

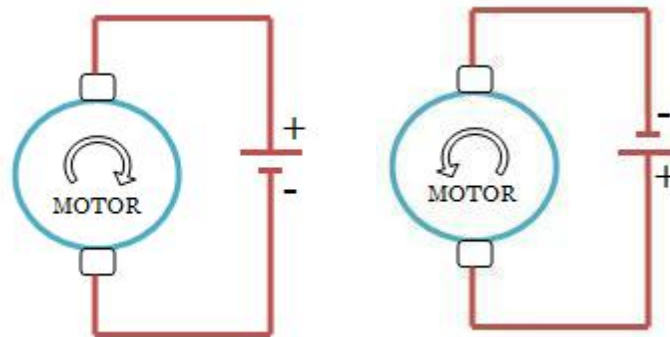
MOTOR CONTROLLER: H-BRIDGE

MOTOR CONTROL

Basics of motor control

This tutorial introduces the concept of motor control and how H-bridge can be implemented to control the speed of the motor. What is a motor controller? A motor controller is a device or group of devices that serves to govern in some predetermined manner the performance of an electric motor.

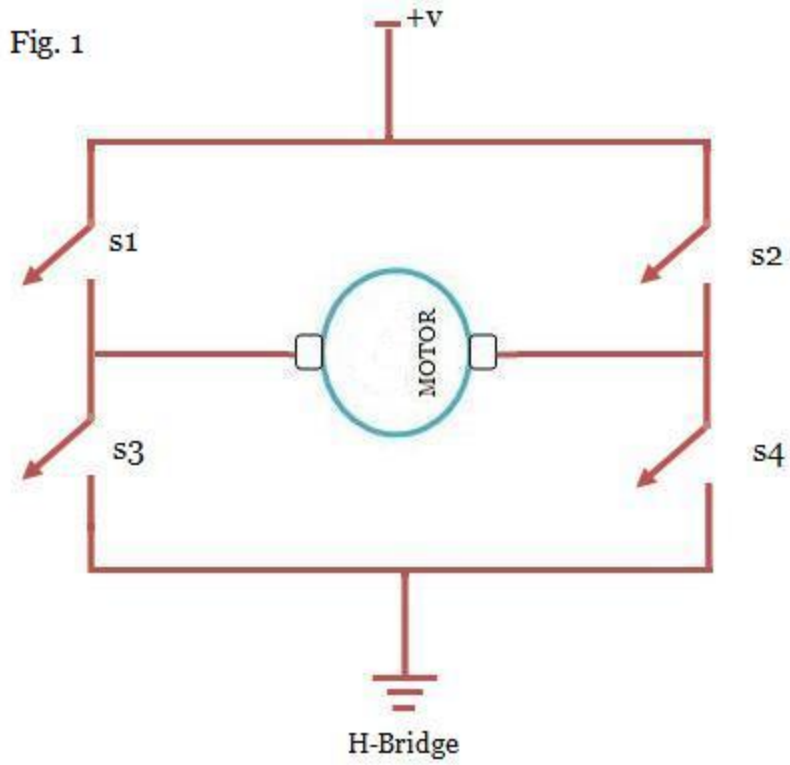
Unidirectional control



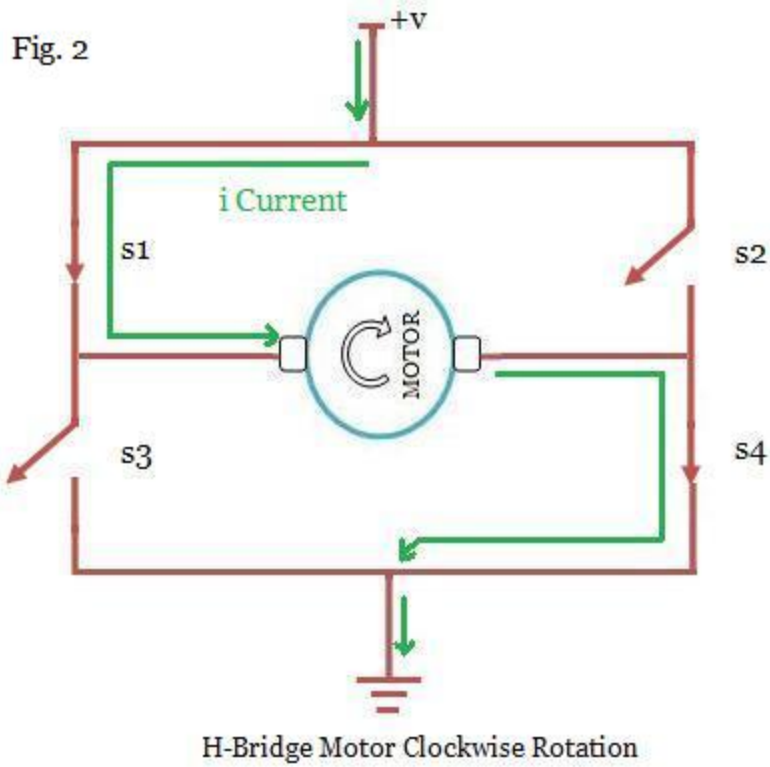
This can be achieved simply by changing the polarity of the applied voltage or a mechanical two way spring loaded switch which also changes the polarity (See Fig. above).

Bi-Directional Or H-bridge control

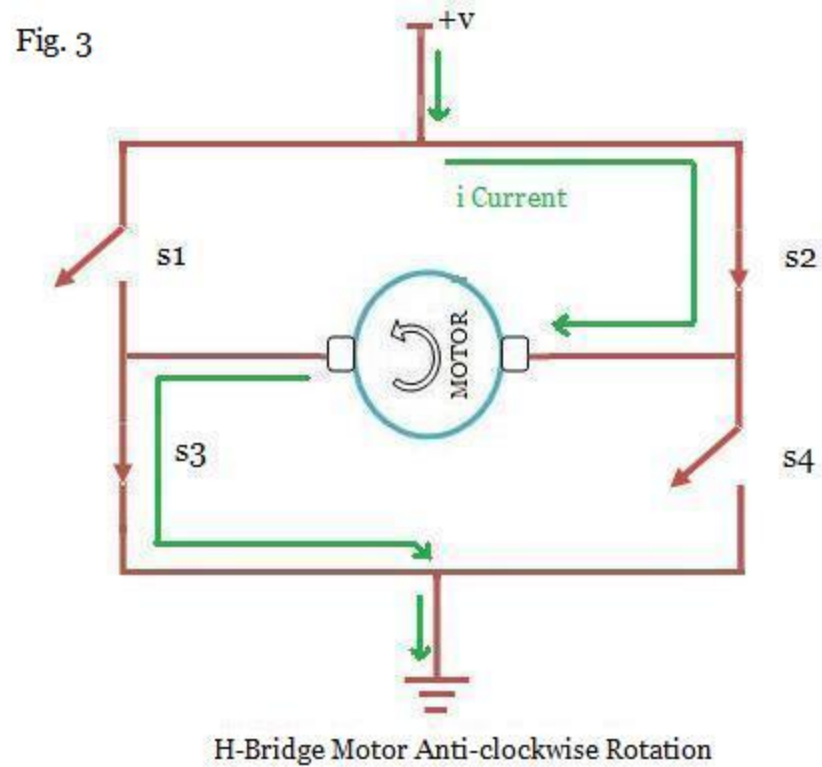
With the help of relays or opto couplers with amplifiers (some specially designed ICs) we can change the direction of the DC motor rotation. Circuits below shows the simple concept behind H-bridge control of DC motors.



In Fig.1 simple H-bridge Connection is shown using switch. Where all the switches are open and the motor is not receiving any potential difference V or current I and hence it is not rotating.



In Fig.2 switches S2 and S3 are open and S1 and S4 are closed which creates a potential difference across the motor and simultaneously a current flows through the circuit which rotates the motor shaft, let's say, in the clockwise (CW) direction.



Similarly, in Fig.3 switches S1 and S4 are open and S2 and S3 are closed which rotates the motor in anti-clockwise direction.

Source : <http://www.botskool.com/tutorials/electronics/general-electronics/motor-controller-h-bridge>