

CS443/543 - Embedded Systems

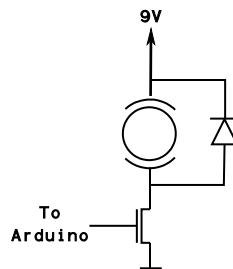
Assignment #7

Fall 2025

This assignment has two parts. The purpose of the assignment is to control a motor in two ways. The first part of the assignment is to use a MOSFET transistor to control the motor, and to use PWM to control its speed. The second part of the assignment is to use an integrated circuit chip to create a bidirectional motor control. You will use the white breadboard to wire your two circuits, using parts from your Arduino Kit.

PART 1

You will use the Permanent Magnet Motor and the IRF520 Transistor for this part, along with the Potentiometer from your Vandduino Board. Wire up the the circuit shown below:

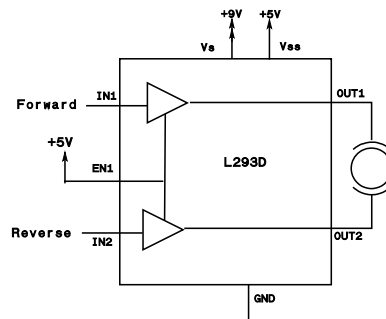


Refer to the datasheet for the IRF520 transistor for the proper connections to the three leads of the transistor.

Use the potentiometer to control the PWM of the pin connected to the gate of the transistor.

PART 2

For this part, use the L293D IC - refer to the datasheet for the pin connections. Also, use a button from your Vandduino board to specify the direction for the motor. Wire up the circuit as shown below.



The switch should be used to specify the direction of the motor according to the following sequence with each press: forward-stop-reverse-stop-etc.