

## **Biopsy Needle Meeting 11/4**

### **Work completed this past week:**

This past week I've spent most of my time doing more research of the components that will be added on for this new prototype. I texted Roy to ask him some of the questions and concerns that were discussed in the last meeting and received thorough answers so there is a clear understanding of what this pcb should have. I did discuss with him about the current sensors and whether or not they would replace the limit switches which ended up being the case. The current sensors should be able to detect a change in current from the motor when hitting a hard stop to signal the motor to stop.

Some concerns/questions I had were based around finding a current sensor with the .1mA sensitivity as I'm not sure there exists something as simple as a typical current sensor with this sensitivity but this is based off what the current values would be. If there wasn't to be current sensor then maybe using something such as a shunt resistor with the motor driver could be an option to monitor the voltage across the shunt and use low side current to measure when to stop. Besides this, there could also be use of reed switches instead of limit switches which are more often used in low power applications and are good for movement and position.

I also have been looking into different device drivers that already have a current sensor within the driver itself which will cutdown on the final footprint of the design but again I think the sensitivity might be too high and cause resolution issues.

### **Hindrances:**

I had an exam for my Digital Design class yesterday(11/3) which meant I devoted a fair amount of time to studying. I also had a design plan for my senior design class as well as programming a game for that same class. All of which has prevented me from doing as much work as I would like.

### **My future plans for the next week:**

This week I would like to start going to my computer engineering lab and focusing on using the parts. I've done a lot of research on optimization but ultimately being able to use each component is what is most important so I would like to start making my way into lab. I would also like to start using Altium, which is what I use to create PCB schematics, and start figuring out what needs to be wired together. I think the thing I would like to really figure out is how to wirelessly send information about position to a computer. From my understanding, the information needed is position, in order to find where the lesion is and I understand how SPI communication works for this specific SPI but I'm working to figure out the best possible situation without taking up a lot of room in the device itself. I've done a little research about wifi modules and bluetooth modules with the Attiny85 but I feel like its not the information from the microcontroller thats needed, its the positioning of the needle itself so I'm not sure if that requires additional parts. I plan to hopefully have a fair solution by next meeting.