**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