ECE 476/676 - Homework #5

Analog Motors, H-Bridge, Graphic Display - Due Monday, October 11th

Motor Speed

Write a Python program to control the speed of a DC servo motor

- The motor should be able to spin clockwise or counter-clockwise,
- From 0% to 100% of full speed.

The joystick input controls the motor speed

- Middle = stopped
- Up = clockwise
- Down = counter-clockwise

An H-bridge and PWM controls the motor speed and direction

The graphics display shows you

- The motor speed (0% to 100%)
- The moror direction (CW or CCW), and
- The joystick input (a rectangle going up or down from the middle)

1) Write a Python program which

- Allows you to input a number from -100 to +100, and
- Outputs a PWM signal to control the speed of a DC servo motor

Test your code

2) Write a Python program which

- Reads the analog joystick and
- Returns a number from -100 to +100 as you move the joystick up and down

3) Write a Python program which displays on the graphics display

- The speed of the motor (0 to +100)
- The direction (CW of CCW), and
- The joystick position as a bar-graph

4) Puth these all together for a Python program to control and display the speed and direction of a DC motor.

5) Demo your program.