Week 4 - Progress Report

Group 19

Date: 14/02/2023

Progress Made

- The servo motor control was successfully tested in the lab and allowed full control of the rotation of the servo motor.
- All initial research into servo motors, light sensing and power measurement has been completed.
- Using the ADC of the MSP430 voltage measurement has been achieved but not yet thoroughly tested.
- CAD design of the project has been started with the servo motor model completed.
- More LDR testing has been completed with 2 LDR values being read by the MSP430 simultaneously.

Difficulties Encountered

- It was difficult to test the servo motor from home as it could not be seen whether the correct PWM signal was being generated but a visit to the lab to use an oscilloscope ensured that we got the servo motor working.
- After some more research was completed, it was found that measuring the current from the PV cell may be quite complex – especially to get an accurate value. It was decided that if the level of accuracy needed to differentiate between tracking and static configurations is not achieved, a DMM could be used to measure the current. This would also teach the end user of the demonstration about DMMs and give some experience in their use.
- The 2 LDRs that were tested gave quite different values for the same light level. More testing is needed to discover the reason for this and how to solve it.

Next Steps (Wk 5)

- The servo motor will be tested to find the pulse lengths required to reach the angle limits of the servo (as 1ms and 2ms don't).
- The voltage measurement using the MSP430 will be tested in the lab. Current measurement methods will need to be looked into and tested to test viability.
- More CAD of the project will be designed.
- The LED indicator will be designed and possibly tested in the lab.
- The LDR sensors will be tested in bright environments with varying resistances of pull-up/down resistors to understand any change in sensitivity with the ultimate aim of being able to register a torch light in a bright room.

Updated Project Plan

	Name	Jan, 2023 Feb, 2023						Mar, 2023					Apr, 2023			
ID		16 Jan	22 Jan	29 Jan	05 Feb	12 Feb	19 Feb	26 Feb	05 Mar	12 Mar	19 Mar	26 Mar	02 Apr	09 Apr	16 Apr	2
30	Current Date					•										
1	▼ Research															
2	Light Tracking															
3	Servo Motors															
5	Power Measurement															
9	▼ Design															
37	Order Components								•							
19	Power Display															
21	Servo Control															
10	Light Sensor															
18	LED Indicator															
35	Power Measurement System															
22	CAD Design of structure															
29	Manual Control Panel															
27	Schematic										1					
28	PCB										+	1				
13	▼ Testing															
38	LDR Testing															
26	Servo Control															
25	Light Sensor															
34	Power Measurement															
36	Control Panel															
33	Testing of Complete Design												→			
15	▼ Manufacture															
24	3D Printing															
16	PCB Soldering											—				
23	Assembly															
31	▼ Admin															
32	Report and User Guide Writing															
17	Report and Demonstration Due														•	