**Assignment 4.1: Report**

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**YouTube:**

<https://www.youtube.com/watch?v=7mQx1crHrpk>

<https://www.youtube.com/watch?v=I9uSiNL2EoE>

<https://www.youtube.com/watch?v=mB5PSvaSHTk>

<https://www.youtube.com/watch?v=DGE5OZQ1aEE>

<https://www.youtube.com/watch?v=2Iu2msAzy2w>

**Description:**

This lab was all about interfacing with motors. The lab started off with controlling the speed of a DC brushed motor using PWM and a transistor to isolate the motor from the ATmega328. The lab then went into speed and direction control of a brushed DC motor using an H-Bridge. Finally, the lab ended with how to interface with servo motors. This is done using a the 16-bit timer on the ATmega328 and a PWM signal. The period of the signal is 20 milliseconds, with a duty cycle between 1 millisecond and 2 milliseconds. This is the signal that the servo motor reads, and the duty cycle sets the angle of the servo. We used this to create a sweep servo, and to create a distance sweep device.