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Interprofessional Projects Program

Innovating Process Improvements in Manufacturing

Fall 2008

FINKL
A. FINKL & SONS CO.

IPRO 304
INTERPROFESSIONAL PROJECTS PROGRAM

Advisors and Members

Members
Introduction
IPRO 304 Team
Progress
Future Works
Questions

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Project Objectives

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- To develop a robust, working prototype that can automatically monitor and detect a problem with a milling machine at A. Finkl & Sons
- Provide A. Finkl & Sons with the proper data and statistics of which solution to invest in.
- The cutting head (below) of the milling machine contains teeth that are broken in the process of milling away excess steel

Previous IPRO

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- Invested time in collecting some data
- Researched on best solution
- Tested an accelerometer

Objectives of Current IPRO

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- To determine a way to detect when a break occurs in one of the milling teeth and then alert the mechanic monitoring the machine in order to replace it.
- Measure vibrations using an accelerometer to determine a break
- Using laser detection to determine a break
- Research, test and inform A. Finkl & Sons of the best solution to invest in, therefore they can decide which is best for their company

Team Organization

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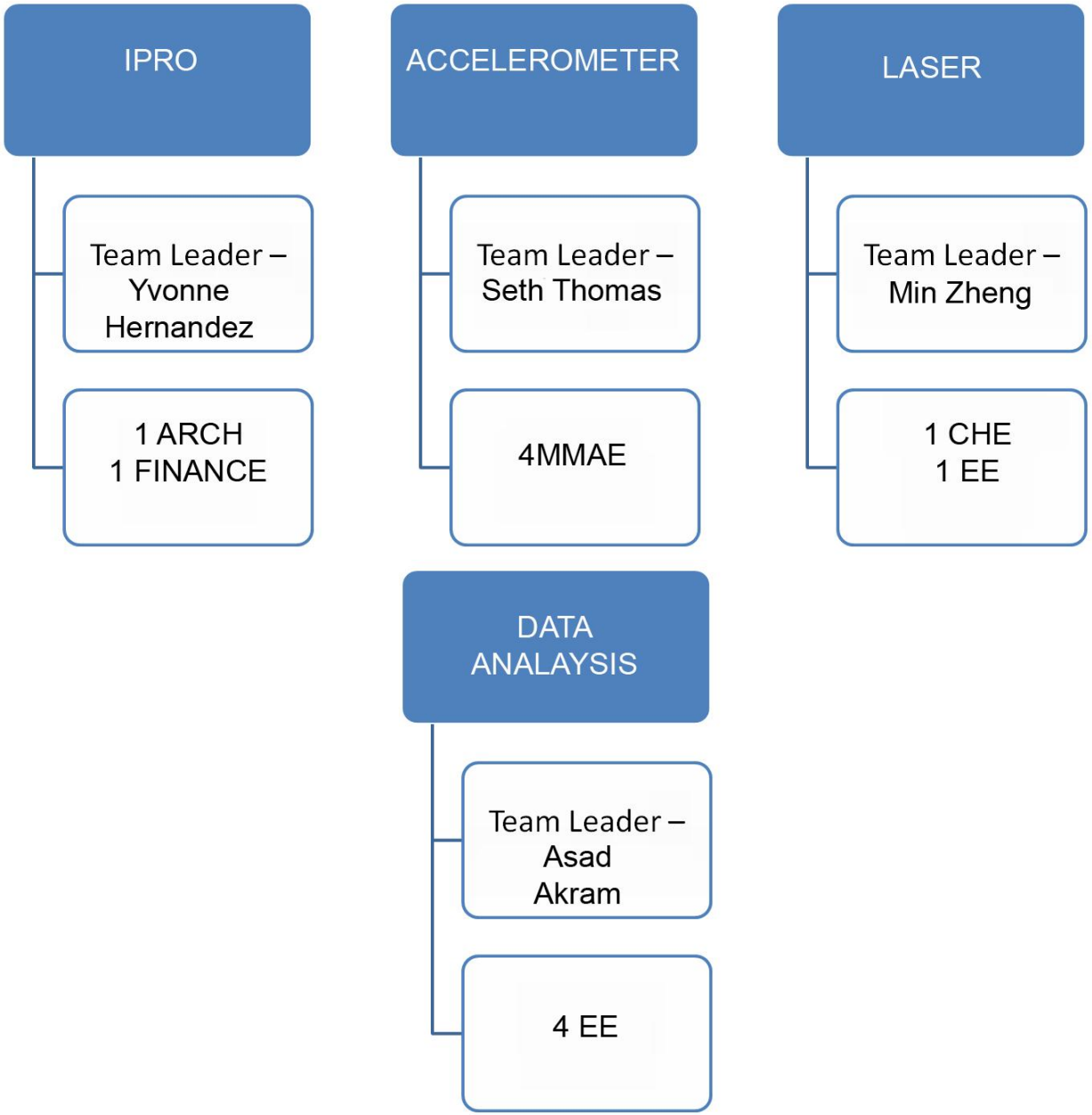

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Accelerometer Sub-team

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Wireless Accelerometer

- Basis of accelerometer is to measure vibrations on the machine in order to single out when the tooth actually breaks
- Researched different types of accelerometers
- Decided on the wireless accelerometer by TECHKOR
- Informed A. Finkl & Sons of our decision to test out TECHKOR on their machines
- Had A. Finkl order wireless accelerometers from TECHKOR; 5 come in one order
- Took measurements of equipment at A. Finkl
- Found old things to attach to accelerometer and found old data from previous IPRO

Laser Sub-team

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Laser Detecting Alternative

- Visited tool show in McCormick Place
- Got info on how other companies with milling machines detected their tooth breakage
- Laser beam is used to count the teeth on the milling head and detect when a tooth breaks, allowing time for machine to be turned off.
- Laser is more cheaper but the problem is that A. Finkl has outdated machines and it would cost more to retrofit the machines to use laser detection

What Do We Need To Do?

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- Currently waiting for the arrival of the TECHKOR accelerometers
- Need to attach accelerometers to spindle and other areas in order to take data
- Collect and filter data
- Further Laser research analysis
- Develop experiments to test effectiveness of accelerometer
- Secure LabView -- Can current version work with the TECHKOR device?

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Questions?

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Thanks!

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