

Minutes – External Advisor Meeting #1

Attendance:

Seth Norman (ECE Lead)

Matt Boler (ME Lead)

Eric Allgeier

Chris Proffett

Kevin Flemming

David Cartes (ME Faculty Advisor)

Michael Frank (ECE Internal Advisor)

Robert Potts (External Advisor, Koyo Bearings)

Plan of Action:

- 1) Find out exactly how machine currently functions
- 2) Find out scope of work for project
- 3) Set up a possible time and date for a tour of Koyo Bearing facility

1)

- Mr. Potts would like to have someone from Koyo Bearings to come show us how machine functions, scheduling to be determined.

- An air pressure gauge measures the inner diameter of the bearing in 3 axial planes.

- measuring one end, the sensor, then the other end.

- Using these measurements, it does calculations to determine if there is a taper to the perfect cylinder, if there are any differences in size between the ends, and any other discontinuities.

- Sampling rate needs to be determined

2)

- Dr. Shih and Mr. Potts will get together to finish specifics on what is needed from the project

- There is an output signal from the air transducer that is pushing on a Micro LVDT (linear variable differential transducer).
- The LVDT is outputting a signal, that goes back to some sort of board. The signal itself is not conditioned. The signal is not easily captured or read.
- Need to find out what is in the board to make the signal useable. Is it even doable?
- Endgame is to take older type measuring machines and refurbish them internally at Koyo, then use them with an off the shelf software.
- Reverse engineering of what is happening on the board and, based on findings, re design the circuitry to specialize the gauge to Koyo's specific applications.
- A cheaper more specialized substitute for what Koyo is currently using.
- Koyo does use an output signal from the sensor to compensate for size, when they detect an out of bounds condition, it sends a signal back to the abrasive machines to compensate for the out of bounds condition.
- Timeline is up to us, tell him what we think we need once we open the actual board.
- What is required by semesters end:
 - Bill of Materials
 - Order for board
 - definition of software needs
 - Find out what type of signal is being outputted. (end of month)

3)

- Mr. Potts will stay in touch via email in order to schedule a time for a visit to the Koyo factory in Cairo, GA.