Panel Session 6

New Instrumentation for PHM

Sponsored by

UTC Aerospace Systems

Annual Meeting of the PHM Society

Philadelphia, PA

September 26th, 2018
MEMS Accelerometer Performance Improvements

Bandwidth / Resolution $\uparrow 132x^*$

Triaxial power $\downarrow 2x$

2008

2018

*Accelerometers with high frequency response, at least 10kHz +3dB bandwidth
The *Digital* Condition Monitoring Sensor...

- **SOLID STATE ACCELEROMETERS**
- **DIGITAL INTERFACE**
- **EMBEDDED DAQ & SIGNAL PROCESSING**
- **SCADA**
- **PLC**
- **Machine Controller**
Exhibit A: The Explosion in Wireless (Digital) Sensors
IIoT Technologies applied to Condition Monitoring

Chip Scale Sensors analytics

MEMS accelerometers enable higher levels of integration, accuracy, smaller form factors, and additive digital interface.

Wireless Networks

Lower deployment costs for continuous on-line monitoring.

Data dashboards

Cloud or server based data visualization and analysis.
Development Process for New Machine Health Solutions...

Assessment  
SME Engagement  

Data  
Acquisition  

New Health  
Indicators  

New sensor  
development  

Monitoring, Diagnostics  
and Prognostics  

Assessment  
SME Engagement  

Data  
Acquisition  

New Health  
Indicators  

New sensor  
development  

Monitoring, Diagnostics  
and Prognostics
The Machine Instrumentation Group
A collaborative network of services to support development of a Machine Health program

Our mission is to implement condition monitoring solutions for machine health problems that resist traditional technologies...

- Data engineering for Health Indicator development
- Data analysis platforms
- Field instrumentation
- Sensor definition, design and build
Thank you!

Ed Spence  |  ed.spence@machineinstrumentation.com  |  1 (781) 439 1277