sdmay19-30: EE 448 Stroboscope
Week 6 Report
February 25 - March 3

Team Members

Katrina Choong — *Chief Hardware Engineer/Timeline Manager*
Meghna Chandrasekaran — *Meeting Facilitator/Chief Software Engineer*
Seth Noel — *Chief Hardware Engineer*
Kyle Zelnio — *Project Manager*
Jessica Bader — *Scribe/Communication Manager/Chief Software Engineer*

Summary of Progress this Report

The hardware team (Katrina and Kyle) continued took measurements of each station in the lab so they could make the design work on every station in the lab. They also modified the mount for the hall effect sensor and started the design for the Arduino mount. The software team (Jessica, Meghna, and Seth) tested the product for accuracy. They were able to find where the current product breaks down in accuracy.

Pending Issues

Need to wait to print the Arduino design and need to make height adjustments to the sensor mount. Also the differences in the chuck on the motor may change the results we have with our sensor and the difference may affect where we can mount it as well because it is like 2-3mm taller than a chuck without the key sticking out. We also need to figure out why the sensor is becoming less accurate above 1000 RPM and fix this.

Plans for Upcoming Reporting Period

The hardware team (Katrina and Kyle) are planning to brainstorm mounting ideas for the stroboscope. The software team (Jessica, Meghna, and Seth) is going to brainstorm ideas to fix the accuracy and start implementing this.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Katrina Choong	I went into Coover 1102 and took measurements of the each station with Kyle of the different AC and DC motors, took note which were key and shaft, and distances of the shaft and motor lengths. We discussed with Matt that we would mount the arduino on the back of the motor adjustment. I drew and designed a mounting system to hold the arduino in place.	6	36
Meghna Chandrasekaran	Worked with Jessie and Seth for testing the accuracy of our arduino vs. the stroboscope that was actually used in the 448 lab. We found that our arduino was very accurate (around 99% accurate) from 100 to 900 RPM but after 900, our RPM reading kept fluctuating greatly. Because of	6	36

	this issue, we made some changes to our Arduino code to accommodate for this, but we haven't tested that yet.		
Seth Noel	Meghna, Jessica, and I measured the averaging function we made on the Arduino. We measured from 100-900 RPM with about a 99% accuracy, but when we reached around 1000 the accuracy dropped dramatically.	6	37
Kyle Zelnio	Took measurements of each station and test fit V3 of the 3D printed mount on our test motor. Modified the mount for V4 to be more adjustable to fit each of the different stations and discussed with Katrina how we should print the arduino mount.	6	37
Jessica Bader	I worked with Meghna and Seth on evaluating the accuracy of our RPM calculations on the Arduino. We were able to verify that 100 - 900 were accurate within 99%. However, starting around 1000 our calculations were 73% off. We implemented code to make the number of averages depend on the previous measurement, to hopefully fix this problem. Also double the average for less than 1000 to hopefully stop the measurements from jumping back and forth.	6	36

Gitlab Activity Summary
1 push to branch Software from Meghna, Seth, and Jessica
- Updating number of measurements averaged per RPM calculation