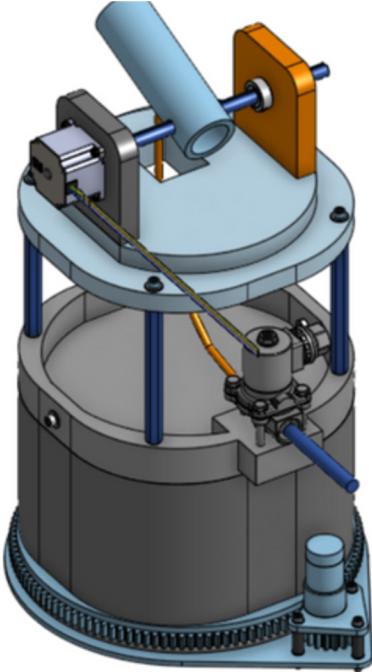


## ROOFTOP FIRE SUPPRESSION SYSTEM



### Objective

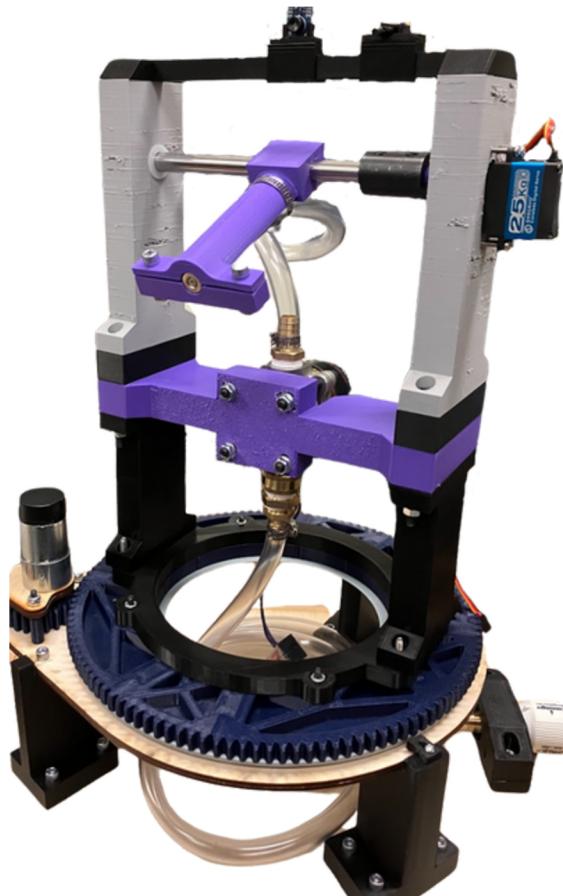
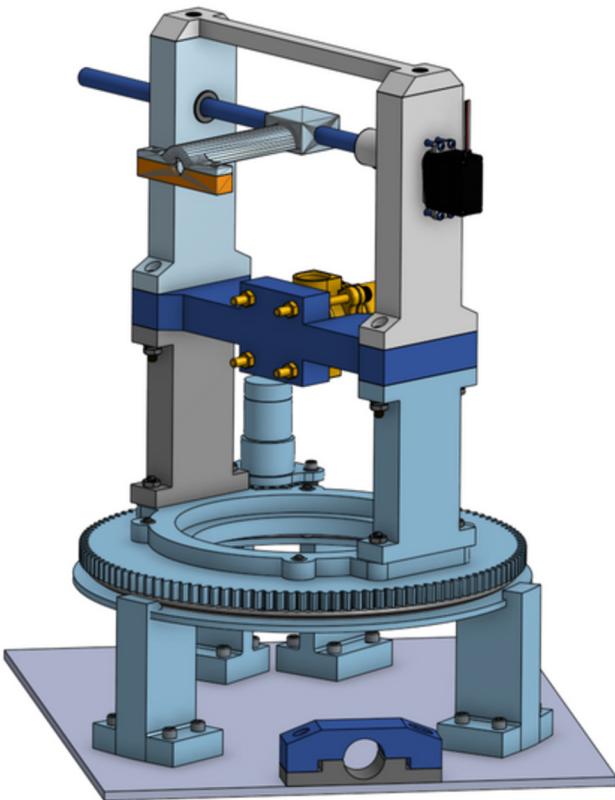
- Design and build an autonomous turret that detects hot spots and fires water at it
- Integrate various sensors and valves through a main turret body to accurately shoot water

### Methods

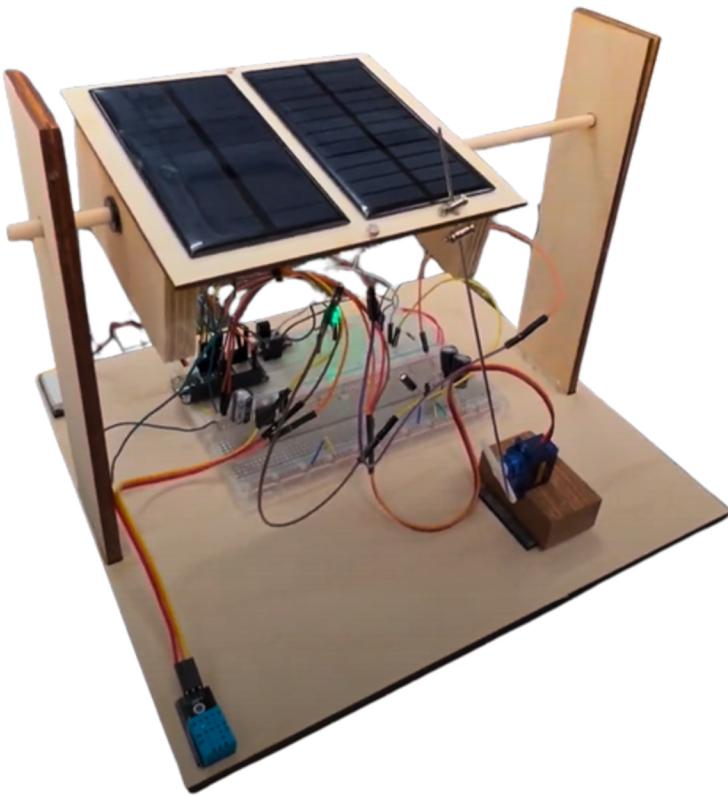
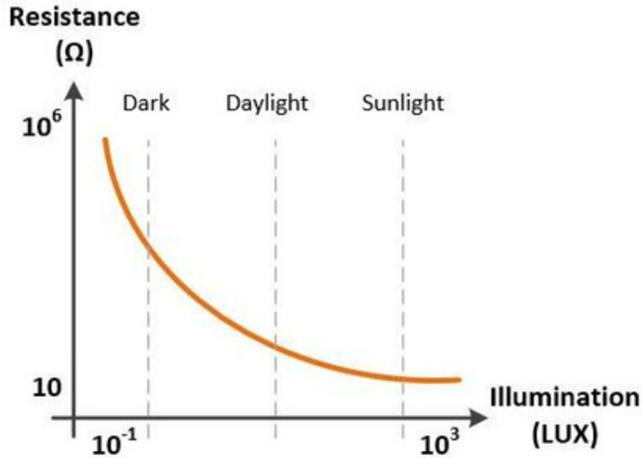
- Sketch an initial design by hand and present it course staff
- Take feedback from design staff and create multiple iterations of the model
- Print the turret body and assemble the transmission and fluid-transporting elements

### Results

- Successfully fired water at temperature hot spots using a standard garden hose connection



## SOLAR-TRACKING PHONE CHARGER



### Objective

- Use light dependent resistors, motors, plywood, solar panels, and an ESP32 to create a single axis solar tracker that can produce a 5V voltage output
- Program the device using Python

### Methods

- Design the circuit diagram around voltage resistors, capacitors, and resistors to maintain a constant 5V and 3.3V power output
- Program the servo motor to respond to changes in light-resistor readings

### Results

- Prototype generated a constant 3.3V from one panel and 5V from the other, sufficient to power the ESP32 and an external device
- Solar panels moved to the angle which maximized normal incident sunlight

