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Lab 6

Introduction: In this lab, a PWM output will be used to control the motor speed of a motor. The motor speed will be controlled by a potentiometer. This potentiometer reading will be taken by adc, and the CCR1 and CCR2 registers will be set according to the readings. No interrupts are required for the first part of the lab.

High-Level Design: The ADC and clock are initialized similarly to previous labs. The timer will also be initialized to set the period from CCR0 and set PWM outputs(mode 2 or 3) through CCR1 and CCR2. The ADC will be inputted through A4, as done in lab 3. The main function will continuously read adc, and convert the adc reading into voltage(3.3). The voltage is then scaled for a proper CCR1 and CCR2 value. The process of how the scaling works can be found in the lab manual, but overall, we want to have CCR1 and CCR2 range from 1-1199 (with CCR0 as 1200). This is so that we can properly modulate the input voltage and get a voltage drop across the motor to turn it. As one CCR value is modulated and increased, the other will proportionally decrease so that the voltage drop gets bigger for more motor speed.

Current issues: We were able to confirm that the CCR1 and CCR2 values were changing (inversely proportional) as we turned the potentiometer. Our main issue is that when measuring the voltage drop or checking if PWM is outputting, we can't seem to get any voltage drop or PWM output. We also tried checking the counter registers, but are unsure of how else we can verify that we are outputting PWM.