Week 5

Goal

The signals group is working on filtering and changing AC over to DC this week.

Personal Tasks

The team has made another Gannt chart, due to being busy over midterms Aaron is helping manage work. Currently I am working on sensing, setting off the LED's and communicating with the "EXTERMINATE" terminal.

This is shown in the Gannt chart below:

DESN1000: EE&T

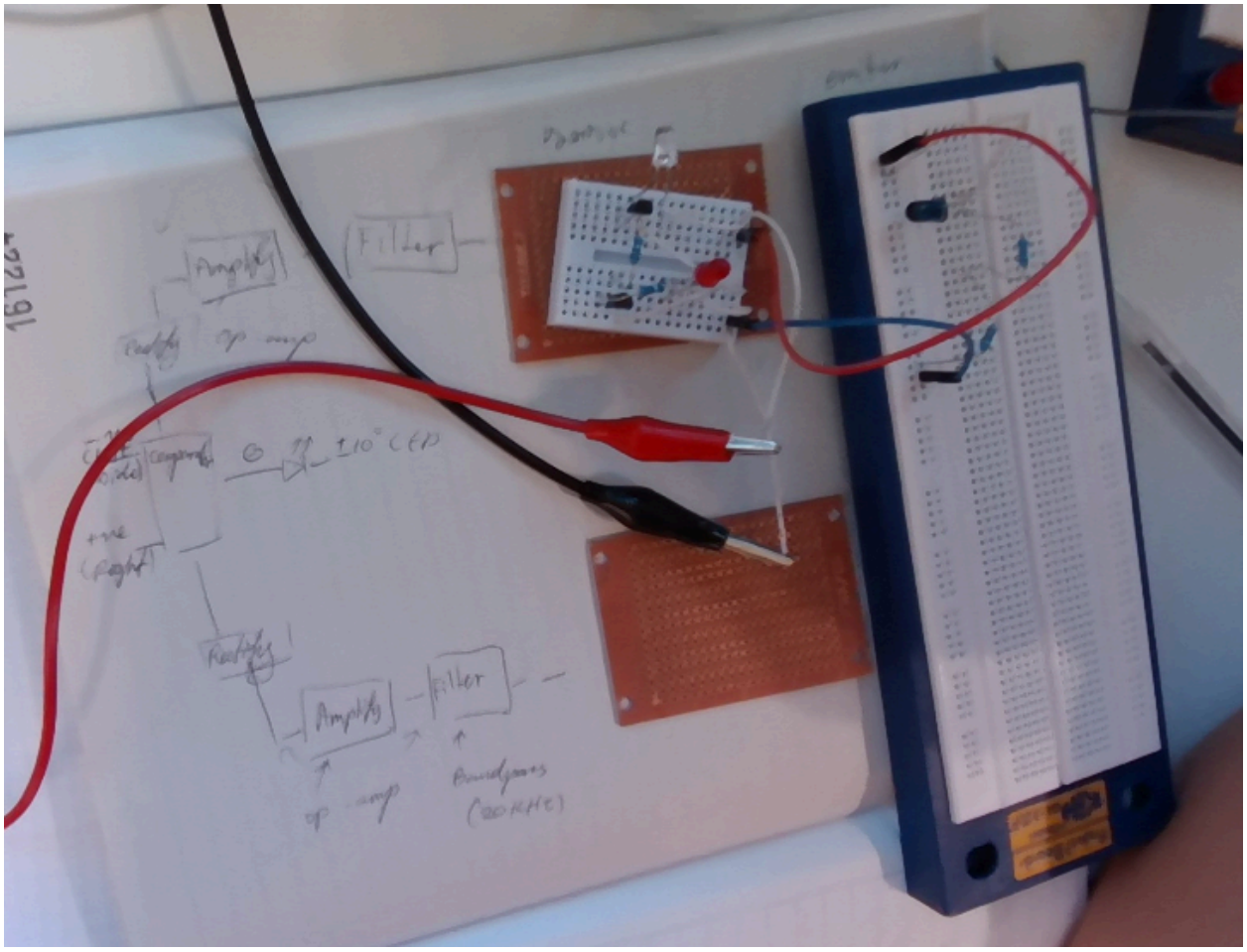
PROJECT TITLE	DESN1000: EE&T	GROUP NAME	
PROJECT MANAGER	Subgroup A: Casey, Subgroup B: Aaron	DATE	9/9/24

					RESEARCH			IMPLEMENTATION			FINAL ASSEMBLY			TESTING AND REPORT		
SUBGROUP	TASK TITLE	TASK OWNER	START DATE	DUE DATE	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12
SG-A/B	DESN1000: EE&T															
SG-B	Phototransistor and Bandpass	Aaron	16/09/24	10/24/24	N/A	Research	Research	Phototransistor	Band Pass	Prototype Sensor	SG-B Assembly	Acceptance SG-B	Full Assembly	Final Testing	Reflection/Report	PARTY
SG-B	Amplification and AC to DC	Jonas	16/09/24	10/24/24	N/A	Research	Research	Op Amps	AC to DC	Prototype Sensor	SG-B Assembly	Acceptance SG-B	Full Assembly	Final Testing	Reflection/Report	PARTY
SG-B	Arduino Calculations	Matthew	16/09/24	10/24/24	N/A	Research	Research	Input Voltage	Output Voltage	Prototype Signal	SG-B Assembly	Acceptance SG-B	Full Assembly	Final Testing	Reflection/Report	PARTY
SG-B	LED and Exterminate	Freesia	16/09/24	10/24/24	N/A	Research	Research	LED Config	Conversion	Prototype Signal	SG-B Assembly	Acceptance SG-B	Report	Final Testing	Reflection/Report	PARTY
SG-A	Motors and H-Bridge	Casey	16/09/25	10/24/24	N/A	Research	Research	H-Bridge	Motor Turning	Prototype Motor	SG-A Assembly	Acceptance SG-A	Report	Final Testing	Reflection/Report	PARTY
SG-A	Body Design	Sean	16/09/26	10/24/24	N/A	Research	Research	Gears and Motion	Main Body	Prototype Body	SG-A Assembly	Acceptance SG-A	Full Assembly	Final Testing	Reflection/Report	PARTY
SG-A	Exterminate	Jimmy	16/09/27	10/24/24	N/A	Research	Research	Voltage Detection	Speaker	Prototype Sounds	SG-A Assembly	Acceptance SG-A	Full Assembly	Final Testing	Reflection/Report	PARTY
SG-A	Left DESN	Chloe			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

So far, the sensing and LED's are going off, but the +-10 degree LED will need to happen once the voltages have been converted and compared. Hence now I am trying to convert the AC signals into something which can be subtracted through an Op-Amp. I have made a prototype of the sensor for the left side which sets off an LED. "LED left" is symmetrical with "LED right," and I am planning on moving it onto a veroboard.

From here, I am going to try to convert the AC signal post-filter and amplification such that the signals going in will be compared so that "LED middle" sets off for +-10 degrees of the emitter. I am considering methods to stabilise the voltage for comparison currently. Once I can do the math to determine if the emitter is in +-10 degrees, then I can work on completing the "EXTERMINATE" communication wire.

The outline of what is going to be sized down next to the filter is shown below:



Challenges

Challenges going forward mostly surround organising my time effectively. I have a very busy life outside of university and need to know how to prioritise tasks in terms of time efficiency better.

Outside of this, I am still thinking the comparator and its communication to the motors team is where the group is going to face the biggest challenges.

Week 6 is flexi-week, meaning that we will have less access to testing resources. This will present a challenge.