Machinery Monitoring and Predictive Maintenance
using MCC 172 and MCC 134 with Raspberry Pi®

Introduction

Thinaer provides leading-edge IoT technology and advanced analytics that its customers use for process optimization and improved efficiency. The Thinaer HUMS (Health Usage Monitoring System) collects data from machining centers, CNC machinery, milling machines, and engines and uses this data to provide an "always-on" solution for monitoring, utilization reports, and predictive maintenance.

Thinaer's IoT platform integrates machine-data with human feedback and uses a mix of MCC and Thinaer hardware and software to capture real-time machine data like location, vibration, temperature, voltage, pressure, electrical current, and more.

The Challenge

Thinaer systems use Raspberry Pi® nodes that communicate with smart sensors via Bluetooth Low Energy. These smart sensors however, don't provide high-accuracy temperature or high-speed vibration data needed for better analysis.

The Solution

The MCC 172 IEPE measurement HAT and MCC 134 thermocouple measurement HAT are used to measure vibration and temperature respectively, and collect the data needed to create accurate measurements, analysis, and strategy. The stackable DAQ HATs also allow Thinaer to scale without having to change their platform or do any internal hardware development or assembly. The system was programmed using the provided C® and Python™ libraries for continuous, multi-HAT acquisition of data.

Result

Using MCC technology saved Thinaer both time and labor. The MCC DAQ HATs easily fit into their existing system enclosure. Using an off-the-shelf product from a proven supplier also saved Thinaer from the process of developing a custom, in-house solution. It lets them focus on processing, analytics, and strategy consulting. The technology is cost-effective and allows Thinaer to do computing on the edge, keeping prices low for Thinaer clients.

The MCC DAQ HATs fit easily within the existing system enclosure.

The Thinaer solution collects data from systems like CNC machines and helps customers reduce machine failures by quickly detecting operational anomalies.

Thinaer
Bryan Merckling
1202 Richardson Dr.
Richardson, TX 75080
www.thinaer.io