



Good Vibrations for Machine Health Monitoring

Maximizing uptime with intelligent vibration monitoring and predictive analytics

Application Study - Understanding critical component performance

Using real-time monitoring to understand in-service machine vibration keeps machines running; allowing predictive instead of reactive maintenance, as well as historical trend analysis and comparisons between machines and operating environments.

Challenge

Vibration-based machine health monitoring has traditionally required access to expensive sensing hardware and software, forcing owners and operators of critical assets to make difficult ROI choices when weighing the benefits of health monitoring systems.



Real-time alerts and historical analysis - Using SensorCloud with the MathEngine analytics tool provides characterization metrics between machines and operating environments, through the equipment life-cycle.



Machine health monitoring - Measuring in-use vibration of factory equipment allows predictive maintenance in high-value production processes.

Vibration Monitoring Benefits

- Reduce unplanned downtime for critical assets
- Prevent expensive damage to equipment by addressing problems before they escalate
- Realize quick ROI with minimal upfront expense
- Collaborate with teammates and vibration experts when diagnosing anomalous machine behavior

Features

- Unique visualization tool scales to terabyte data sets
- Powerful MathEngine analytics environment with full access to Python, Scipy and Numpy
- Real-time SMS and email alerts for condition exceedances
- Custom buildable dashboards with embeddable widgets, full white labeling options, and integration services

Solution

Cloud computing and big data tools have greatly reduced the costs associated with processing large volumes of sensor data common to many industrial vibration applications. SensorCloud's industrial customers are leveraging these new capabilities to deploy condition based monitoring and prognostics systems at a fraction of the cost and installation time of traditional systems.

Connect: Sensor data can be published to the SensorCloud platform with a time-stamp resolution of one nanosecond, suitable for high-speed vibration waveform acquisition from both wired and wireless accelerometers. The same API can also be used to publish and synchronize temperatures, pressure, torques, and rotational speeds.

Monitor: Equipment owners and operators can configure customized SMS and email alerts to notify personnel of machine conditions exceeding operational limits, or that may warrant investigation and preventive action.

Analyze: The flexible MathEngine® analytics environment allows customers to deploy equipment-specific health monitoring algorithms that extract key vibration metrics (RMS and peak velocities, RMS and peak acceleration, crest factor) and generate trend reports.