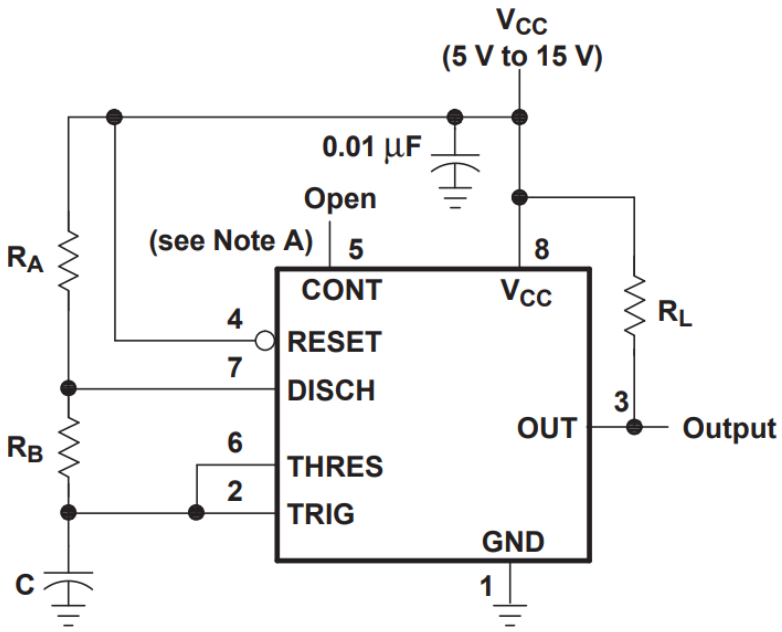
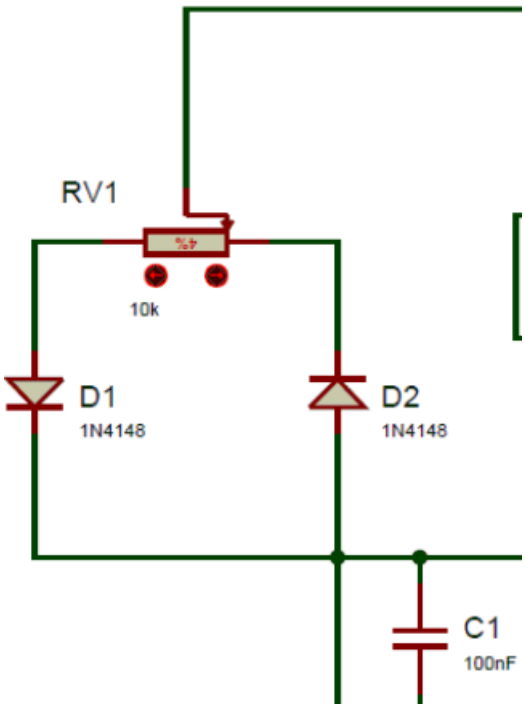
Project Proposal: A fume extractor fan driven by a 555-timer-generated PWM signal, modulated by a potentiometer.

Original Design

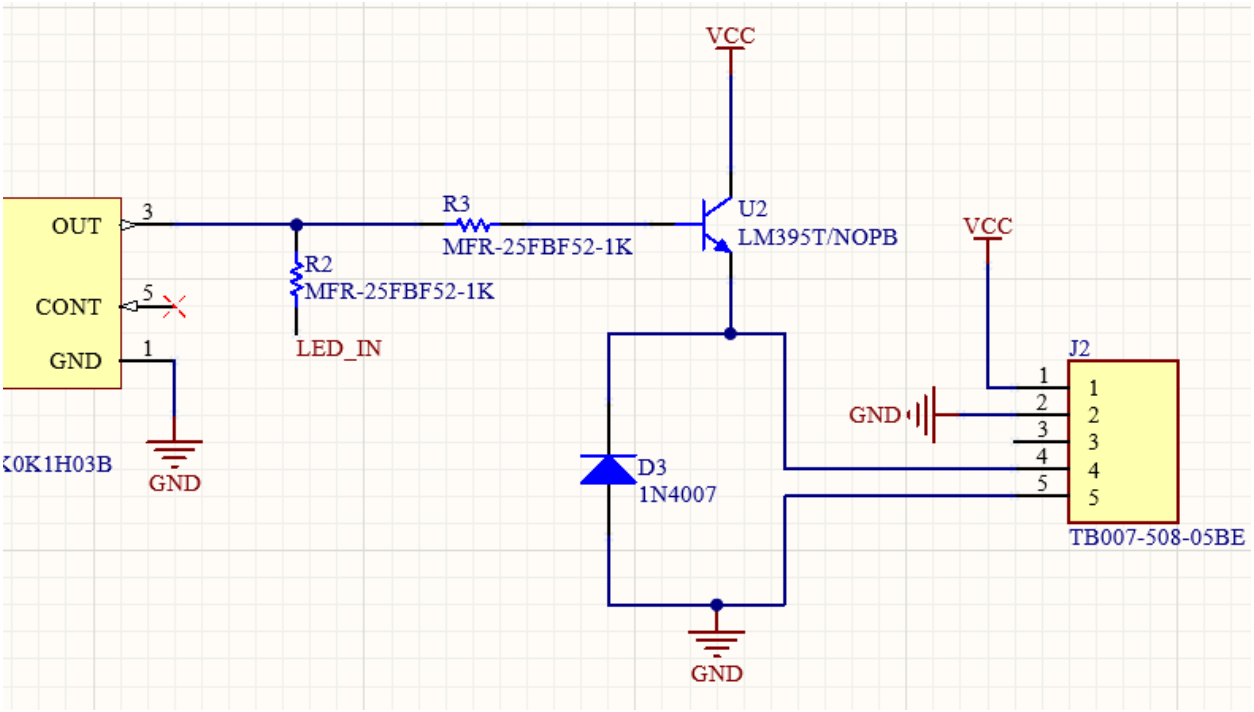
This project does not use an original internet design for a PWM-driven motor. I have, however, drawn from the astable 555-timer configuration provided by TI Instruments' datasheet, as shown below.



I've modified the TI Instruments astable configuration by replacing the resistor divider with a diode network to allow PWM to occur. I derived this design from an online LED PWM driver circuit, but modified the layout and set my potentiometer value to 20k, as I will be using this capacitive touch potentiometer.

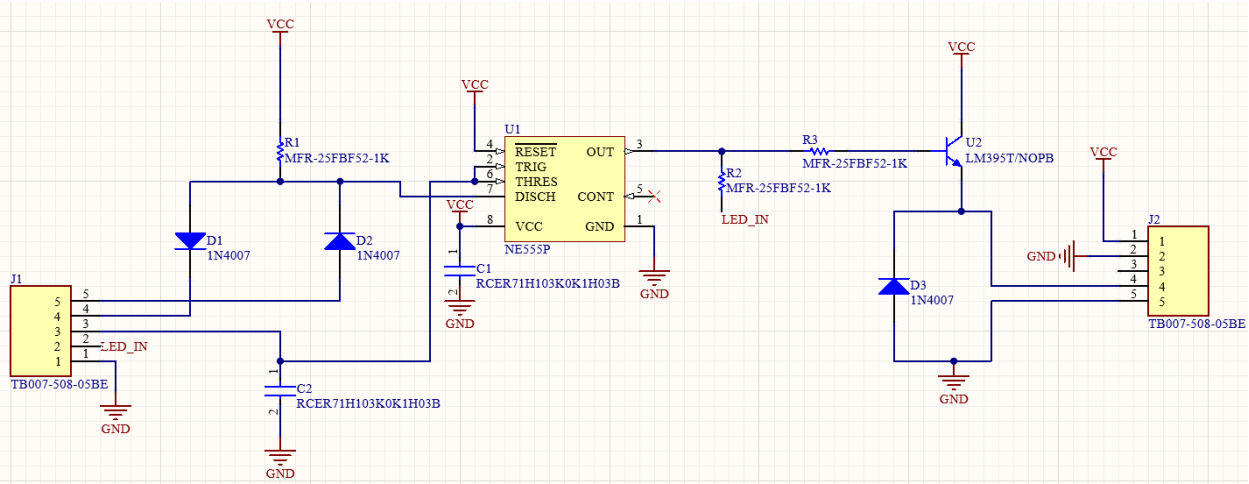


Finally, I will be using the PWM output of the 555 timer to drive both an LED and a power MOSFET for a motor.



The motor will be wired through pins 4 and 5 of J2. The LED will (schematically) lie where the LED_IN net name is located.

Total Circuit (with on-board connectors accounted for):



To summarize, I will be:

- Using an astable 555 timer configuration modified with a diode network and potentiometer to maintain stable PWM output
- Using a capacitive touch potentiometer
- Driving both a motor and an LED with PWM signal