ECE 476/676 - Homework #5

Graphic Display & Touch Screen- Due Monday, October 6th

DC Servo Motor (Take 1)

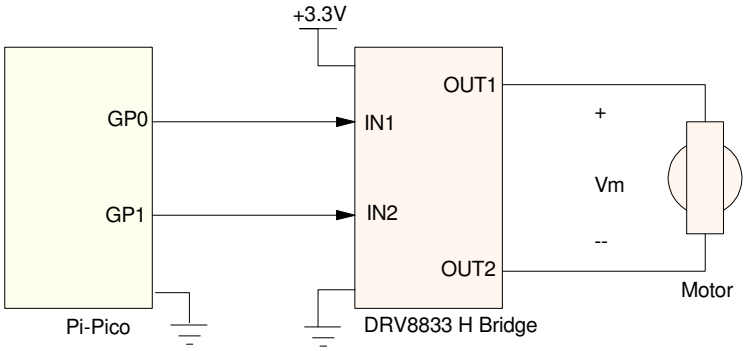
1) Hardware: Connect the DC servo motor to your Pico through an H-bridge.

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

- note: you might need to use 3.3V for the H-bridge. This limits the speed of the motor and the current draw (max current for this H-bridge is 1.5A)



2) Software: Write a Python program which uses the analog input (joystick) to control the motor speed:

- 3.3V = +100%
- 1.65V (center) = 0%
- 0V = -100%

Display the motor's status on the graphics display

3) Verify your code is working properly

- The code accepts the analog input
- The voltage at Vm varies as +Vx, 0, -Vx (Vx is the voltage ot the motor)
- The LCD display shows the motor's status (-100% to +100%)

DC Motor (take 2): Touch Screen

4) Software: Write a Python program which uses the touch screen to control the motor speed:

- Input a number from -100 to +100 via the touch screen, or
- Use a slider to vary the motor speed, or
- Any other way to input data via the touch screen

Display the motor's status on the graphics display

5) Verify your code is working properly

- The code accepts the touch screen input
- The voltage at Vm varies as +Vx, 0, -Vx (Vx is the voltage ot the motor)
- The LCD display shows the motor's status (-100% to +100%)

Demonstration

6) Demonstrate one of these programs

- In-Person
- With a video