

Raymond Au  
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Judasilfarion

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pi@raspberrypi:~/Desktop/assignment-4-speed-encoder-Judasilfarion $ ./assignment4
Setup successful
Creating sensorThread
sensorThread creation successful
Activating motor
PWM: 65
Speed: 0.250 m/s
PWM: 101
Speed: 0.725 m/s
PWM: 101
Speed: 0.850 m/s
PWM: 101
Speed: 0.825 m/s
PWM: 101
Speed: 0.825 m/s
PWM: 101
Speed: 0.825 m/s
PWM: 87
Speed: 0.825 m/s
PWM: 37
Speed: 0.525 m/s
PWM: -1
Speed: 0.100 m/s
PWM: -1
Speed: 0.000 m/s
Program end
pi@raspberrypi:~/Desktop/assignment-4-speed-encoder-Judasilfarion $
```

Overall this assignment was quite straightforward for me, as it only took me 4 hours to do it. Multithreading is nothing new to me, and getting the IR sensor to function properly was very easy. The only thing I'm worried about is whether or not my method to count pulses is correct, and whether or not I was supposed to make use of both methods to measure angular velocity. I used the pulse counting method because the motor spins very fast, so I felt that the second method was not necessary.

My code works by counting every time the IR sensor passes one of the holes on the speed encoder disc. I'm pretty sure that's correct, but it might also be that pulses are counted every time the IR sensor switches from high to low or vice versa. But that wouldn't make sense because the number of pulses per rotation is supposed to be 20, right?

What I most struggled with was actually just getting the motor and the IR sensor to sit still on my desk. For testing purposes I had set the for loop to gradually increase the power input into the motor to be very slow, so many times the motor would completely fail to start. I was eventually able to set up ideal conditions for the motor to work by taping the IR sensor to the breadboard, though.