

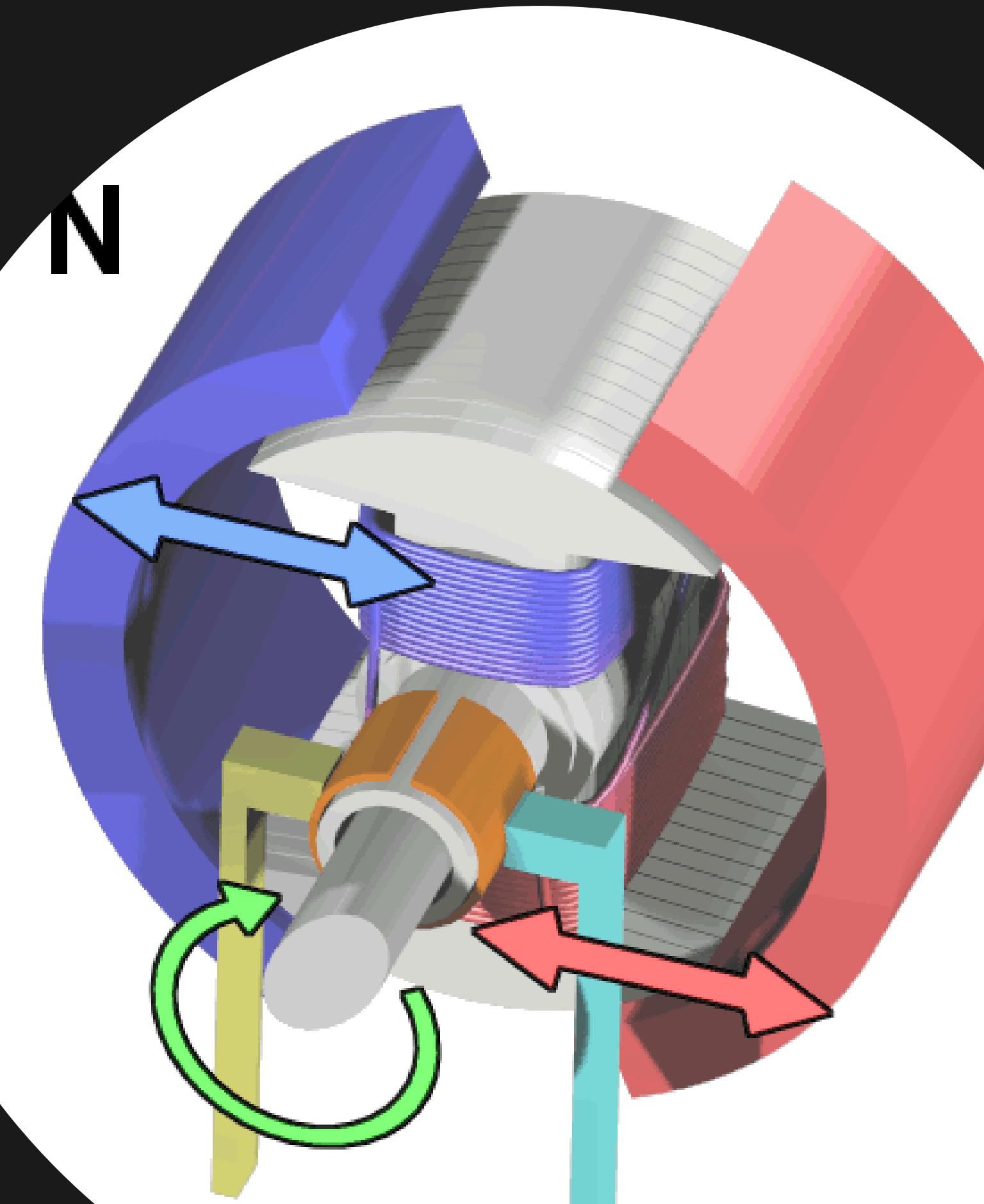


MOVEMENT

MOTORS

in this project we are going to work with DC motor.

in DC motors we have two wires one red (positive) and one black (negative) to work we have to connect these wires.



BUT THERE IS A PROBLEM

the motor only spins at one direction and at constant speed so we need something to control these two and that's where motor controllers comes in.



MOTOR CONTROLLERS

first we need to see what these controllers do . generally these controllers, controls direction and speed.

for direction it
use an
electronic
circuit called H-
Bridge

DIRECTION

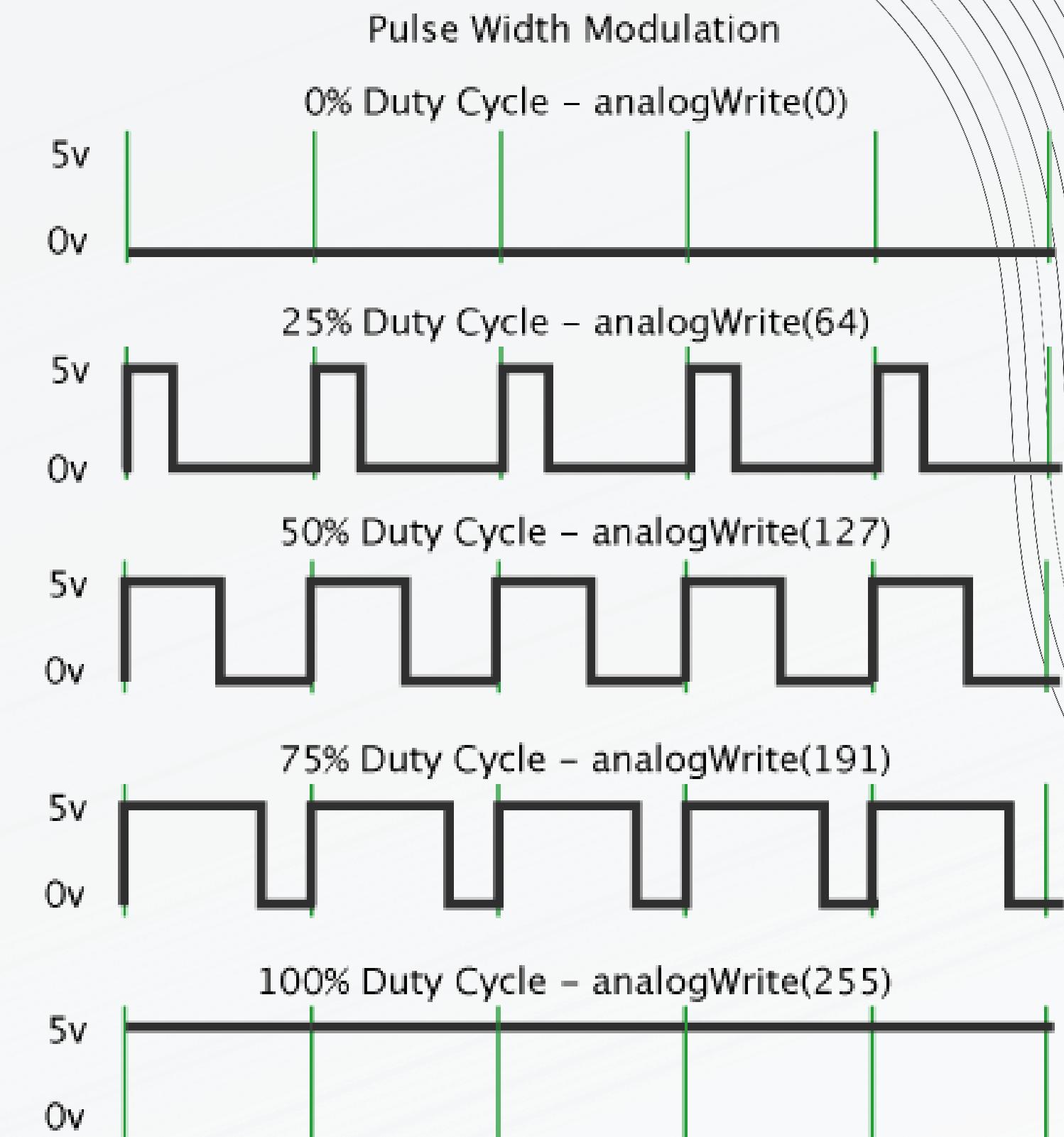
for speed we
use a method of
controlling the
average power
called PWM

SPEED



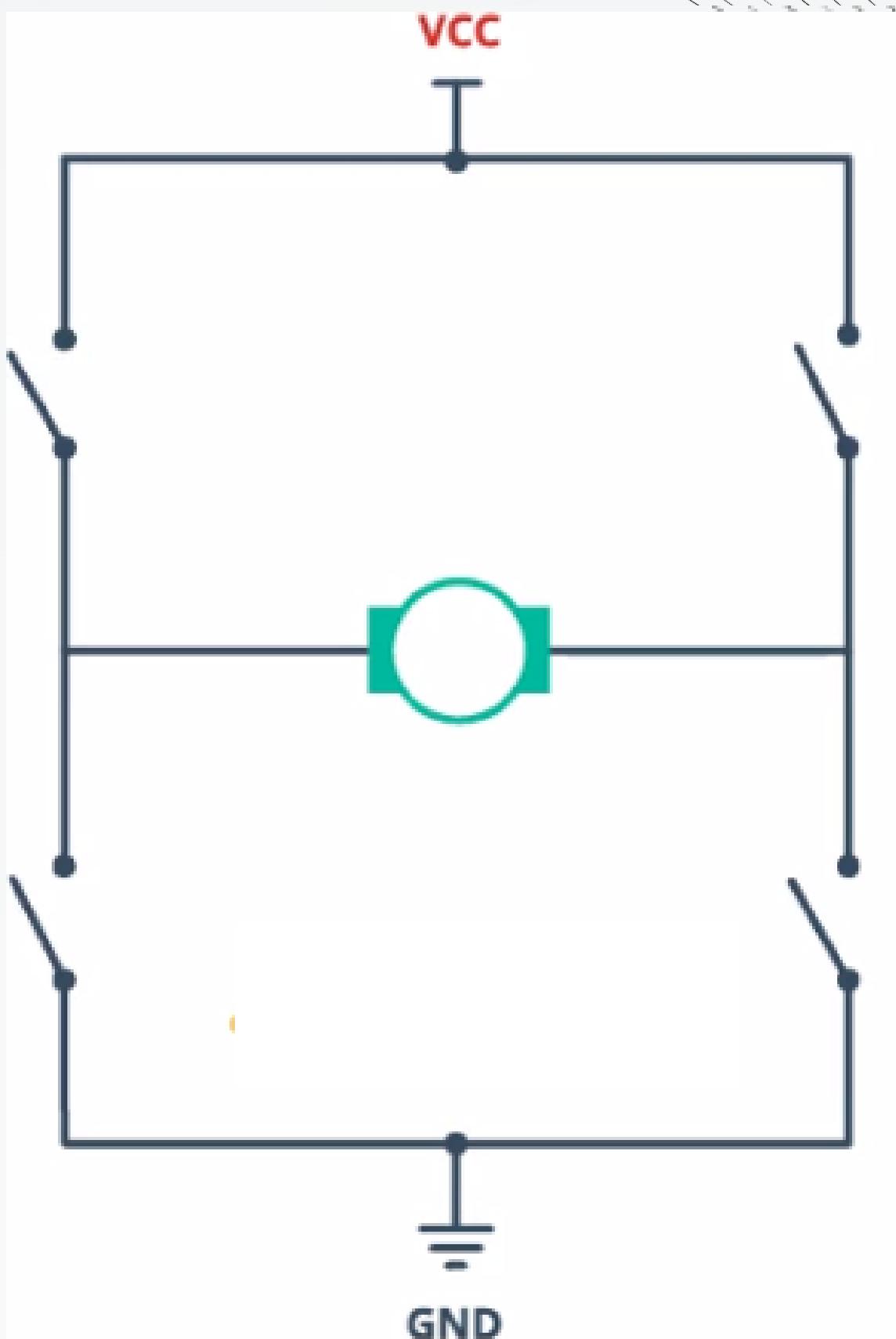
PWM

- Pulse Width Modulation, or PWM, is a technique for getting analog results with digital means. Digital control is used to create a square wave, a signal switched between on and off. This on-off pattern can simulate voltages in between the full Vcc of the board. by changing the portion of the time the signal spends on versus the time that the signal spends off



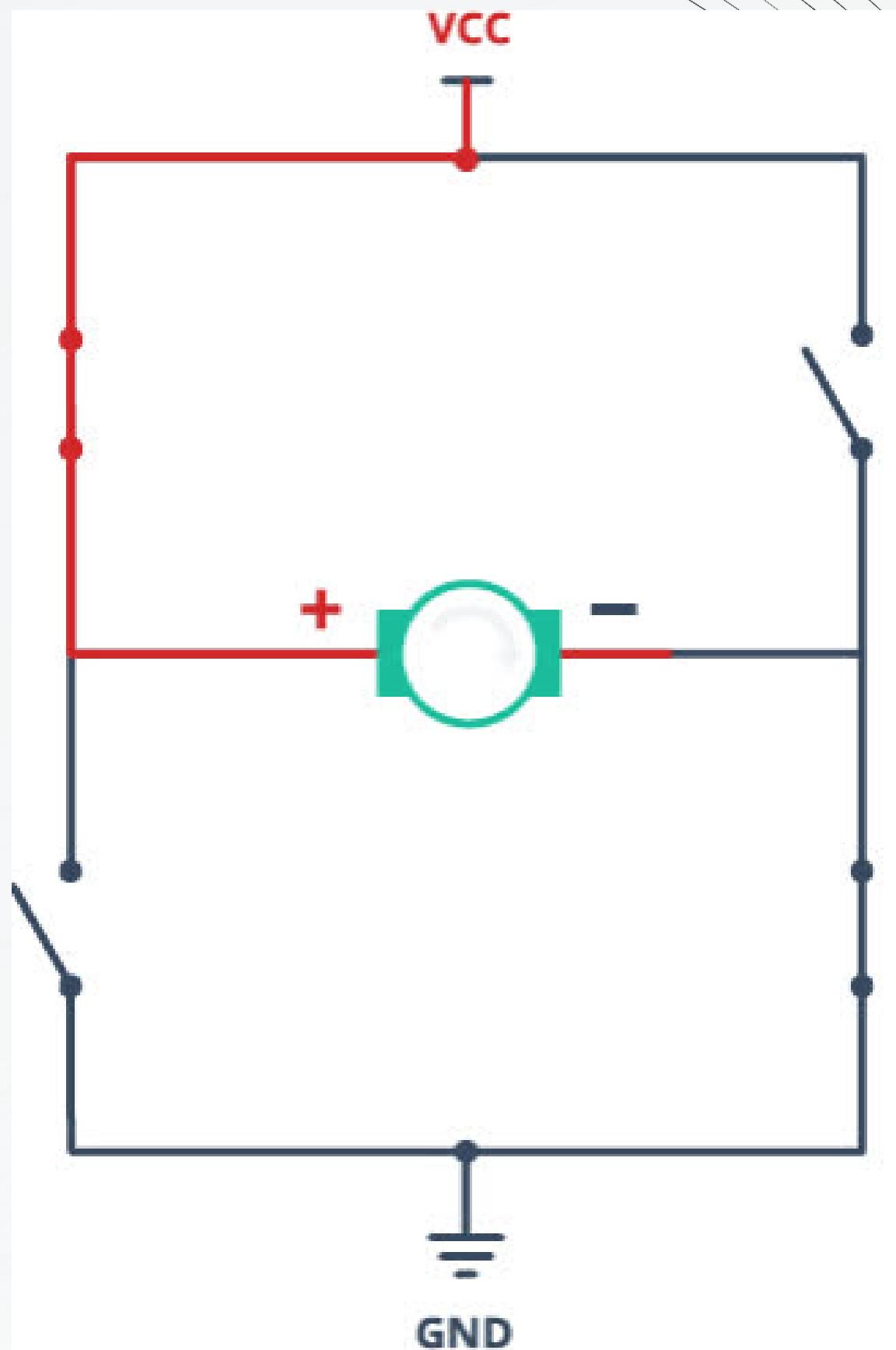
H - BRIDGE

- An H-bridge is an electronic_circuit that switches the polarity of a voltage applied to a load. These circuits are often used in robotics and other applications to allow DC motors to run forwards or backwards. The name is derived from its common schematic diagram representation, with four switching elements configured as the branches of a letter "H" and the load connected as the cross-bar.

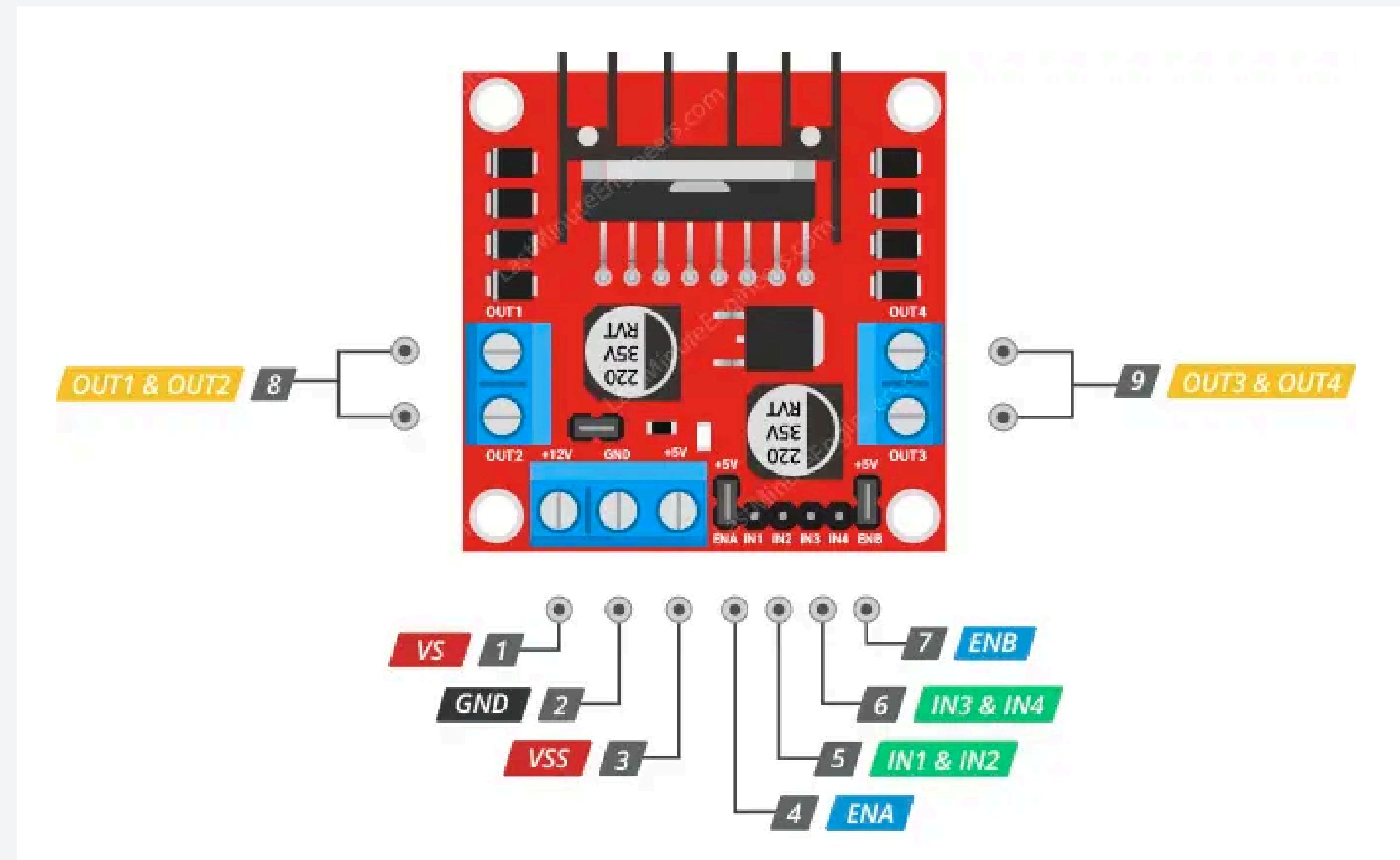


H - BRIDGE

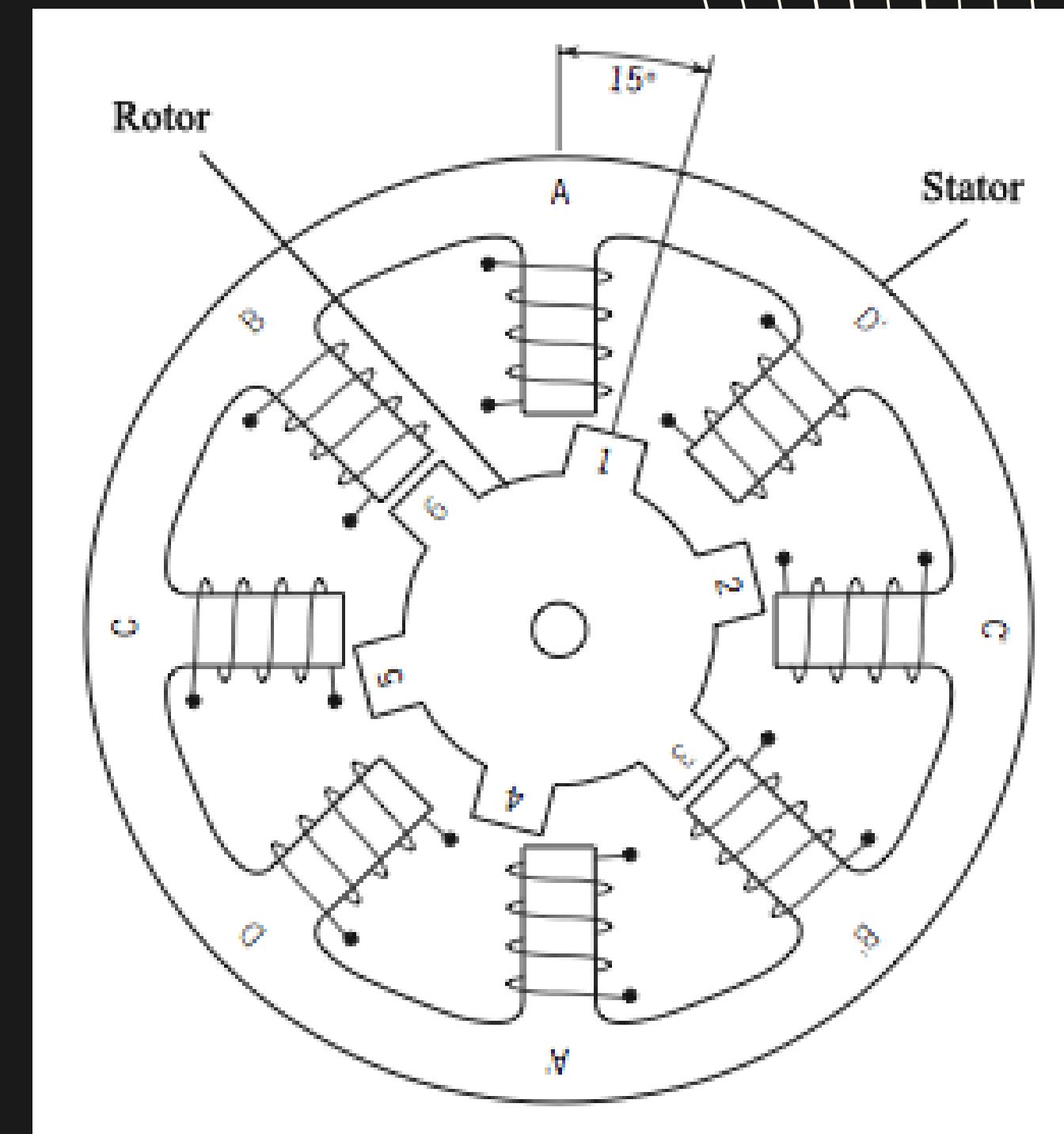
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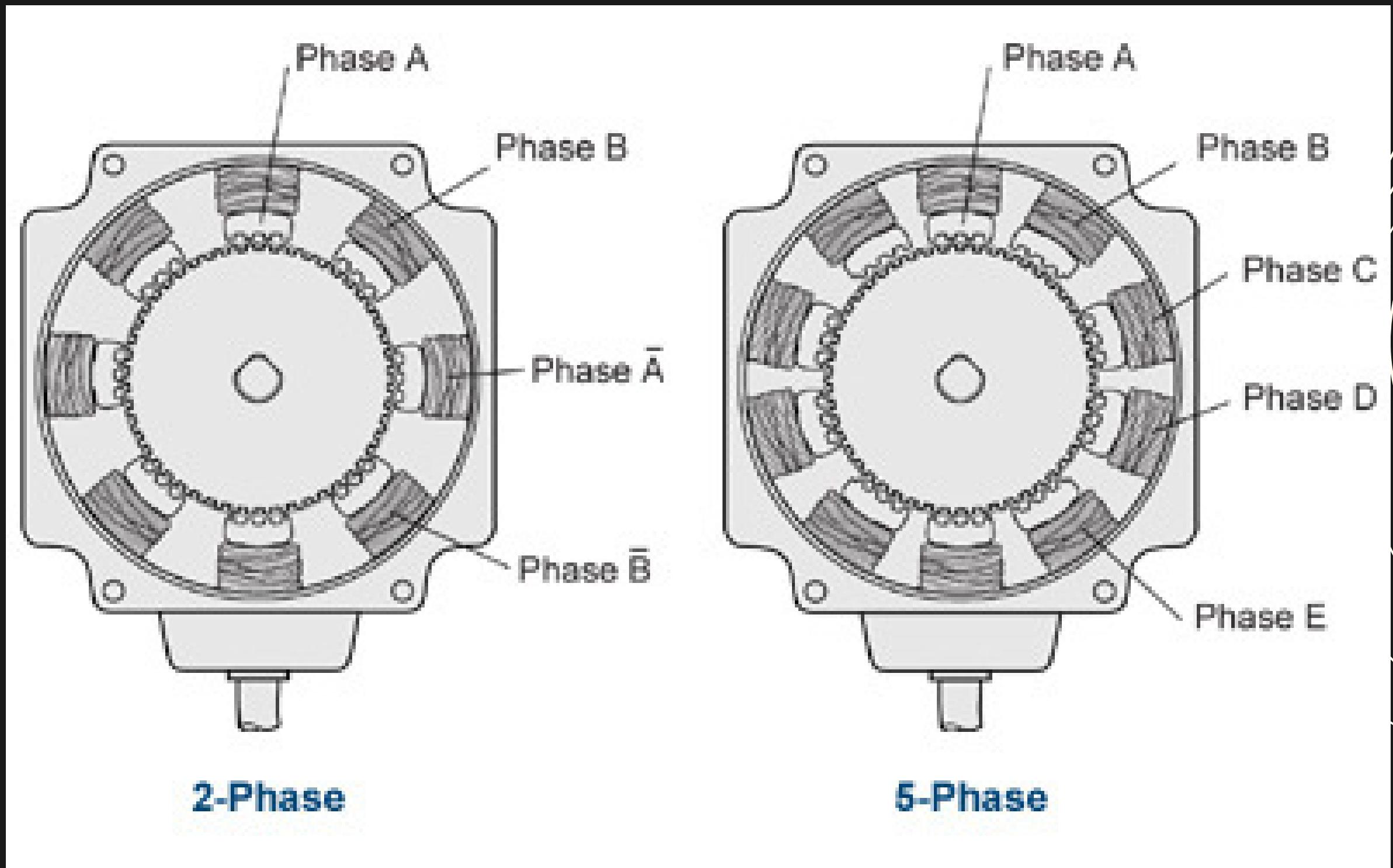
L298N



Stepper Motor

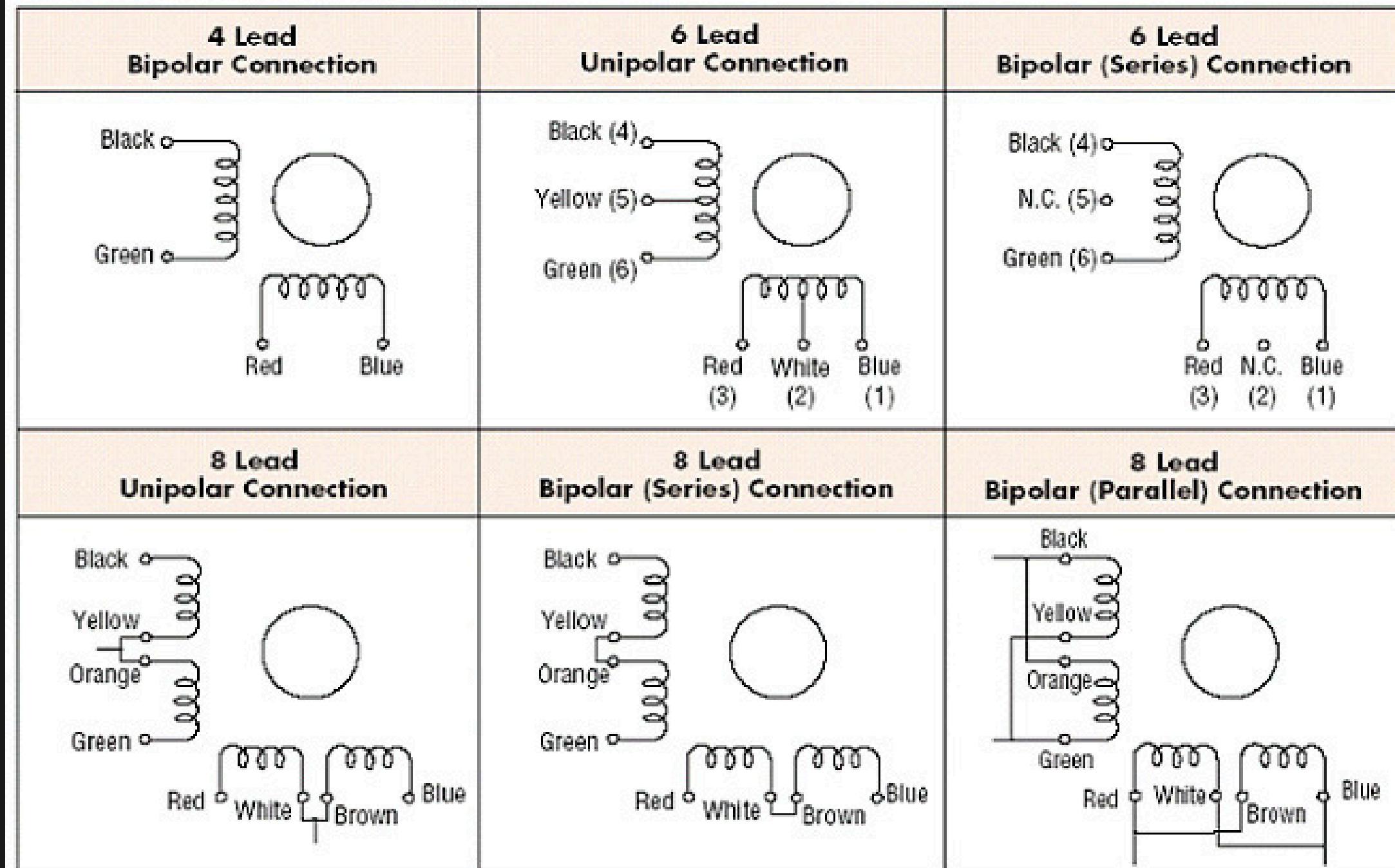


Stepper Motor

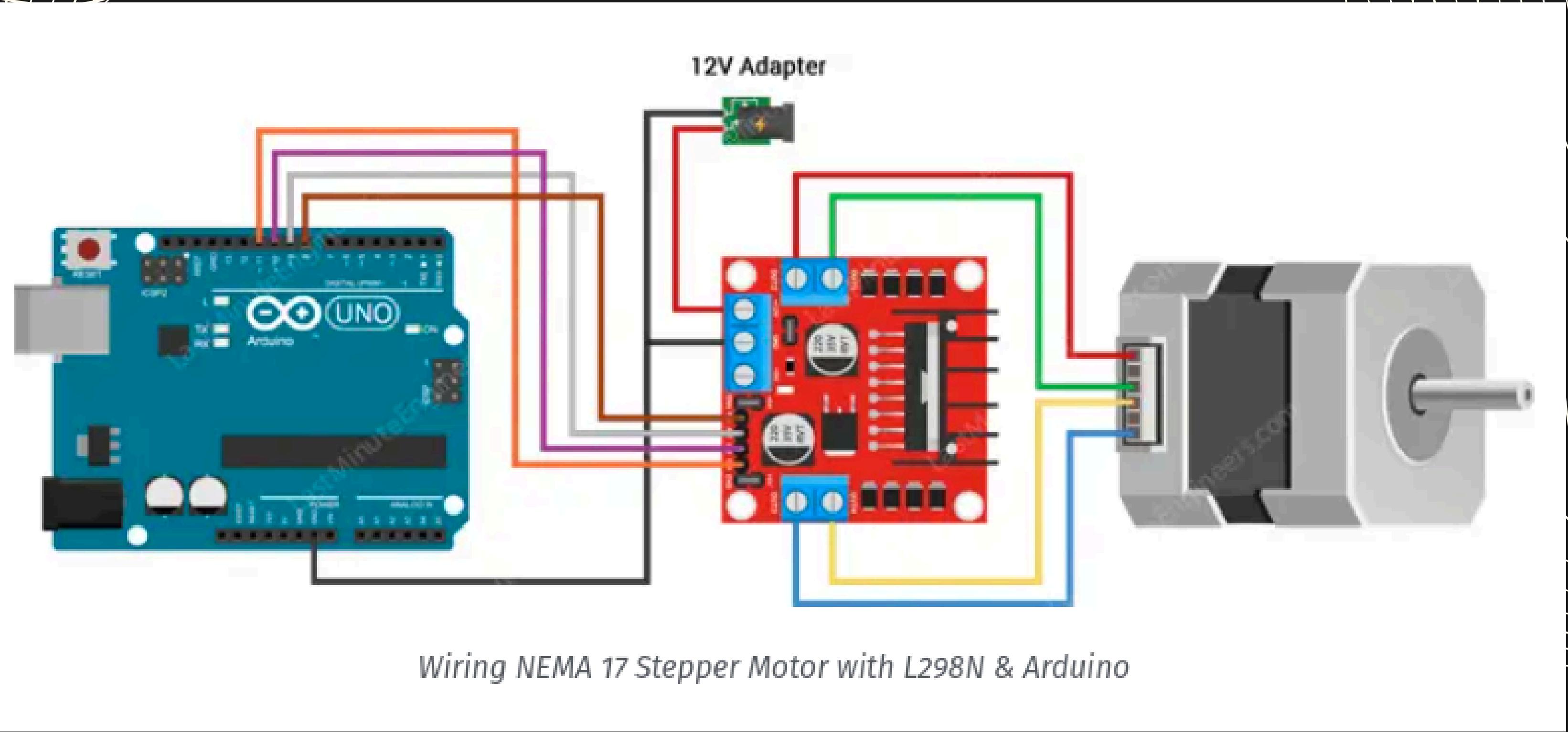


Stepper Motor

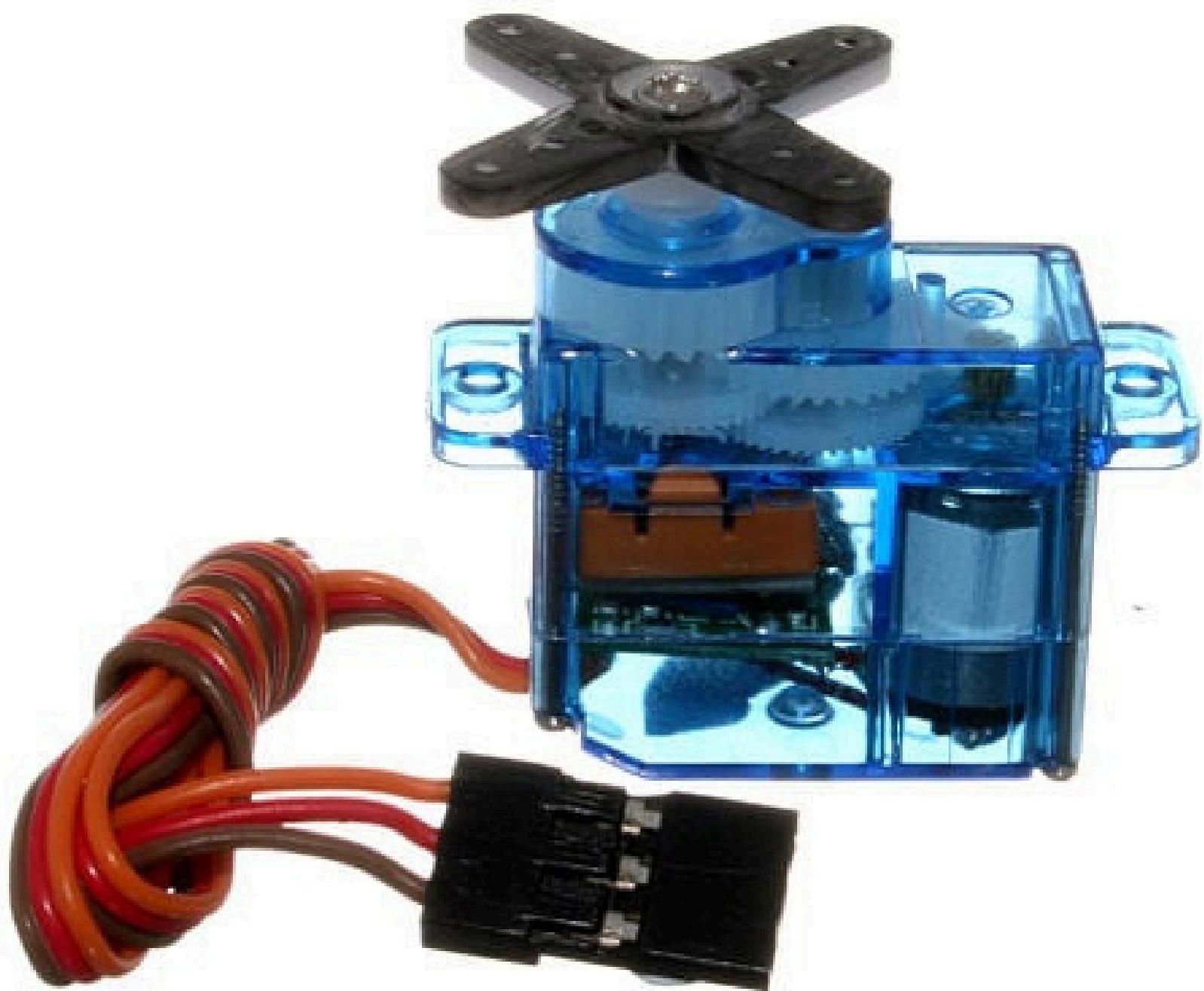
Wire Connection Diagrams



Stepper Motor



Servo Motor



Servo Motor

