

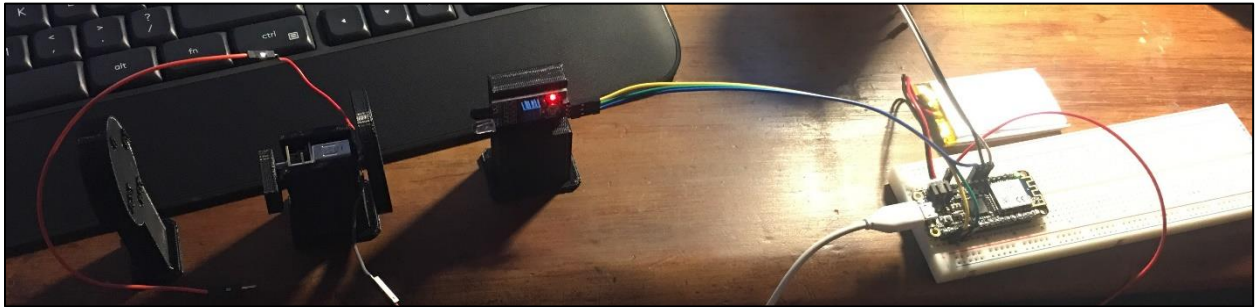
Caleb Taylor

ECE 370

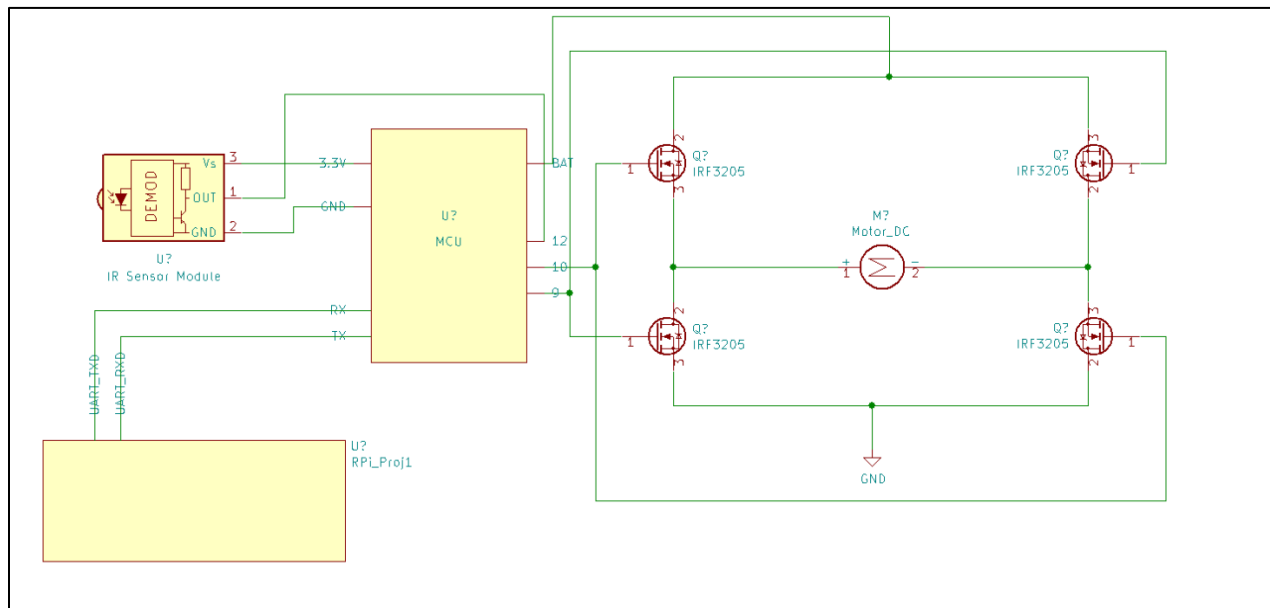
Project 1 – Motor Driver and Servoing

Using the H-Bridge and IR sensor, the purpose of this project is to use a DC motor as if it were a servo that is able to rotate to the desired angle between -720 and 720 degrees. The angle is commanded through hardwire serial from the SBC (Raspberry Pi Zero W).

Test Circuit (No H-Bridge)



Schematic



Pseudo Code

Arduino

```
if (Serial Available)
    parseInt();
    convert given angle to ticks
digitalRead(IRPIN);
if (tickNum != 0)
    if (curTick == abs(tickNum))
        stopMotor();
    else if (tickNum > 0)
        rotateClockwise();
    else if (tickNum < 0)
        rotateCounterClockwise();
    if (ir detects wheel)
        increment detection count
if (detectionCount == 2)
    increment curTick
    reset detectionCount to 0
```

RPi (Python)

```
ser = serial.port...
try:
    while true:
        input = readSerial
        ser.write(input)
except KeyboardInterrupt:
    reset GPIO pins
```

[GITHUB LINK](#)