drive faster response times for anomalies in machine parameters.

Features

- Integration of machine data with tool and component details to the MindSphere platform.
- Relevant views for plant management, quality inspectors and maintenance engineers.
- Integrated Dashboard and KPIs help improve production operations over time, while reducing downtime.

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. MindSphere’s open Platform as a Service (PaaS) enables a rich partner ecosystem to develop and deliver new applications.

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