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**COMP551 – Interfacing**  
**Fall 2017**

**Lab 9**

**Interfacing and Programming DC Motor Control**

<b>Students:</b>				
<b>Student ID's:</b>				
<b>Section:</b>	<b>01</b>	<b>02</b>	<b>03</b>	<b>04</b>

**NOTE:** Labs are due at the start of the next lab period. Only submit one lab per group of two students.

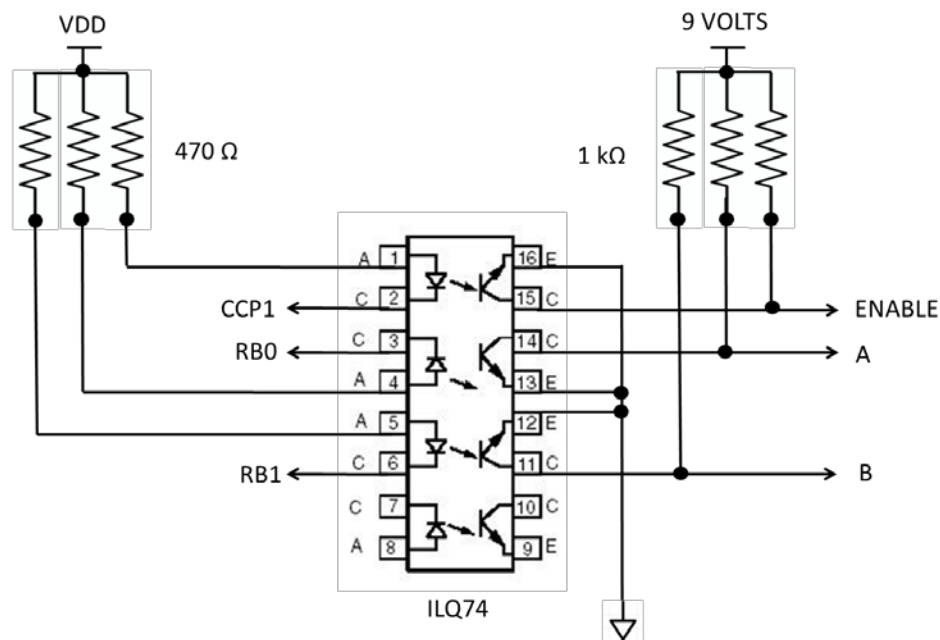
## Lab 9 – Interfacing and Programming DC Motor Control

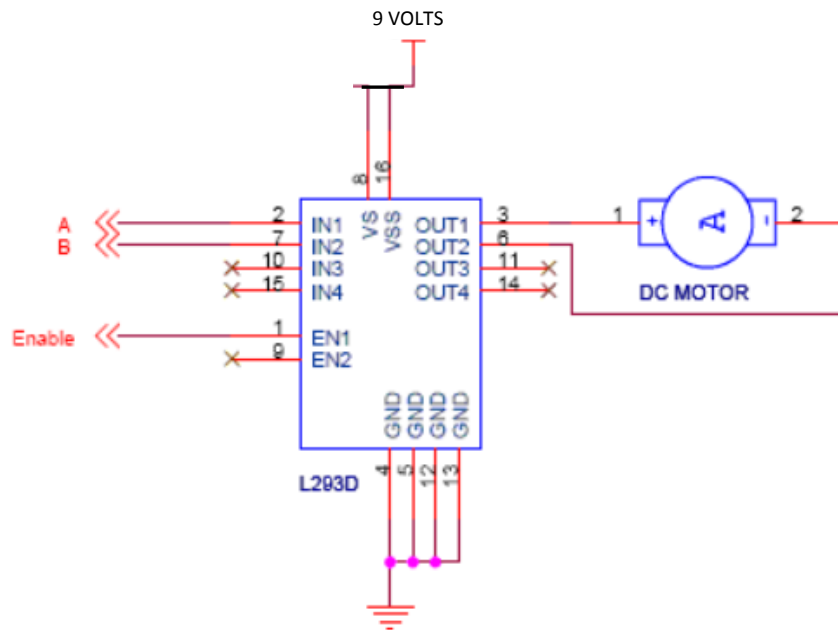
### Exercise:

1. Wire the following motor control circuit on your proto-board. Using the PWM module, write a program to operate the motor as follows; when the on-board button is pressed, the motor should operate in the reverse direction with a 20% duty cycle. When the button is not pressed, the motor should operate in the forward direction with a 100% duty cycle. Use a value of 20 kHz for  $F_{\text{pwm}}$ .

Also, connect a green LED and red LED to the microcontroller. The red LED should illuminate when the motor is rotating in the forward direction and the green LED should illuminate when the motor is rotating in the reverse direction.

Demonstrate the proper operation of the circuit and program to the instructor and submit a hardcopy of your program. Be sure to also include the calculations you made to determine the values for PR2, CCP1RL and the DCB1B1:DCB1B0 register values, for both duty cycle values.





### Truth Table

A	B	Description
0	0	Motor stops or Breaks
0	1	Motor Runs Anti-Clockwise
1	0	Motor Runs Clockwise
1	1	Motor Stops or Breaks

For above truth table, the Enable has to be Set (1).

## PIN DIAGRAM – PDIP (Plastic Dual In-line Package)

