sdmay19-30: EE 448 Stroboscope
Week 9 Report
March 25 - March 31

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) worked on fixing the sensor mount so it would be more stable. They updated the plans along with printing some new mounts upgrades. They also looked at other things that could be added for stability, such as zip ties. The software team (Meghna, Seth, and Jessica) added the feature that the software would filter out measurements that are obviously wrong (such as very inconsistent with those around them). This should help stability from occasional errors. Seth also worked with the AC and DC motors to debug issues. He identified potential solutions to a big problem which was found.

Pending Issues
We found that the AC motor will not work with our sensor because it has too much excess EM, which is what our sensor uses to measure the speed. Ordering these parts may rush us to test the final product before we put it in the lab. We also still need the mount to increase the stability in the middle range. Also, we cannot change the com ports yet for each computer.

Plans for Upcoming Reporting Period
The hardware team (Katrina and Kyle) is going to 3D print a more stable mount to continue to increase the range in which we have accurate measurements. We are hoping to increase it somewhat still, however have clarified that this specific problem is out of the scope of our requirements. The software team (Meghna and Jessica) is going to update the code so that the com port can be modified by the user. Seth is going to research and order a new sensor which we hope will work with the AC motor and do more system level tests.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Katrina Choong	This week Kyle and I worked on fixing the sensor mount to have more stability to be more precise in the RPM readings by reworking the design. We plan to have a mount that attaches on both sides of the shaft.	6	57.5
Meghna Chandrasekaran	Worked with Jessica and Seth to rewrite the software to try and dump out more of the bad values when trying to caluclate the RPM so it's more accurate. We also tested out that new software with the newest version of the mount and	6	58

	found that the new code helps us reach to an RPM of about 1000 with mostly accurate values.		
Seth Noel	Started spec-ing out a gear to put on the motors to read from with the Hall effect sensor. Worked with the AC and DC motors to try to debug some small issues. Talked with Matt extensively about a lot of issues that came from adding the AC motor to the testbench. Scrapped the gear specs after realizing the Hall effect sensor was enough by itself. Determined that the DC motor stops violently shaking at higher frequencies, therefore the mount is good at those values too. Determined that there is 10V of noise from the AC motor when using the Hall effect sensor.	10	63
Kyle Zelnio	Worked on prototyping a more stable mount for the sensor with zip ties. Tested the design up to ~2000RPM. Brainstormed with Katrina about printing a helper mount to add the same stability but better	6	61
Jessica Bader	Worked with Meghna and seth to rewrite the software so it could filter out some bad values, up to every third value. We tested at a system level to see how far we could get accurately, and found we can now get up to 1000. Also worked with the group to brainstorm some ideas to fix our issues including the mount's stability and the problems with the AC motor	7	60

Gitlab Activity Summary
4 push to branch Software from Meghna, Seth, and Jessica
- Addition of error detection/elimination while calculating RPM
- Compilation fixes