



Dual Axis Solar Tracker



Introduction

What?

Why?

How?

PHOTO GALLERY

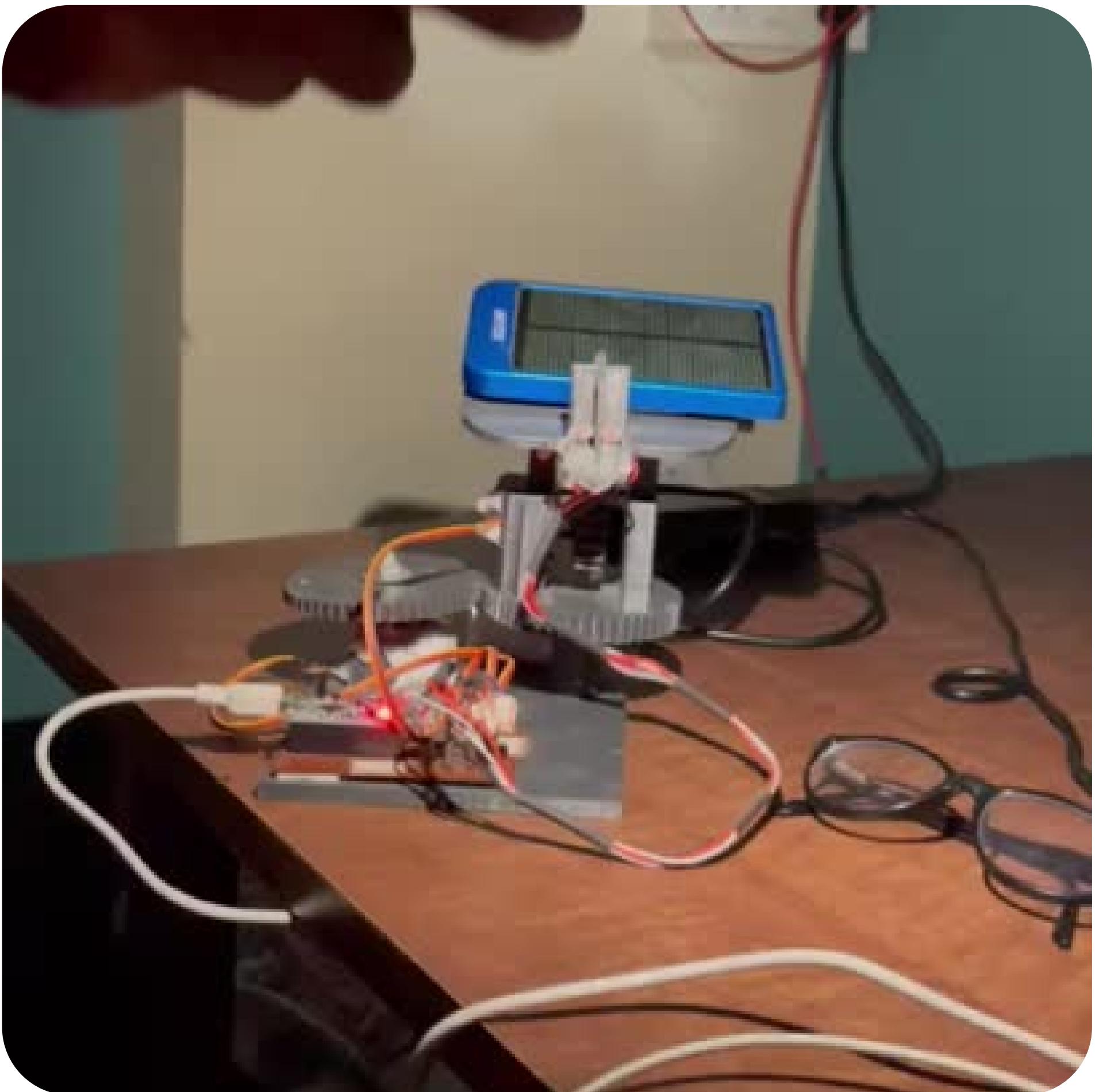


Front View



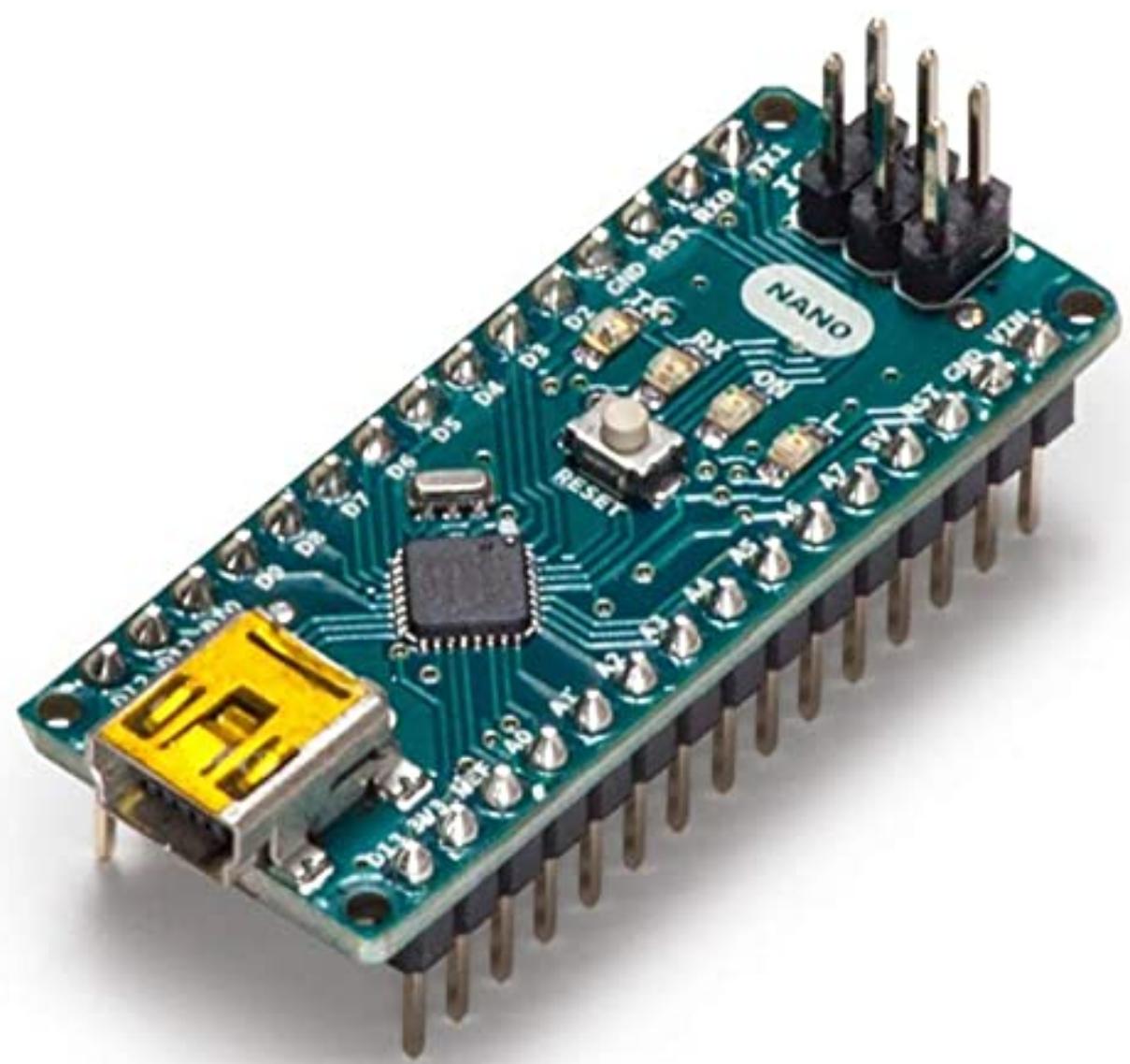
VIDEO DEMO

Here's the working of solar panel tracker under artificial lighting.



Components and devices





ARDUINO NANO

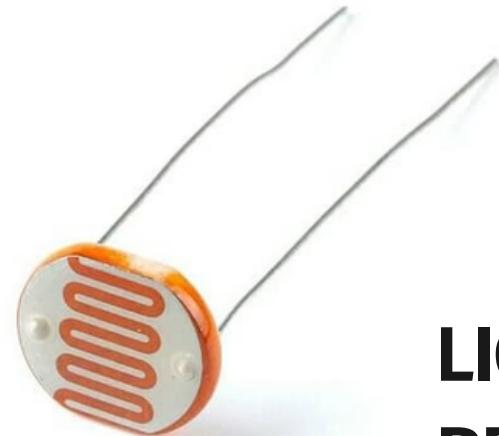
Microcontroller board used for the main control circuitry.

Rs.300



SERVO MOTOR MG995

.Part of the mechanical system.
Rs.180



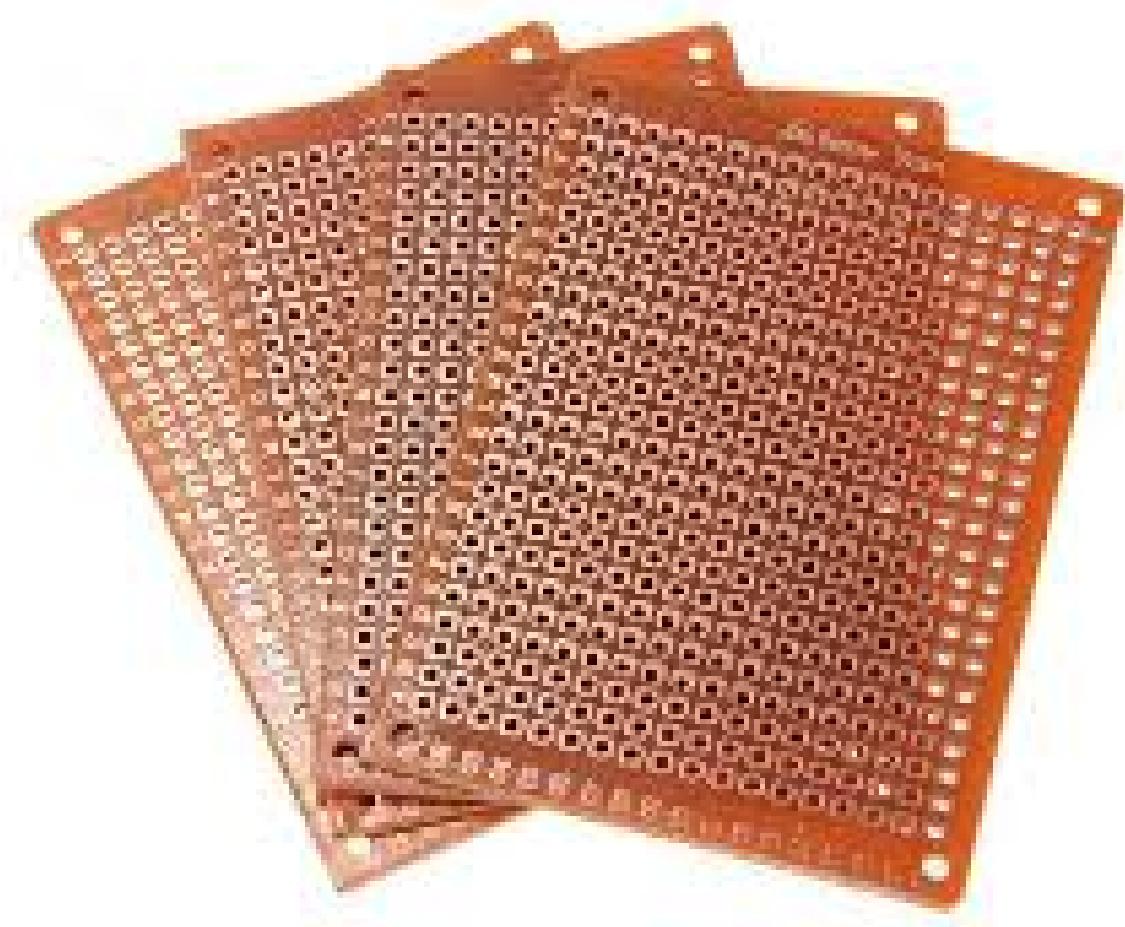
LIGHT DEPENDENT RESISTOR

FOR PROVIDING FEED BACK .
Rs.8

Universal Circuit Board

For Circuit Assembly

Rs.50



HEADER PINS

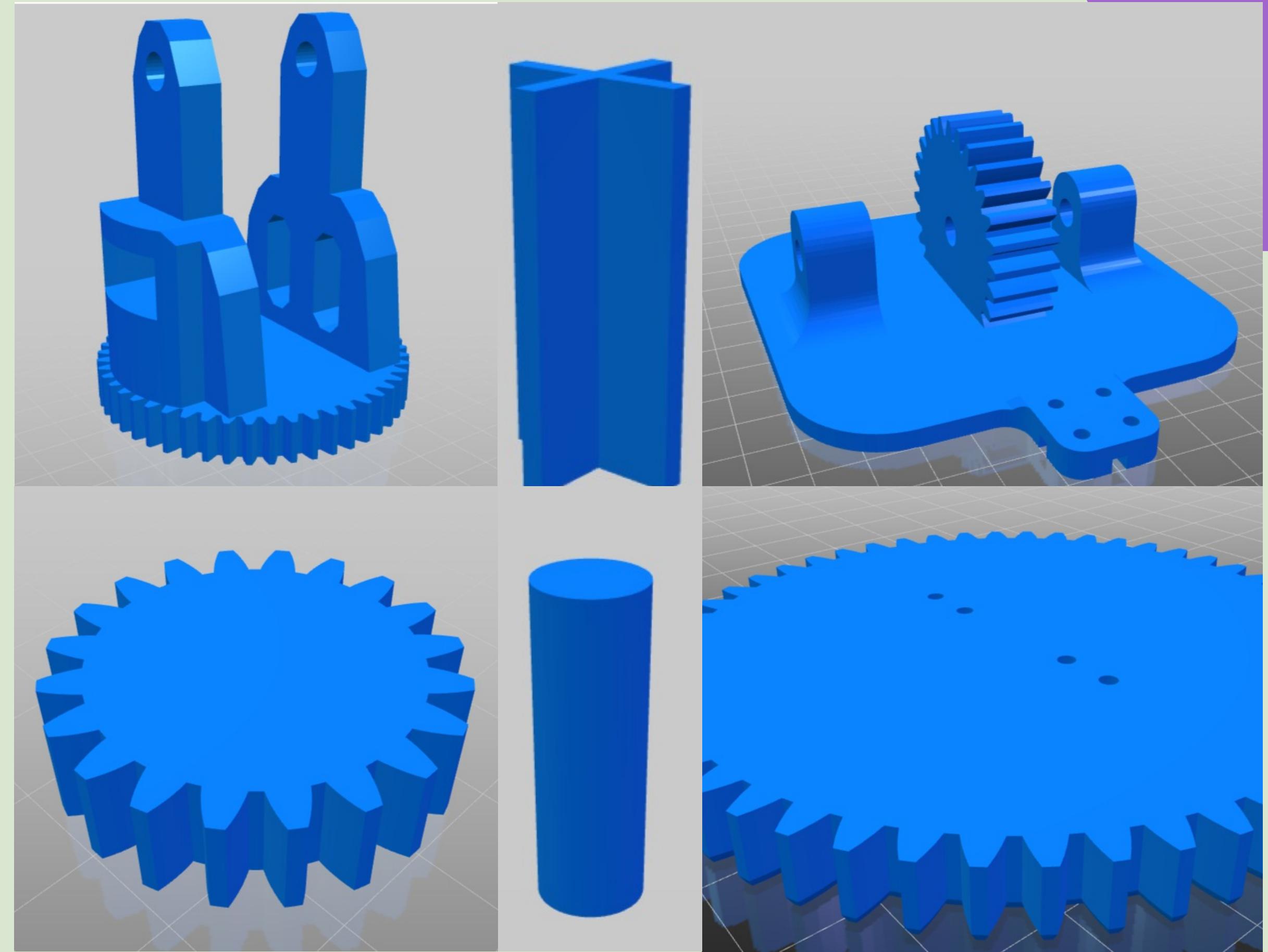
used for connecting the circuit
Rs.50



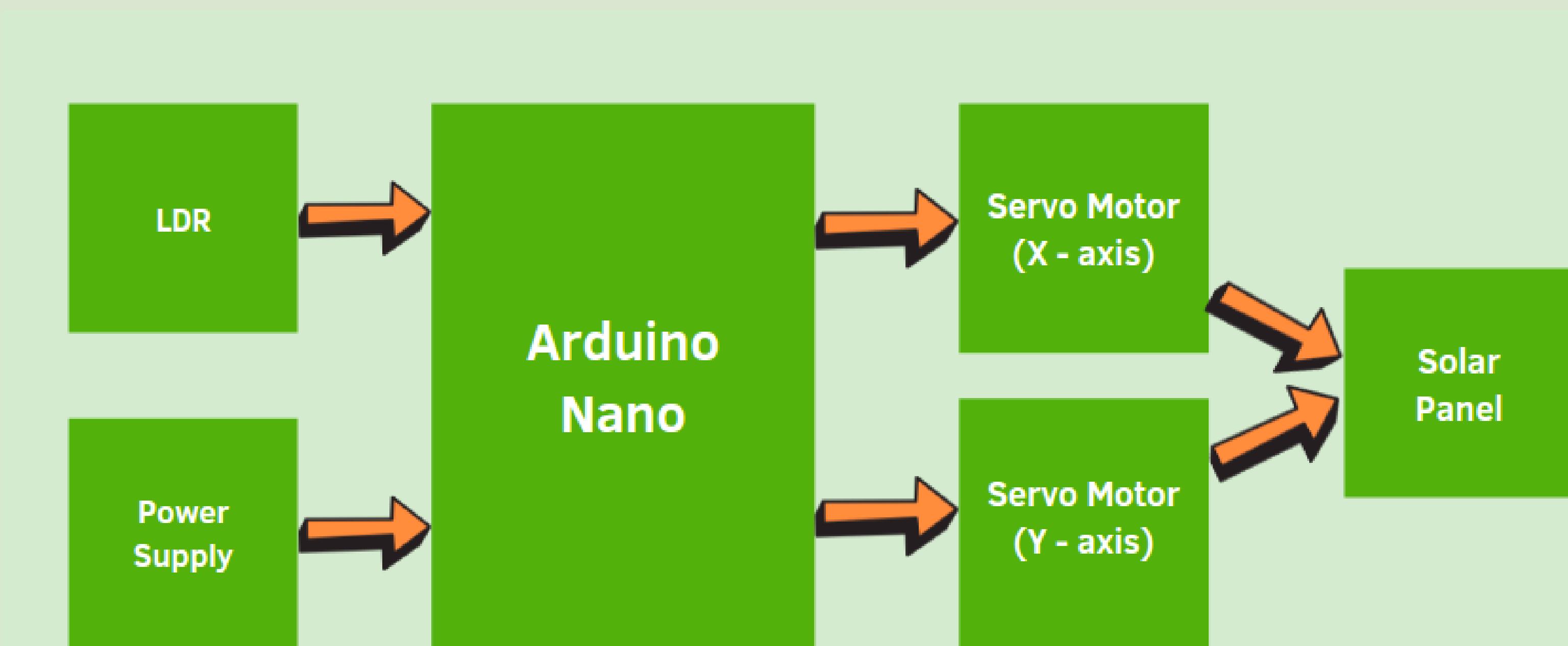
RESISTOR

USED IN FEEDBACK SYSTEM
Rs.10

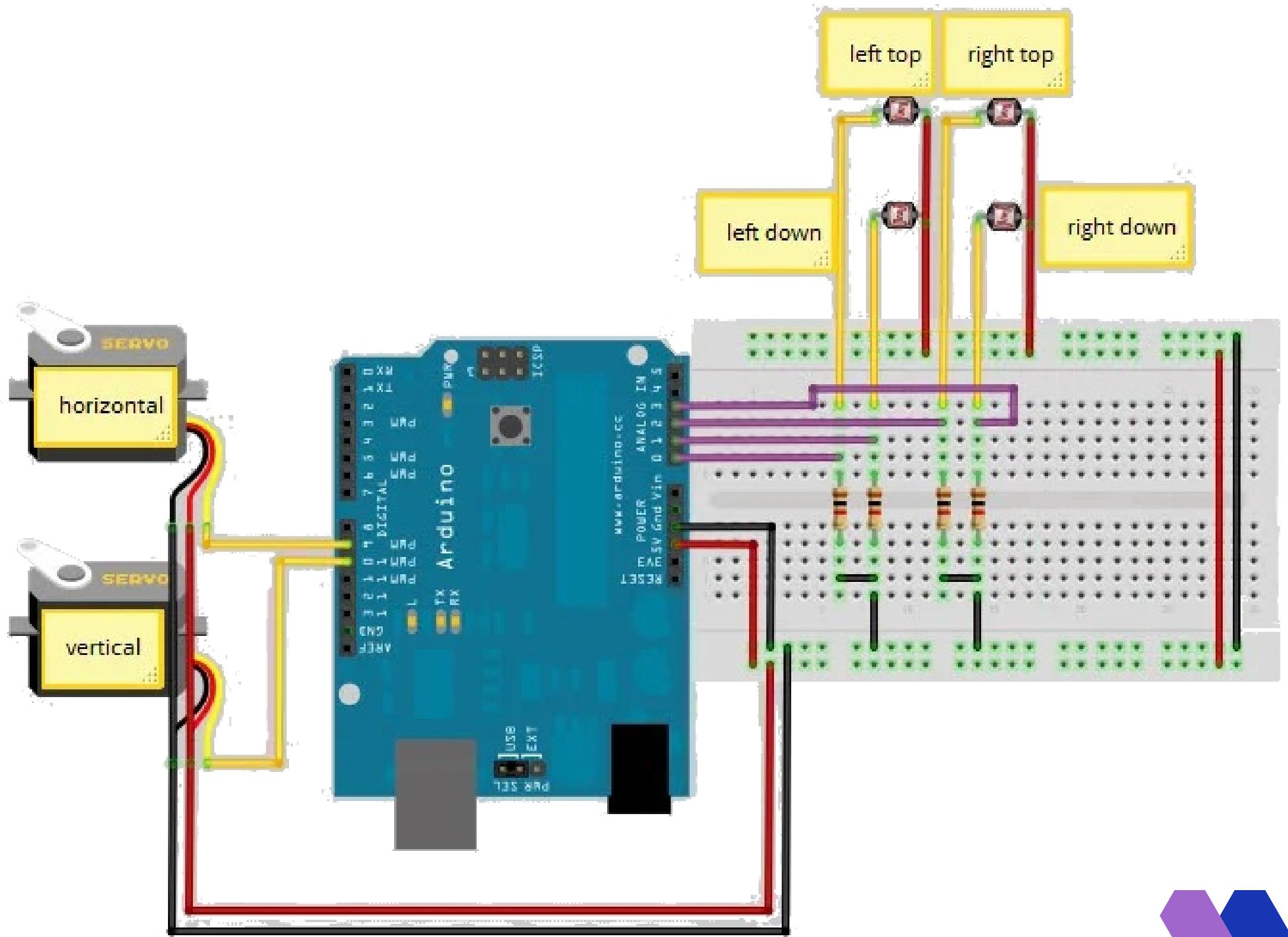
Construction



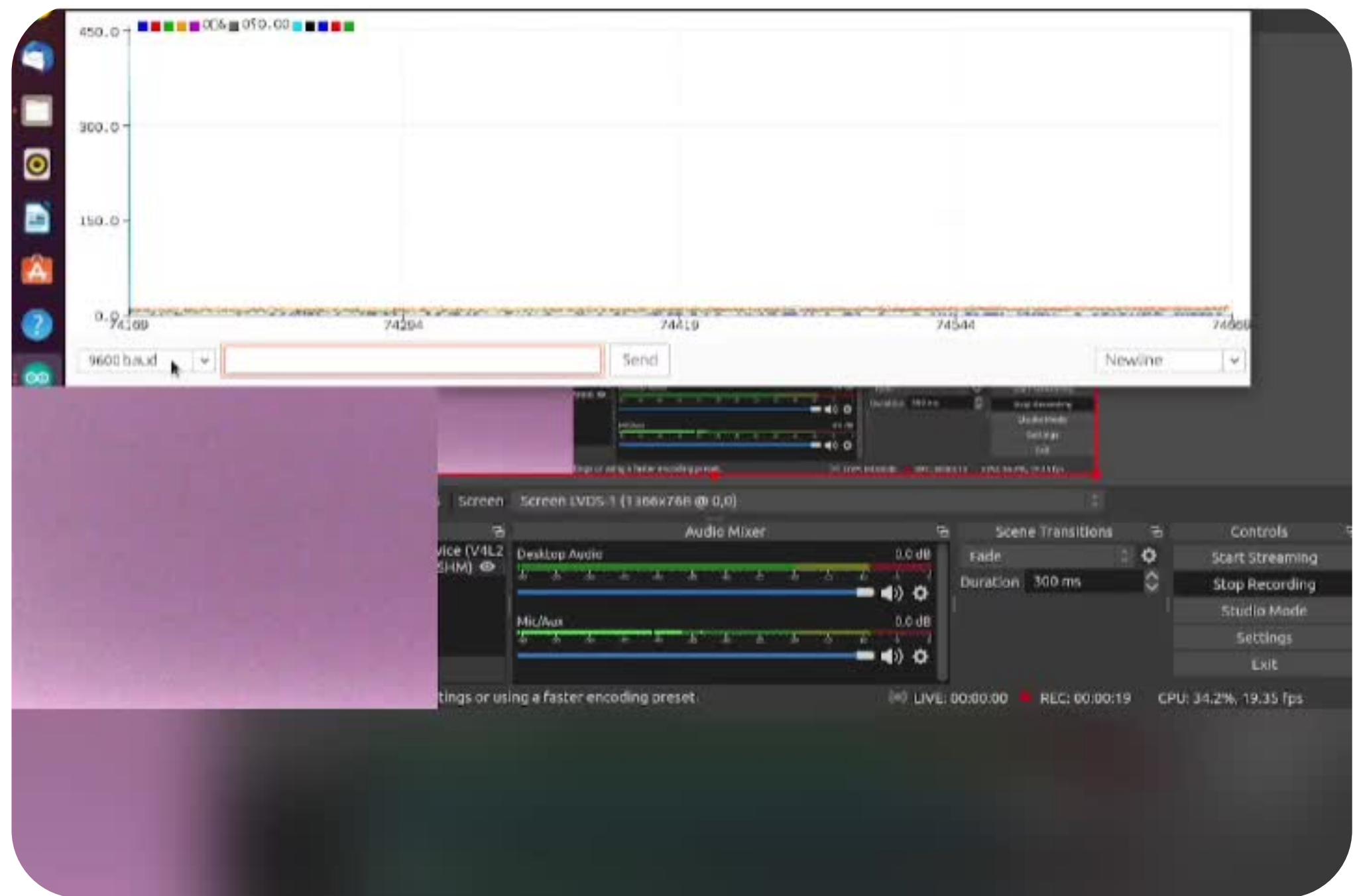
BLOCK DIAGRAM



Circuit Diagram



Feedback Signals



-- LT



-- LD



-- RT

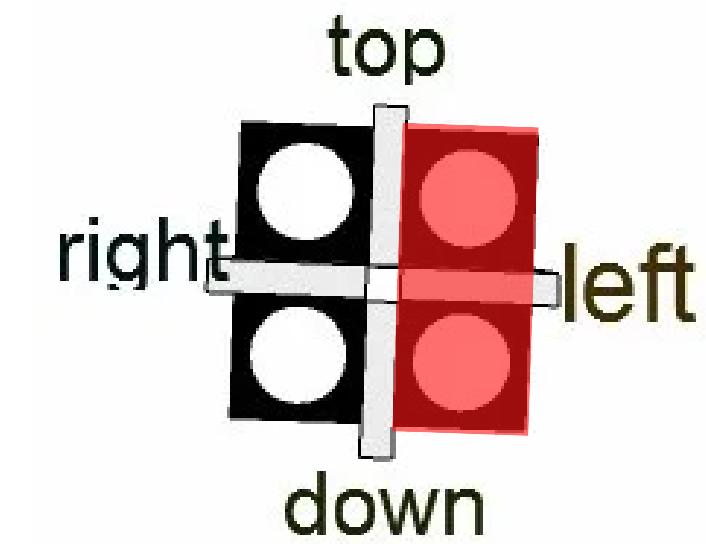
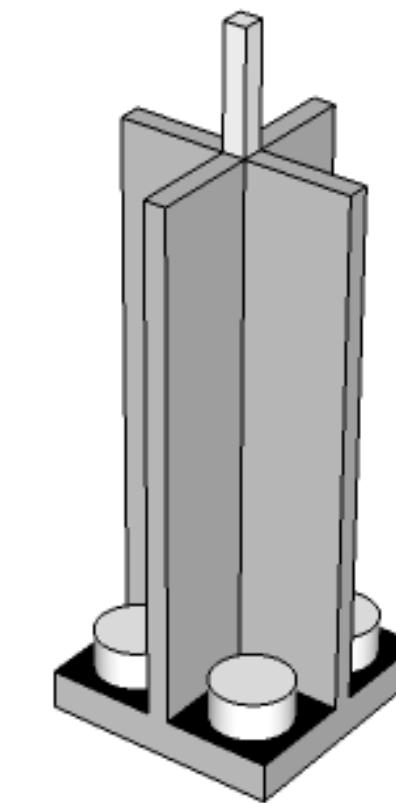
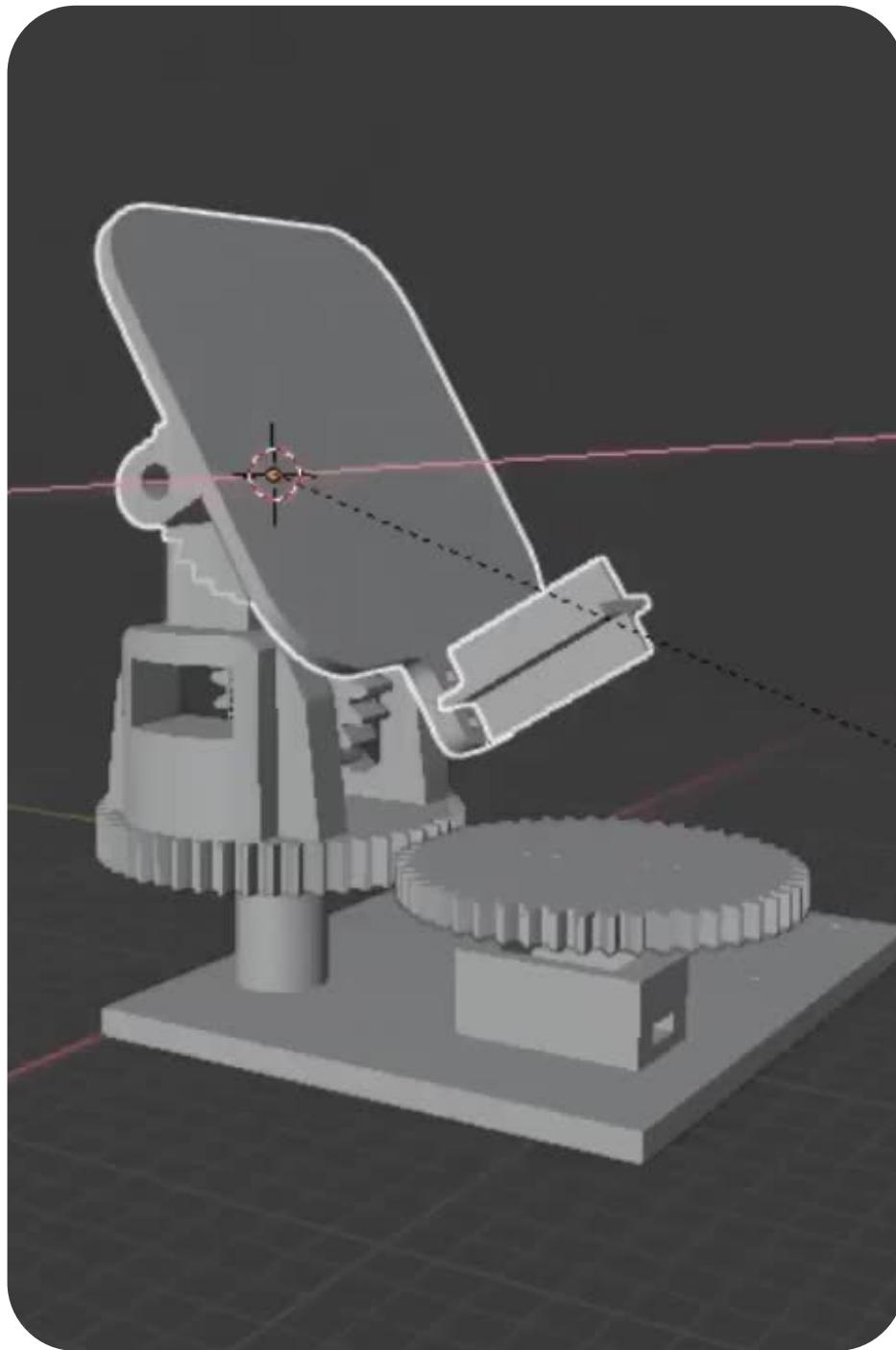
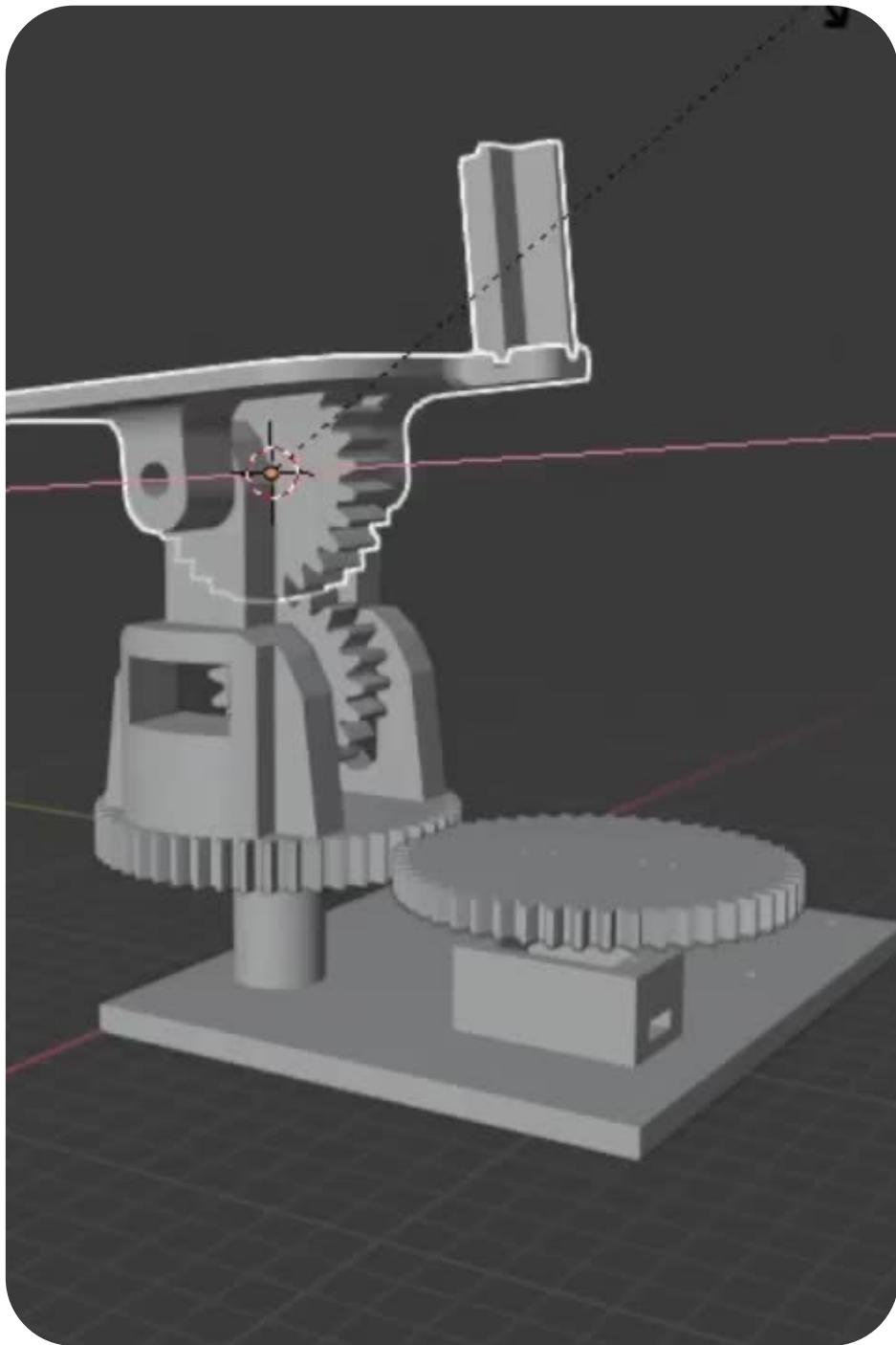


-- RD



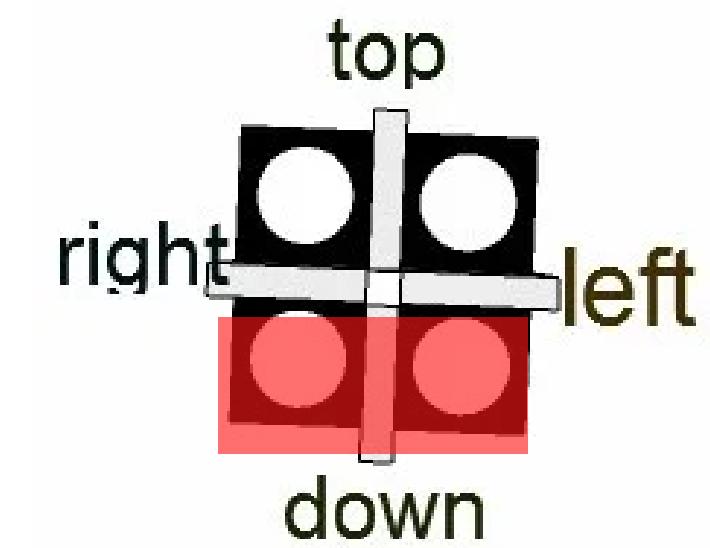
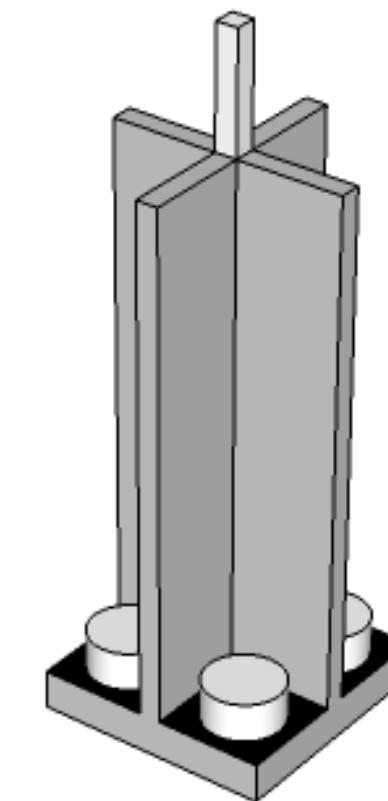
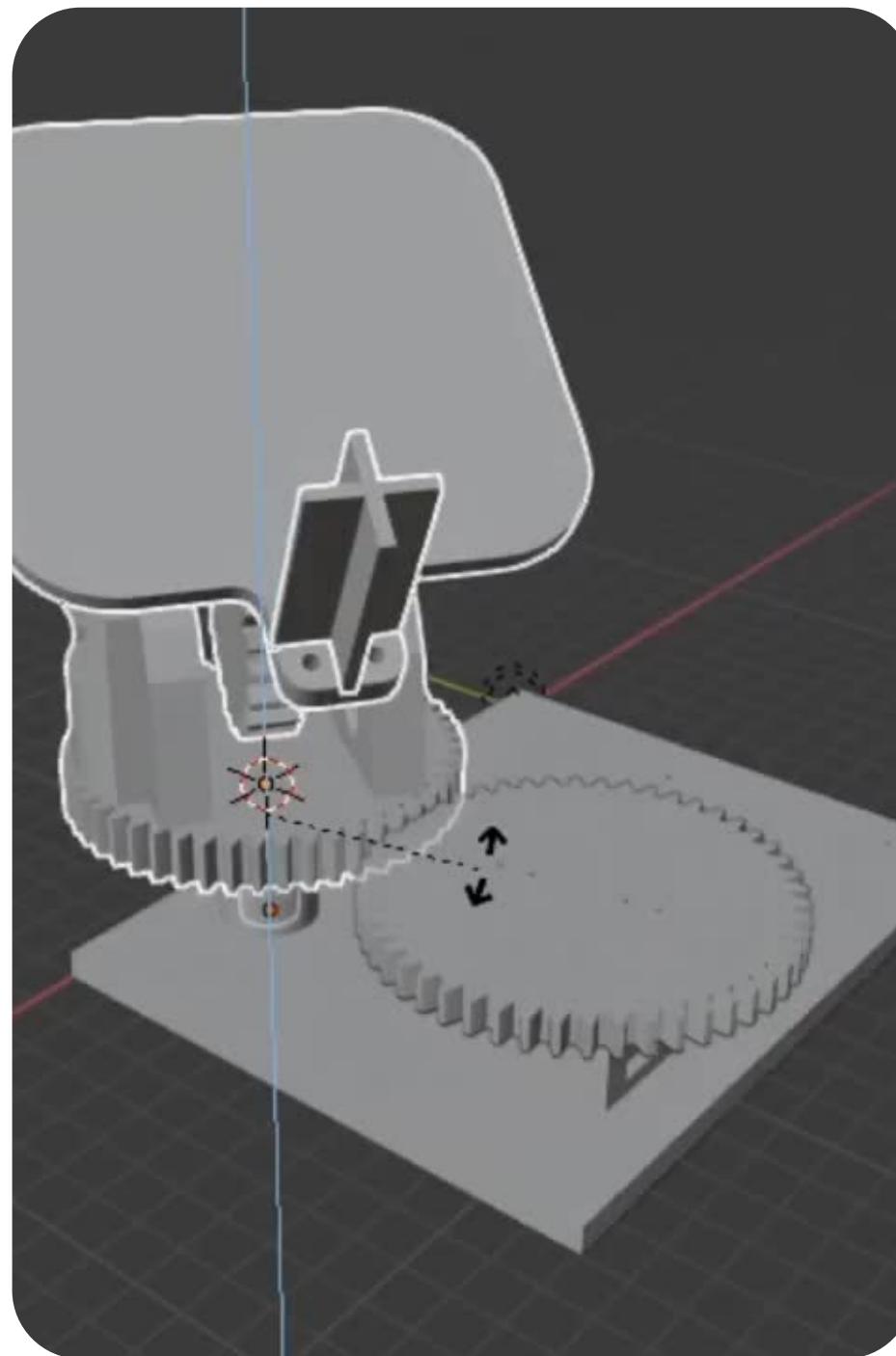
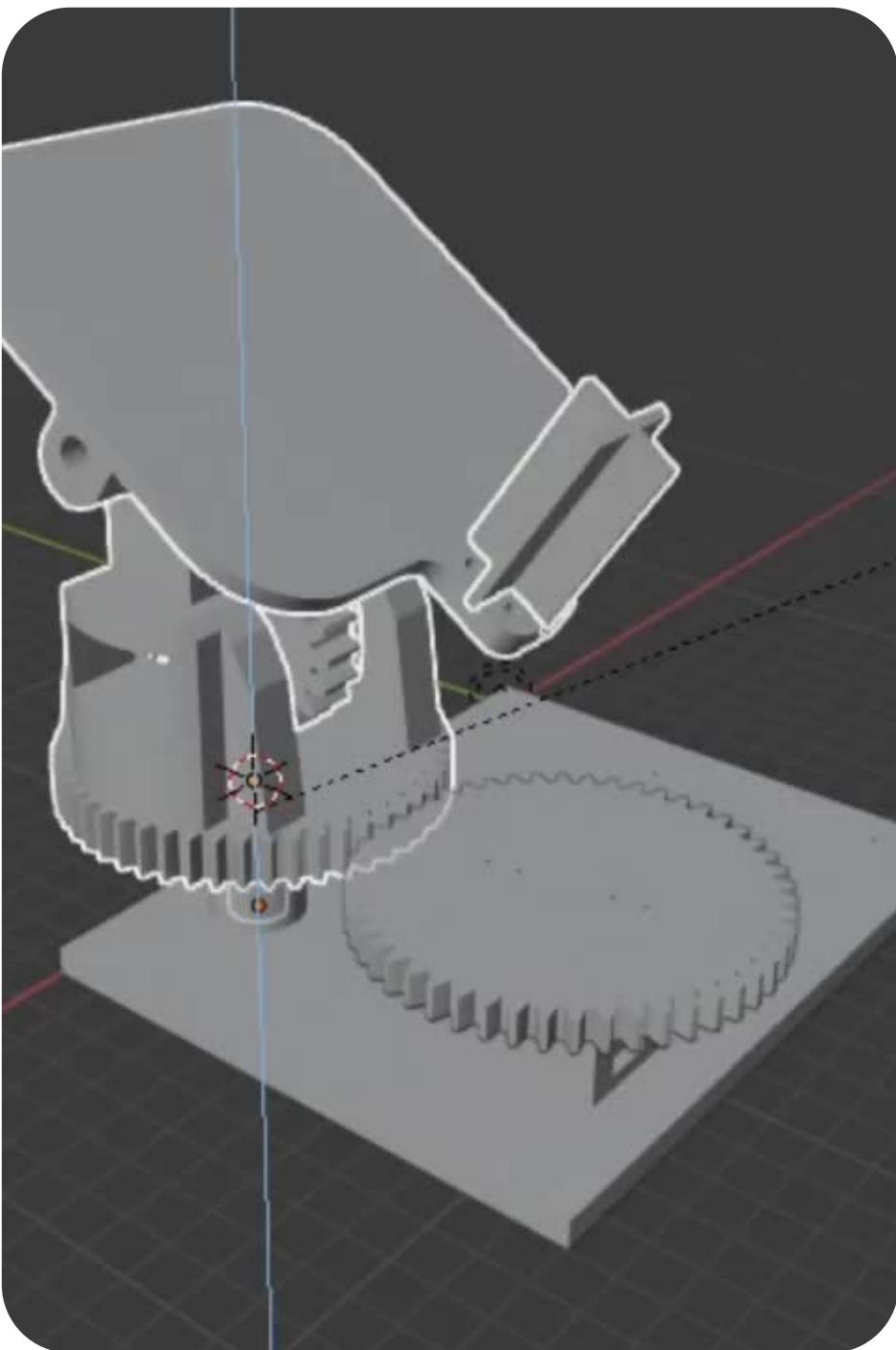
TRACKING ALGORITHM

Vertical Axis



TRACKING ALGORITHM

Horizontal Axis

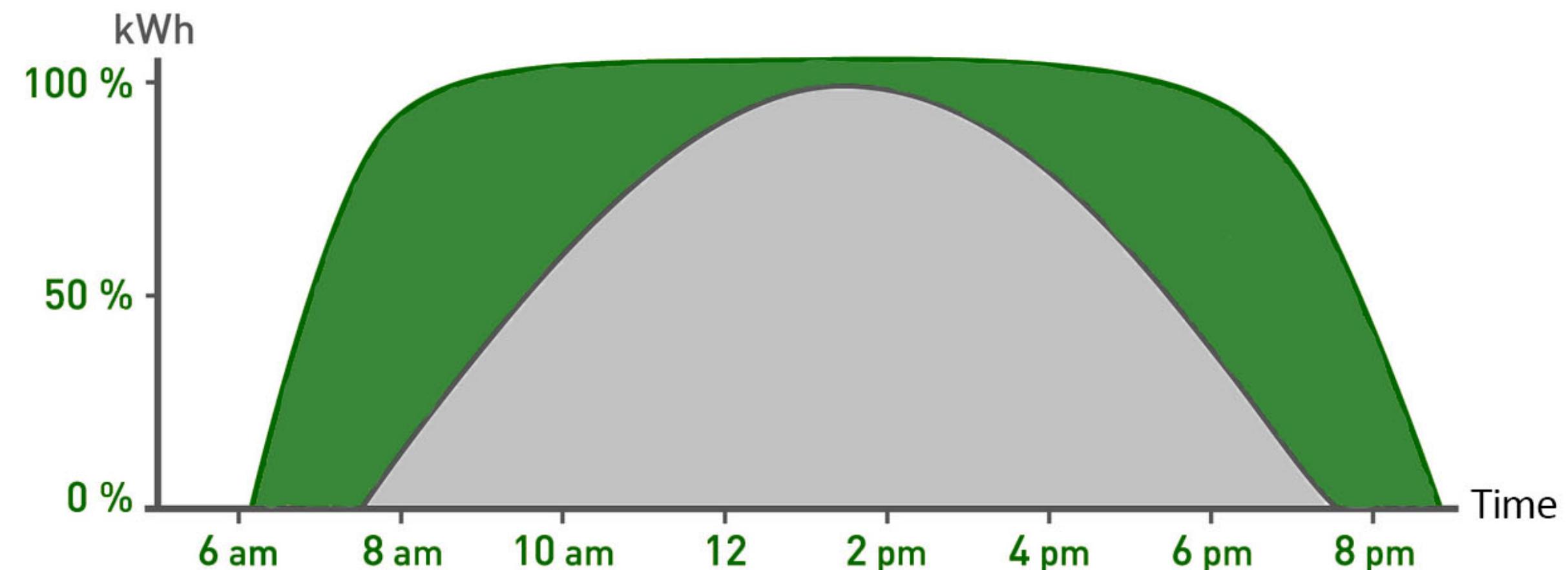
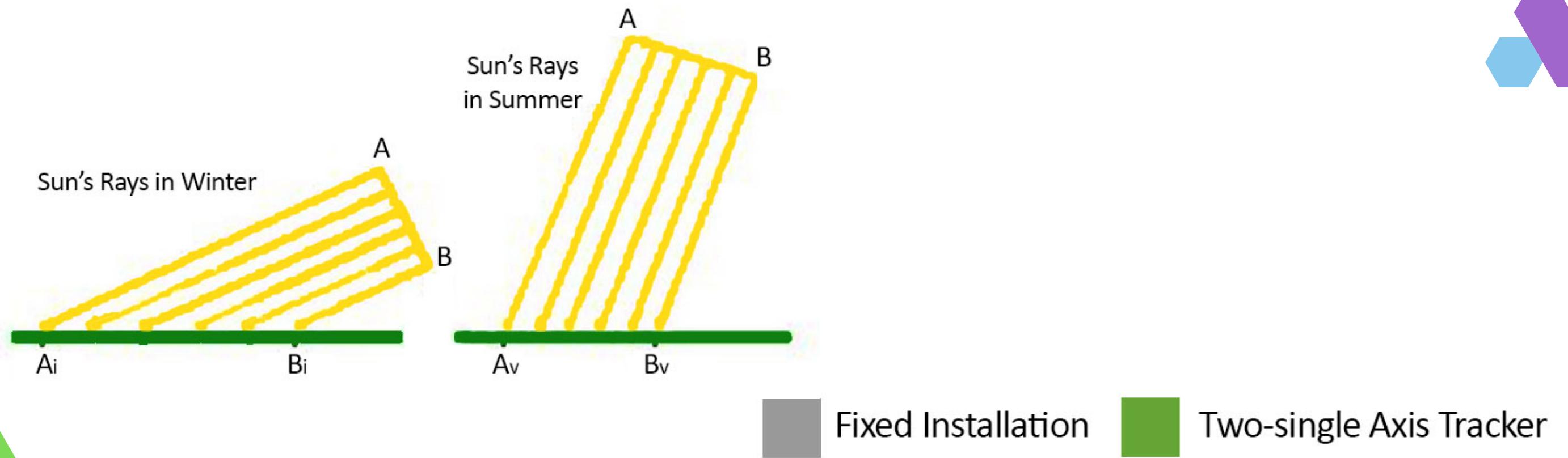


Program Extract

```
if (RT_v - RD_v > THRESHOLD) {  
    if (verticalServoPos < 180) {  
        verticalServoPos += 1;  
        verticalServo.write(verticalServoPos);  
    }  
} else if (RT_v - RD_v < -THRESHOLD) {  
    if (verticalServoPos > 0) {  
        verticalServoPos -= 1;  
        verticalServo.write(verticalServoPos);  
    }  
}
```



Advantages

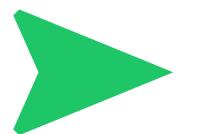


Applications

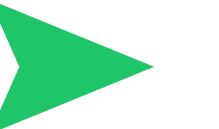
- These panels can be used to power the traffic lights and streetlights
- These can be used in home to power the appliances using solar power.
- These can be used in industries as more energy can be saved by rotating the panel.



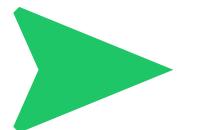
Future Prospects



Solar trackers may become completely autonomous



Cost and specifically LCOE will be a key driver for innovation in solar.



Simplification of tracking systems will most likely become a trend



Summary

Experiences

We all had great experience learning . We started out with planning and executing the project . Our team faced a lot problems but we overcome them .



Experimental Setup

This project taught us a lot of new things . As we started we had lot technical problems but as we fixed them we got to learn different things



Result

After 3 months of sheer hardwork by all the group members we succeeded .





THANK YOU

Members

Risheel Chheda

Sahil Kumarwar

Lavanya Tembhurne

Vishwesh Jadhav