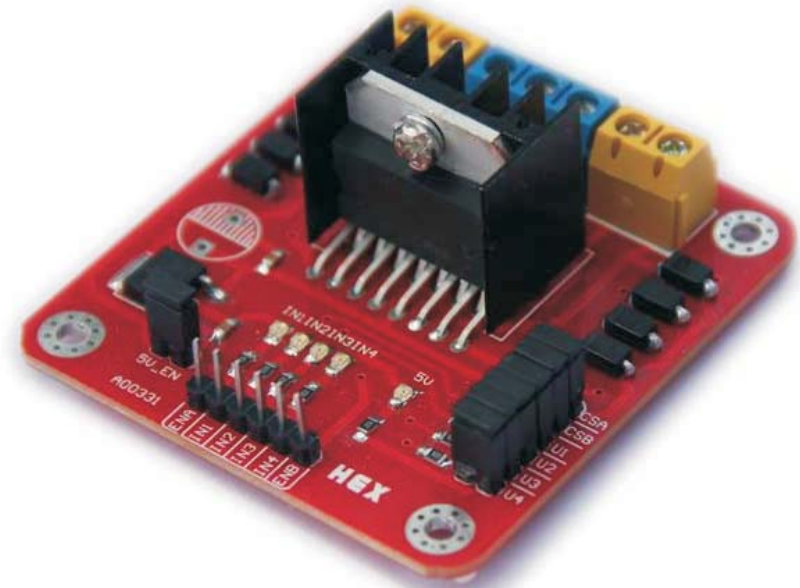


# L298 Dual H-Bridge Motor Driver

## User's Guide



## Overview

The Motor Shield is based on the L298, which is a dual full-bridge driver designed to drive inductive loads such as relays, solenoids, DC and stepping motors. It lets you drive two DC motors, controlling the speed and direction of each one independently.

## Summary

Operating Voltage 4V to 35V

Motor controller L298N, Drives 2 DC motors or 1 stepper motor

Max current 2A per channel or 4A max

Free running stop and brake function

Chip: ST L298N

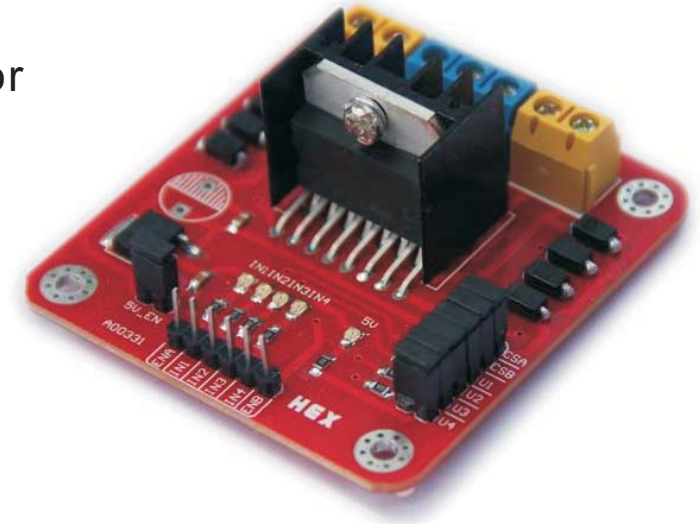
Logic power supply:5v

Max power:25w

Weight: 35g

Size:55mm x 60mm x 30mm

Storage temperature:-25 to +135





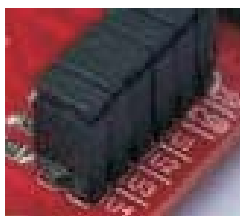
CSA: Between this pin and ground is connected the sense resistor to control the current of the load.  
Enable----- Ignore current detection function  
CSB: Between this pin and ground is connected the sense resistor to control the current of the load.  
Enable----- Ignore current detection function



Logic power indicator



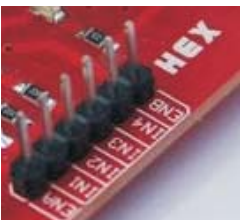
5V-EN: Enable----78M05 worked ,output DC 5V  
Disable----78M05 do not work . Need input DC 5V  
The module need DC 5V always, for logic supply.



The pull-up resistor enabled.  
U1---Enable In1 pull-up resistor [10k].  
U2---Enable In2 pull-up resistor [10k].  
U3---Enable In3 pull-up resistor [10k].  
U4---Enable In4 pull-up resistor [10k].



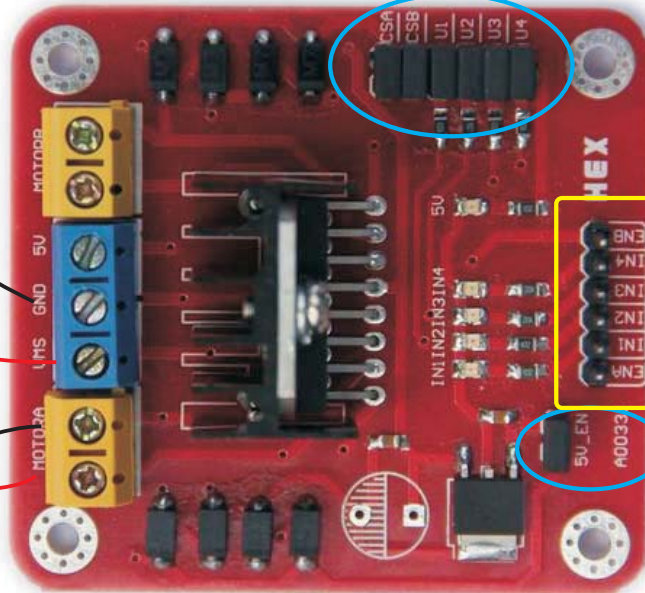
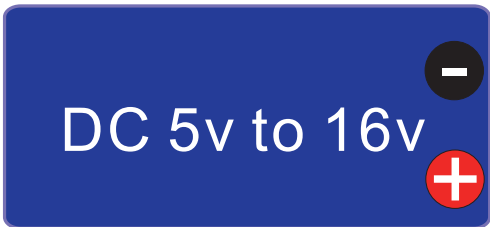
5V\_EN:  
Enable: [5V] can output DC 5V.  
Disable:[5v] need input DC 5V.



IN1 IN2 :TTL Compatible Inputs of the Bridge A  
In3 In4 :TTL Compatible Inputs of the Bridge B.  
ENA ENB:TTL Compatible Enable Input: the L state disables the bridge A(enable A) and/or the bridge B (enable B).

DC brush motor

DC 5v to 16v

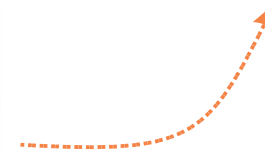


All enable

Channel A:  
IN1---5V    IN2---GND    Forward  
IN1---GND    IN2--5V    Reverse  
ENA---5V    channel A enable  
ENA---GND    channel A disable  
ENA---PWM    adjust speed

Enable

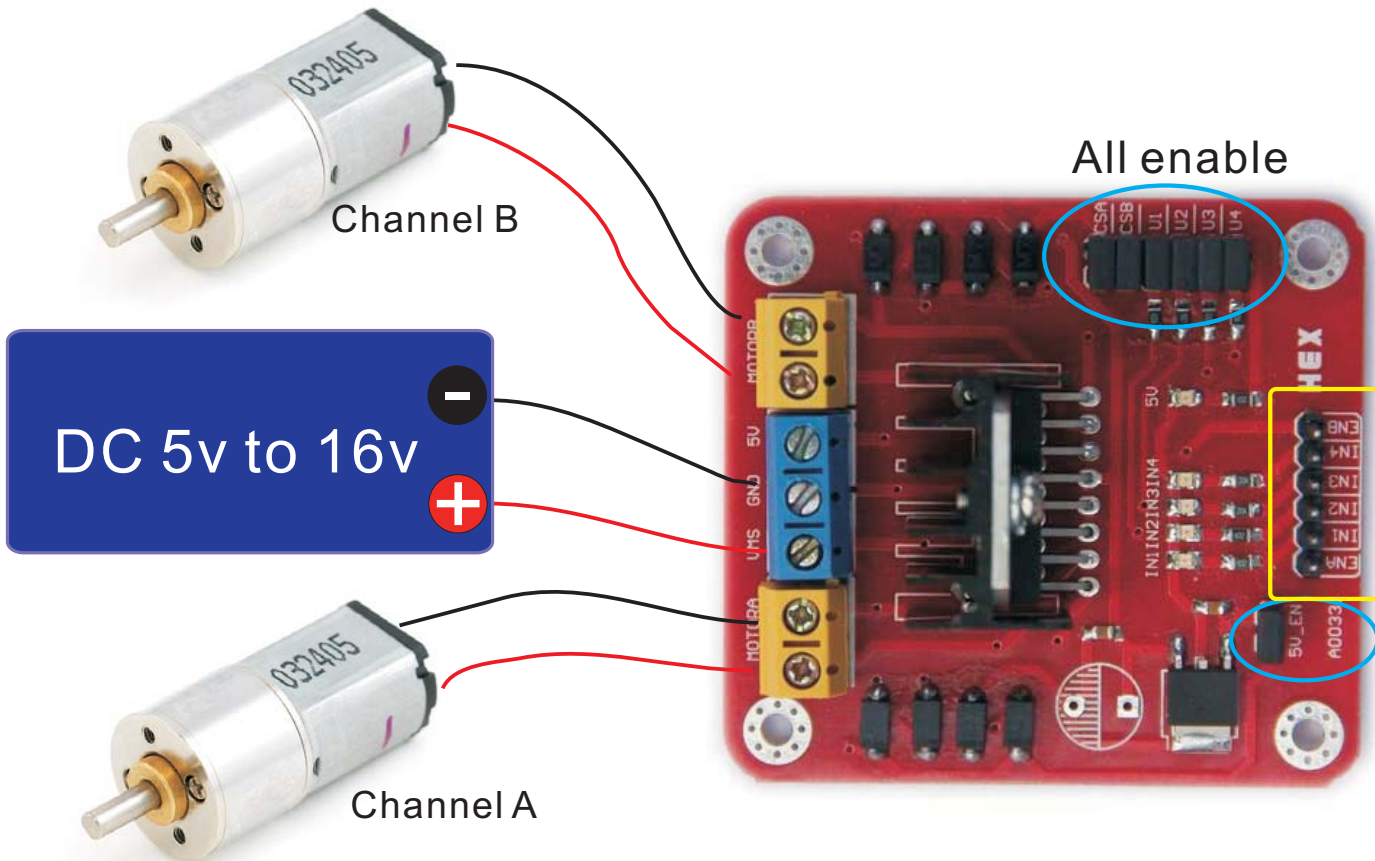
Chip 78M05 provides 5v logic supply



# L298 Dual H-Bridge Motor Driver

User's Guide

DC brush motor



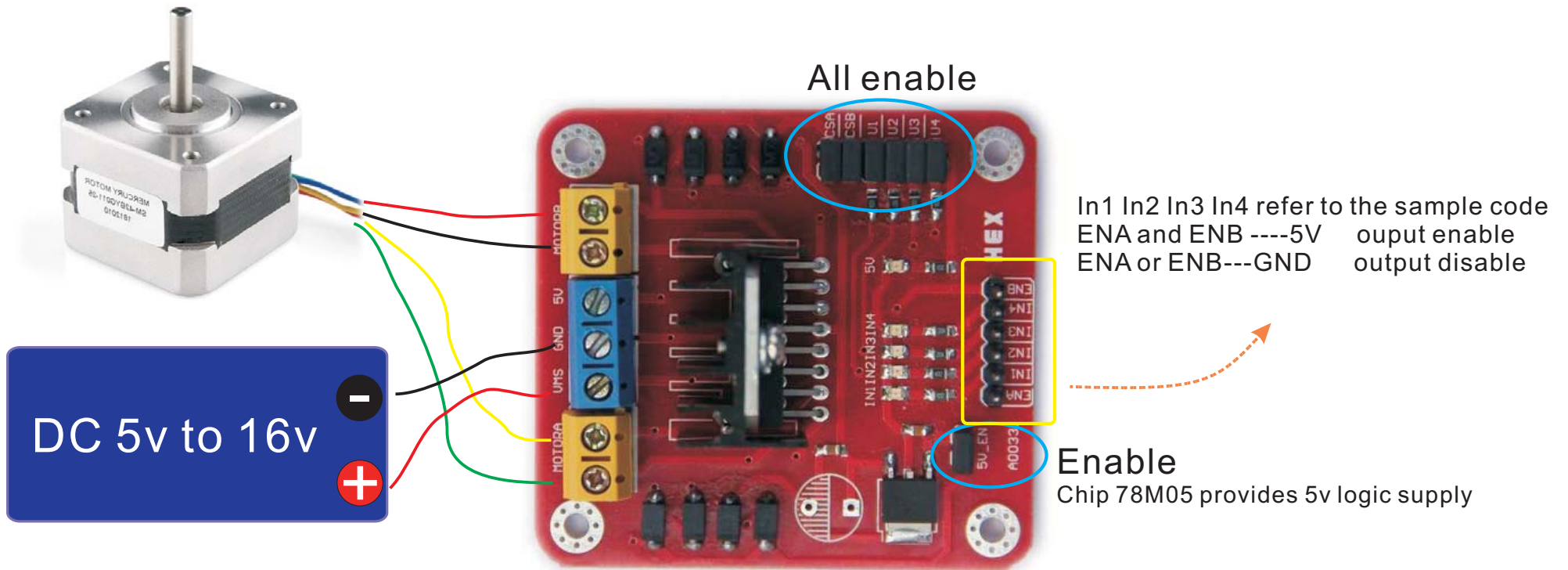
Channel A:  
IN1---5V IN2---GND Forward  
IN1---GND IN2--5V Reverse  
ENA---5V channel A enable  
ENA---GND channel A disable  
ENA---PWM adjust speed

Channel B:  
IN3---5V IN4---GND Forward  
IN3---GND IN4--5V Reverse  
ENB---5V channel B enable  
ENB---GND channel B disable  
ENB---PWM adjust speed

Enable  
Chip 78M05 provides 5v logic supply

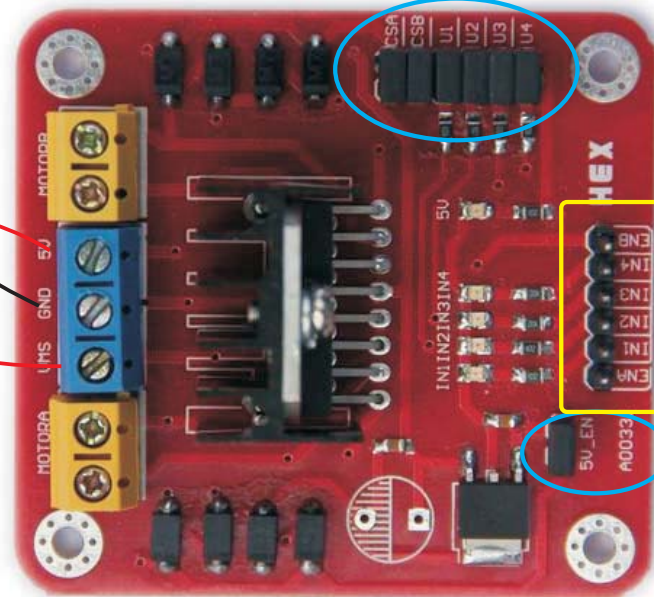
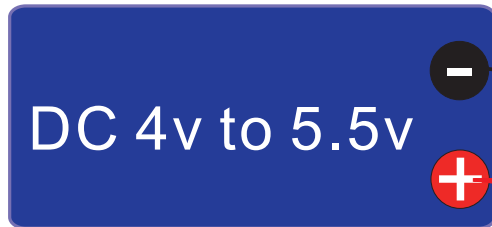


## Stepper motor



## Motor powered with DC 4V to 5.5V

DC 4v to 5.5v



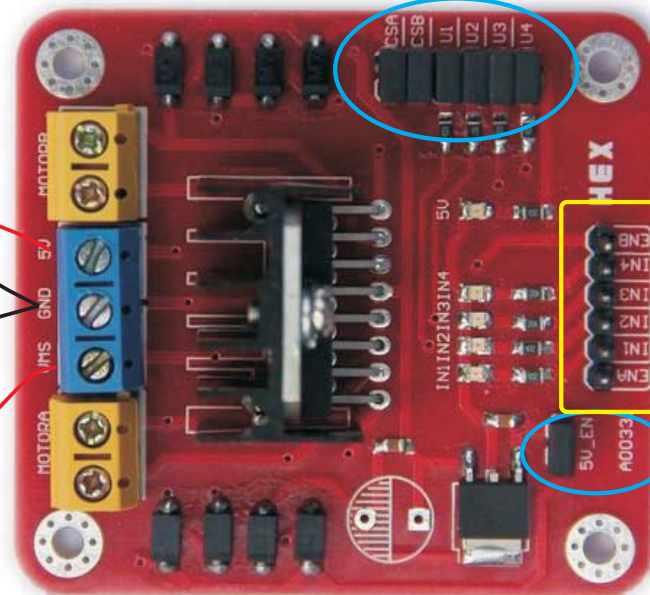
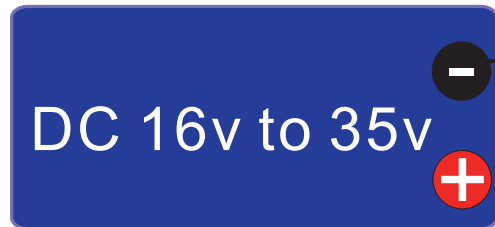
All enable

Channel A:  
IN1---5V    IN2---GND    Forward  
IN1---GND    IN2--5V    Reverse  
ENA---5V    channel A enable  
ENA---GND    channel A disable  
ENA---PWM    adjust speed

Please disable the jumper.

The chip 78M05 will not work good when the supply voltage lower than 5v. Then need a separate 5V logic supply

## Motor powered with DC 16V to 35V



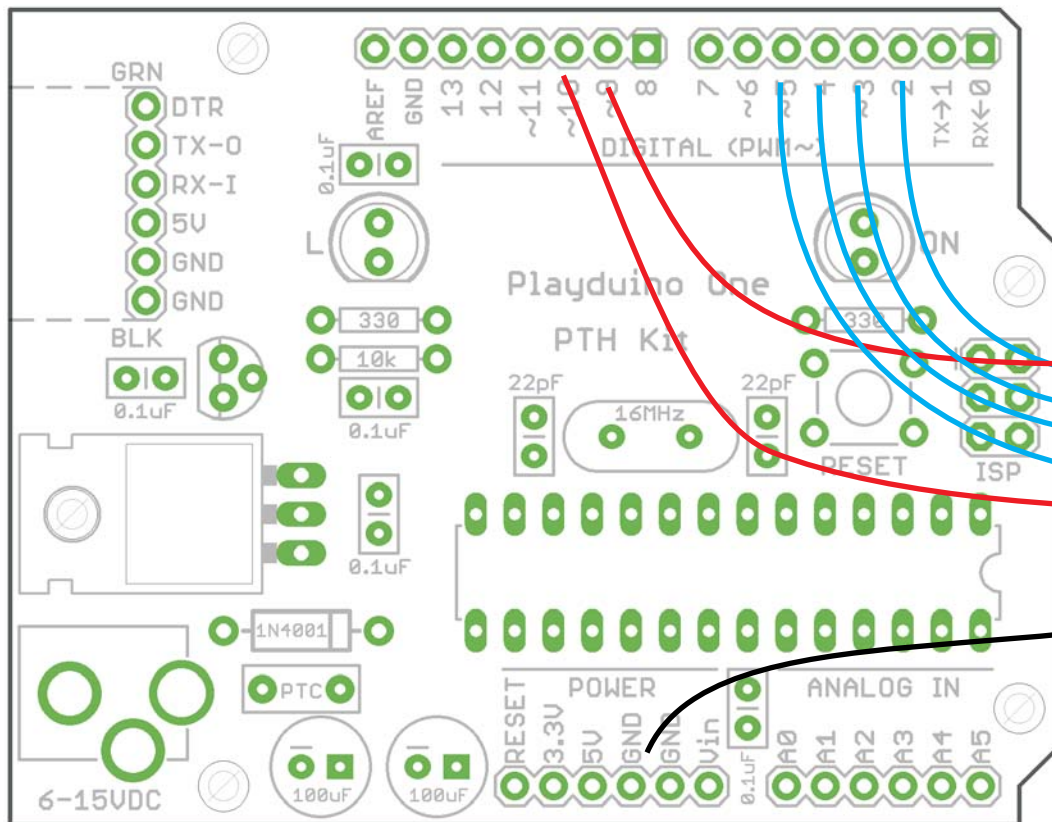
Channel A:  
IN1---5V IN2---GND Forward  
IN1---GND IN2--5V Reverse  
ENA---5V channel A enable  
ENA---GND channel A disable  
ENA---PWM adjust speed

Please disable the jumper.

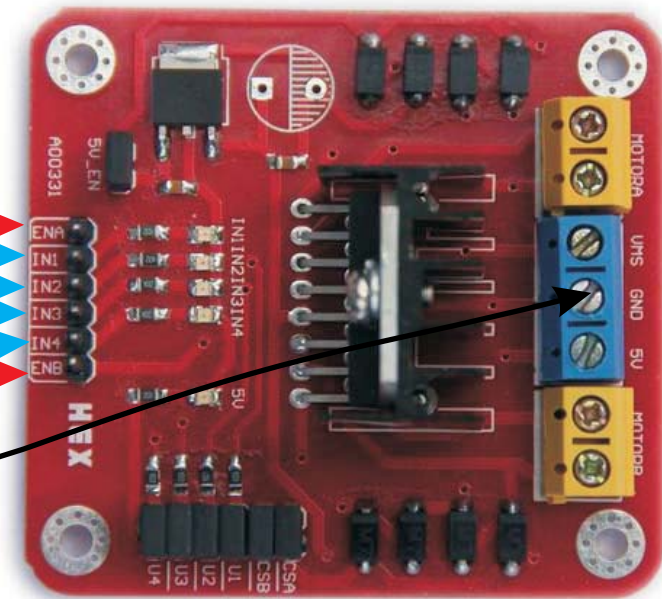
The chip 78M05 will be serious heat when the supply voltage exceeds 16V. Then need a separate 5V logic supply



## Connect with Arduino



The power supply, please refer to the previously described



If you need to adjust the motor speed , you need to load a PWM signal on the red line

## Example Code :

Platform:Arduino

Target:4-wire 2 -phase stepper motor

```
#include <Stepper.h>
//ENA--9 IN1--2 IN2--3 IN3--4 IN4--5 ENB--10
// change this to the number of steps on your motor
#define STEPS 200
// create an instance of the stepper class, specifying
// the number of steps of the motor and the pins it's
// attached to
Stepper stepper(STEPS, 2, 3, 4, 5);
void setup()
{
  stepper.setSpeed(300);
  pinMode(10, OUTPUT);
  pinMode(9, OUTPUT);
}
void loop()
{
  digitalWrite(8, HIGH);
  digitalWrite(9, HIGH);
  stepper.step(50);
  delay(500);
  stepper.step(-50);
  delay(500);
  stepper.step(200);
  delay(500);
  stepper.step(-200);
  delay(500);
}
```



Platform:Arduino

Target:2-wire DC brush motor

```
// motor A
int dir1PinA = 2;
int dir2PinA = 3;
int speedPinA = 9;
// motor B
int dir1PinB = 4;
int dir2PinB = 5;
int speedPinB = 10;
unsigned long time;
int speed;
int dir;
void setup() {
  pinMode(dir1PinA, OUTPUT);
  pinMode(dir2PinA, OUTPUT);
  pinMode(speedPinA, OUTPUT);
  pinMode(dir1PinB, OUTPUT);
  pinMode(dir2PinB, OUTPUT);
  pinMode(speedPinB, OUTPUT);
  time = millis();
  speed = 0;
  dir = 1;
}

void loop() {
  analogWrite(speedPinA, speed);
  analogWrite(speedPinB, 255 - speed);
  // set direction
  if (1 == dir) {
    digitalWrite(dir1PinA, LOW);
    digitalWrite(dir2PinA, HIGH);
    digitalWrite(dir1PinB, HIGH);
    digitalWrite(dir2PinB, LOW);
  } else {
    digitalWrite(dir1PinA, HIGH);
    digitalWrite(dir2PinA, LOW);
    digitalWrite(dir1PinB, LOW);
    digitalWrite(dir2PinB, HIGH);
  }
  if (millis() - time > 5000) {
    time = millis();
    speed += 20;
    if (speed > 255) {
      speed = 0;
    }
  }
  if (1 == dir) {
    dir = 0;
  } else {
    dir = 1;
  }
}
```



## Schematic:

