

I PRO 304

Process Improvement Design



A. Finkl & Sons

- Manufacture all steel from scrap
- Largest consumer of electricity in IL
- Processes include:
 - Melting / Re-melting
 - Forging
 - Heat Treating
 - Machining





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Problem

- Cutting inserts break
- Broken inserts stress those remaining
- Additional stress leads to more broken inserts



This problem is raising
manufacturing costs.





Project Goal

To develop a solution that will detect broken inserts and alert the workers on duty



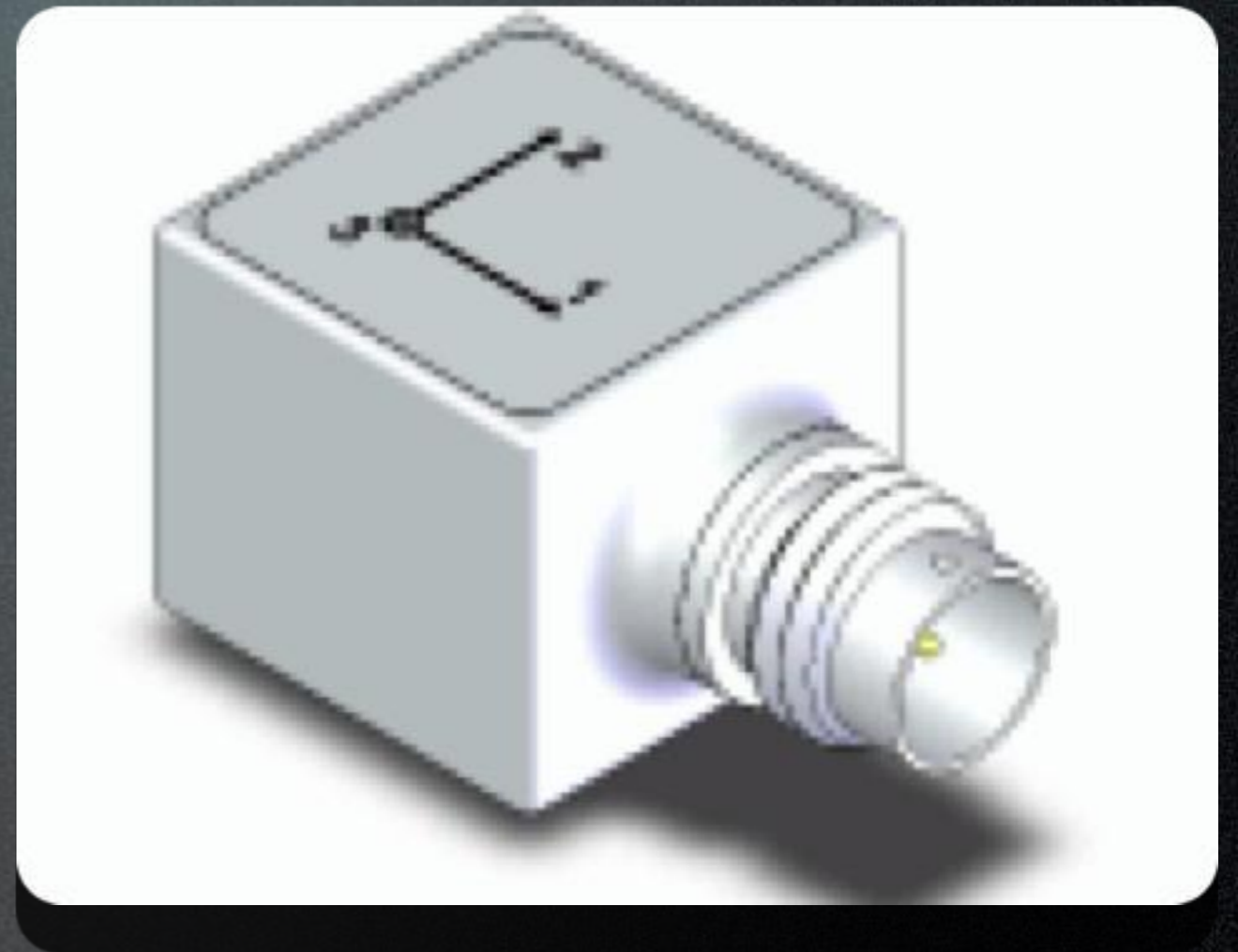
Previous Attempts/Ideas

- Directional Microphones
- Cameras
- Lasers
- Accelerometers
 - Wired / Wireless
 - Single-Axis



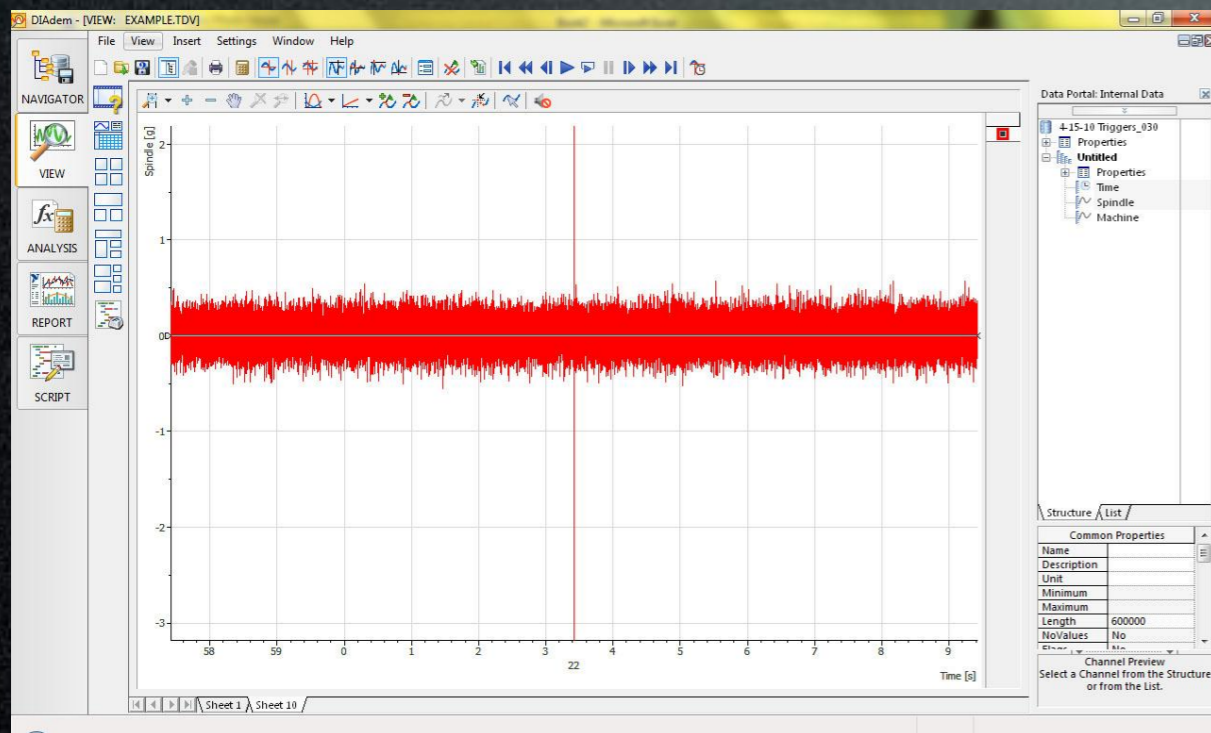
Proposed Solution

- Use a tri-axial accelerometer to detect cutting insert breaks

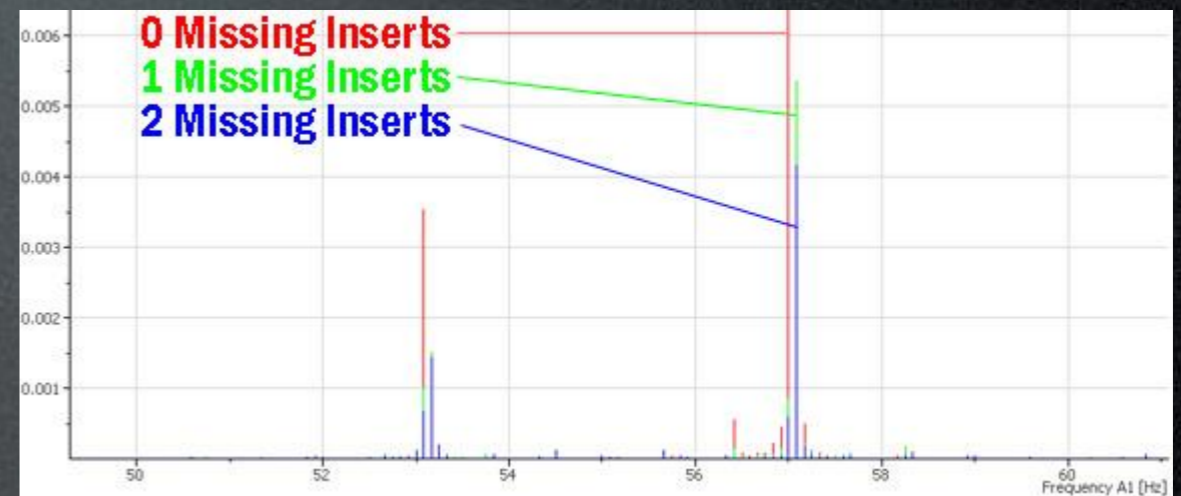


Proposed Solution, cont.

Raw Data



PSD Analysis



Team Leader
Greg T.

Assistant
Bill W.

Communications

Deliverables

New Ideas

Programming

Data Analysis

Tom K.

Alex S.

Tomasz C.

Greg S.

Bill W.

Megan M.

Jaimin R.

Paul G.

Greg T.

Dorothy C.

Claudius K.

Michael R.

Sukwon K.

YuBo D.



Spring 2011 Progress

- Visited A. Finkl & Sons' facilities
- Collaborated with Fall 2010 team
- Ordered & installed triaxial accelerometer
- Started data collection for analysis
- Currently developing alternate solutions



Obstacles

- Learning Labview & DIAdem
- Becoming acquainted with the project
- Developing clear organizational structure
- Acquiring new equipment



Anticipated Challenges

- Developing software
- Non-disclosure agreements
- Developing an alternative solution



Needs and Expectations

- Needs met by A. Finkl & Sons
- No major assistance required



Next Steps

- Collect & Analyze data
- Write our final program
- Present results to Finkl Management



Questions?

