A. Finkl & Sons

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