ECE 476/676 - Homework #5

Motors & Graphic Display - Due Monday, October 6th

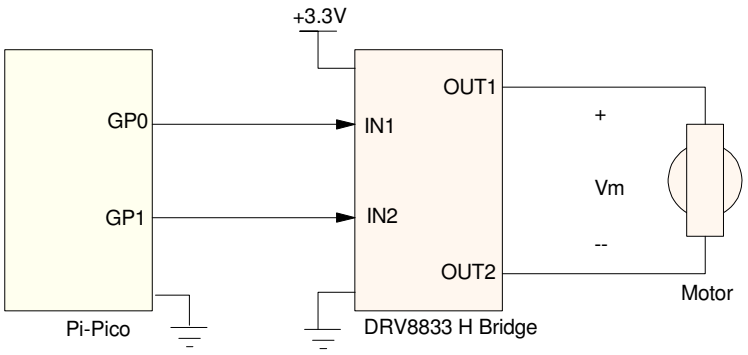
DC Servo Motor (Take 1)

1) Hardware: Connect the DC servo motor to your Pico through an H-bridge.

Verify that the Motor can be driven clockwise and conter-clockwise

- Forward (IN1 = 1, IN2 = 0)
- Stop (IN1 = 0, IN2 = 0), and
- Reverse (IN1 = 0, IN2 = 1)

Measure the voltage Vm for all three conditions



2) Software: Write a Python program which prompts you for the motor direction

- +1 = forward
- 0 = stop
- -1 = reverse

then drives the motor accordingly.

3) Display the motor's status on the graphics display

4) Verify your code is working properly

- The code accepts your keyboard inputs
- The voltage at Vm varies as +Vx, 0, -Vx
- The LCD display shows the motor's status

DC Motor (take 2)

5) Software: Write a Python program which

- Prompts you a number from -100 to +100
- Sets the motor speed from -100% to +100% using PWM, and
- Displays the motor's speed on the graphics display

6) Verify your code is working properly

- The code accepts your keyboard inputs
- The voltage at Vm varies as +Vx, 0, -Vx
- The LCD display shows the motor's status

Demonstration

7) Demonstrate one of these programs

- In-Person
- With a video