

Lesson 22 Relay

Overview

In this lesson, you will learn how to use a relay.

Component Required:

- (1) x Elegoo Uno R3
- (1) x 830 tie-points breadboard
- (1) x Fan blade and 3-6v dc motor
- (1) x L293D IC
- (1) x 5v Relay
- (1) x Power Supply Module
- (1) x 9V1A Adapter
- (8) x M-M wires (Male to Male jumperwires)



Component Introduction

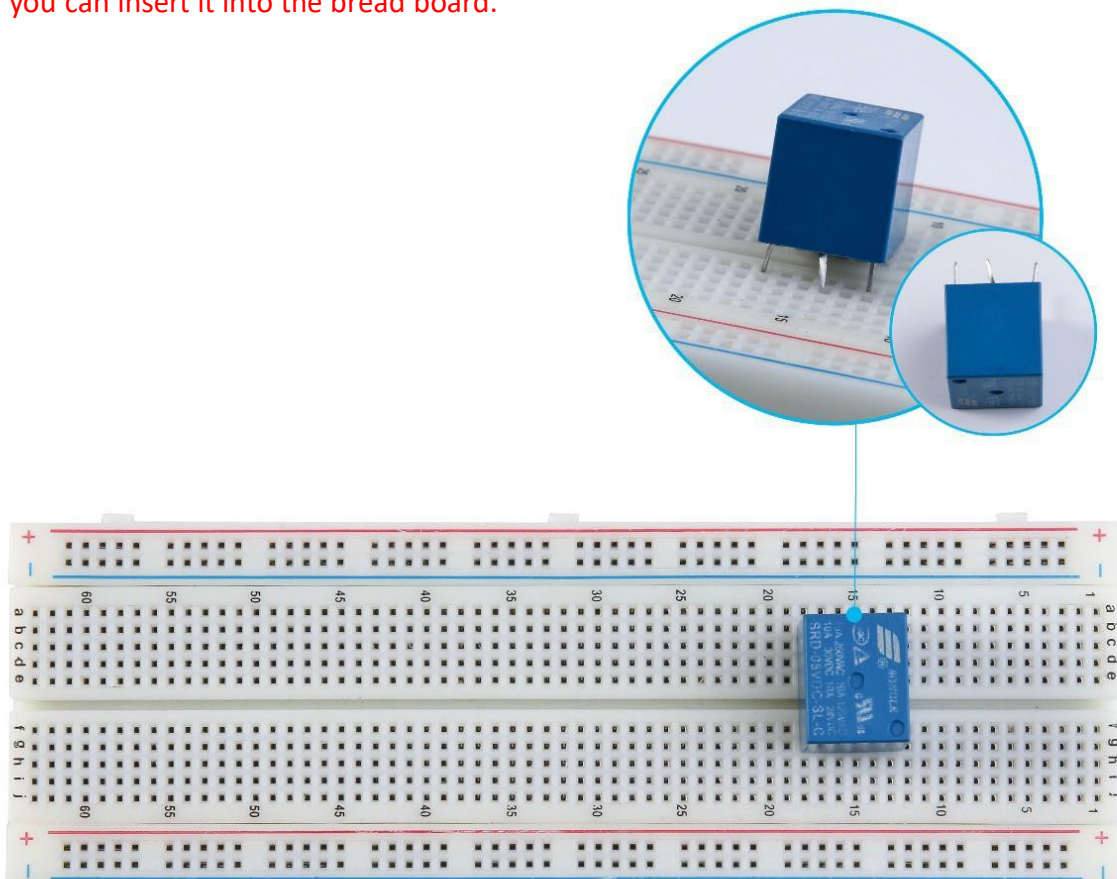
Relay:

A relay is an electrically operated switch. Many relays use an electromagnet to mechanically operate a switch, but other operating principles are also used as in solid-state relays. Relays are used where it is necessary to control a circuit by a low-power signal (with complete electrical isolation between control and controlled circuits), or where several circuits must be controlled by one signal. The first relays were used in long-distance telegraph circuits as amplifiers. They repeated the signal coming in from one circuit and re-transmitted it on another circuit. Relays were used extensively in telephone exchanges and early computers to perform logical operations.

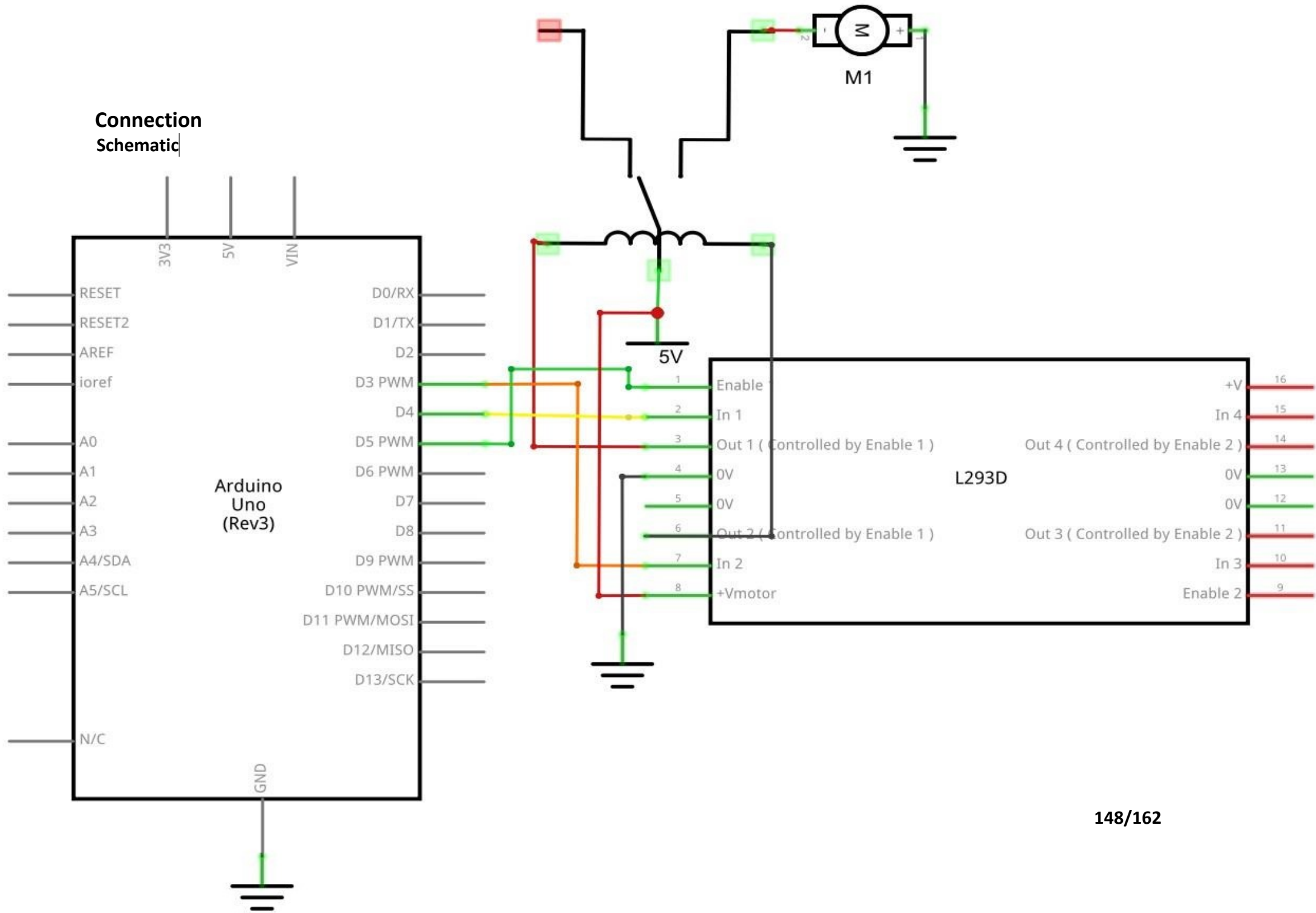
A type of relay that can handle the high power required to directly control an electric motor or other loads is called a contactor. Solid-state relays control power circuits with no moving parts, instead using a semiconductor device to perform the switching. Relays with calibrated operating characteristics and sometimes multiple operating coils are used to protect electrical circuits from overload or faults. In modern electric power systems, these functions are performed by digital instruments called "protective relays".

Below is the schematic of how to drive relay with Arduino.

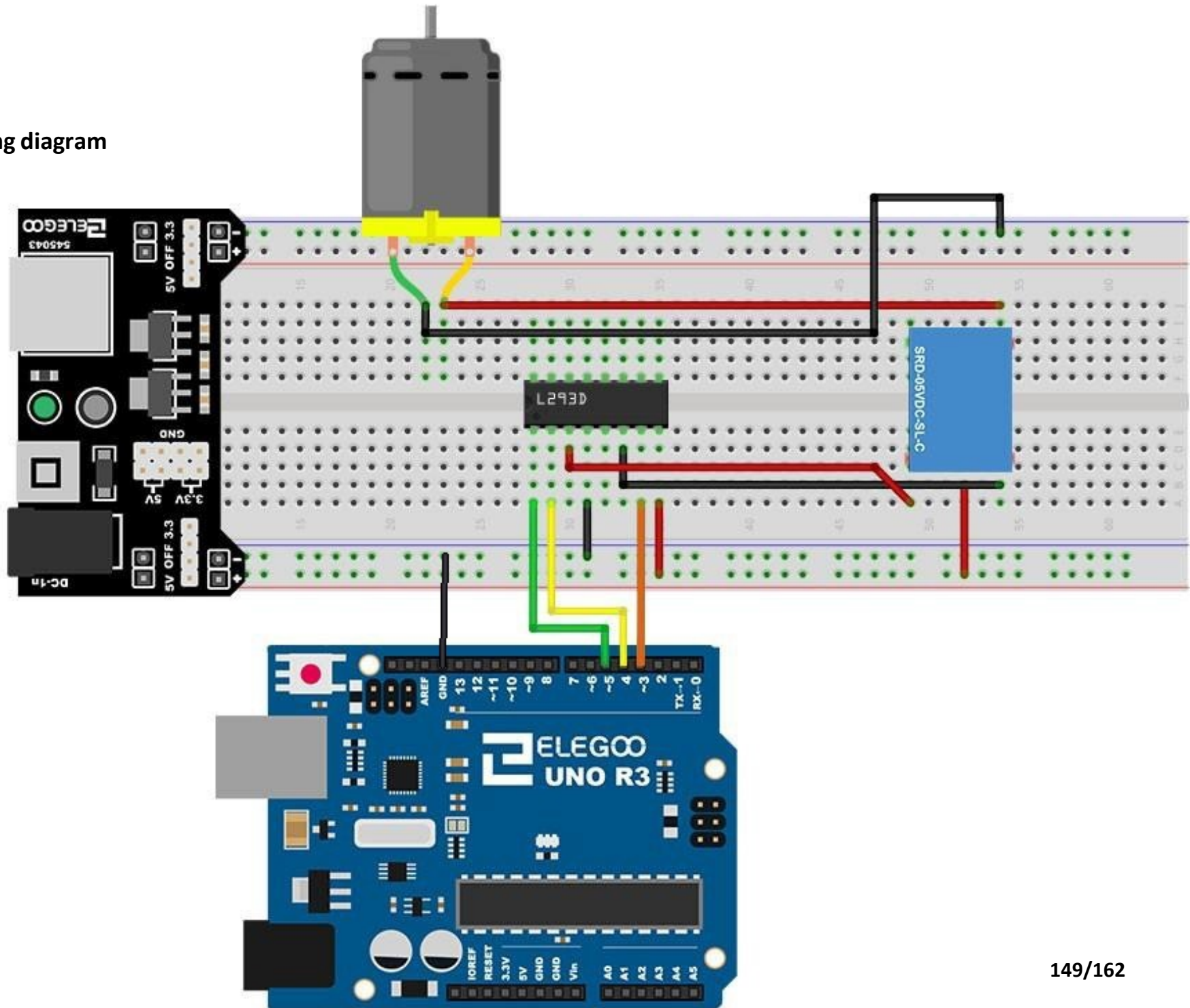
You may be confused about how to insert the relay into the bread board. As the picture below shows, you will have to bend one of the pins of the relay slightly then you can insert it into the bread board.



Connection Schematic



Wiring diagram



Code

After wiring, please open the program in the code folder- Lesson 22 Relay and click **UPLOAD** to upload the program. See Lesson 2 for details about program uploading if there are **any errors**. After program loading, turn on all the power switches. The relay will pick up with a ringing sound. Then, the motor will rotate. After a period of time, the relay will be released, and the motor stops.

Example picture

