

L298N Drive Motor Experiment

1. Overview

L298N is a high voltage, high current motor drive chip, which is packaged in 15 pins. To be specific, it has a maximum working voltage of 46V, an instantaneous peak current of 3A, a continuous operating current of 2A, and a rated power of 25W.

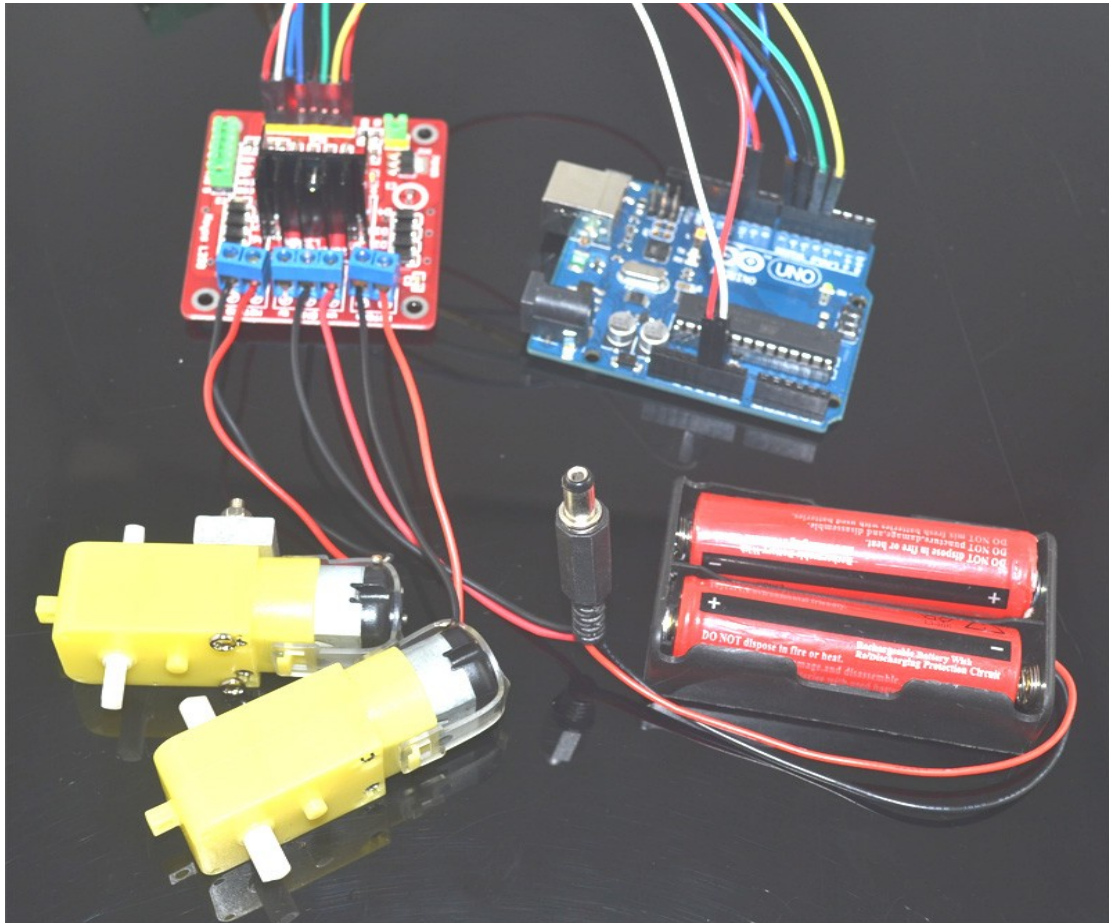
What's more, it has two H-bridge high-voltage and high-current full-bridge drivers that can drive inductive loads such DC motors, stepping motors, and relay coils.

On the one hand, it boasts two enable control ports, which allow or disable the device to work without being affected by the input signal. On the other hand, its logic power input terminal allows the internal logic circuit part to operate at low voltage. Importantly, it can connect an external detection resistor to feed back the change to the control circuit.

On this very note, the L298N chip is capable of driving a two-phase stepper motor, a four-phase stepper motor, or two DC

motors.

2. Wiring Diagram



Note: The digital ports 4 and 5 are one set, and 6 and 7 are another set. Digital ports 10 and 11 are used as the enable ports of the DC motor.

3. Test Code

```
int IN1=4;
```

```
int IN2=5;
```

```
int IN3=6;
```

```
int IN4=7;

int EN1=10;//enable port 1
int EN2=11;//enable port 2
//digital ports 4 and 5 are one set, and 6 and 7 are another
set
//Digital ports 10 and 11 are used as the enable ports of the
DC motor

void Motor1(boolean reverse)//Motor 1 rotates
{
  if (reverse) // counterclockwise
  {
    digitalWrite(IN1,HIGH);
    digitalWrite(IN2,LOW);
  }

  else //clockwise
  {
    digitalWrite(IN1,LOW);
    digitalWrite(IN2,HIGH);
  }
}
```

```
}
```

```
void Motor2(boolean reverse)//Motor 2 rotates
```

```
{
```

```
  if (reverse) // counterclockwise
```

```
  {
```

```
    digitalWrite(IN3,HIGH);
```

```
    digitalWrite(IN4,LOW);
```

```
  }
```

```
  else //clockwise
```

```
  {
```

```
    digitalWrite(IN3,LOW);
```

```
    digitalWrite(IN4,HIGH);
```

```
  }
```

```
}
```

```
void aa();//rotate clockwise, stop and counterclockwise for 1s  
respectively.
```

```
{
```

```
//clockwise
digitalWrite(IN3,LOW);
digitalWrite(IN4,HIGH);
digitalWrite(IN1,LOW);
digitalWrite(IN2,HIGH);
delay(1000);

//stop for 1s
stopMotor(true);
delay(1000);
stopMotor(false);//restore the high level of the motor enable
port
```

```
//counterclockwise
digitalWrite(IN3,HIGH);
digitalWrite(IN4,LOW);
digitalWrite(IN1,HIGH);
digitalWrite(IN2,LOW);
delay(1000);
// stop
```

```
stopMotor(true);  
delay(1000);  
stopMotor(false);  
}
```

```
void stopMotor(boolean r)//the motor stops rotating
```

```
{  
  if (r)  
  {  
    analogWrite(EN1,0);  
    analogWrite(EN2,0);  
  }  
  else  
  {  
    analogWrite(EN1,255);  
    analogWrite(EN2,255);  
  }  
}
```

```
void setup()
```

```
{  
  int i;
```

```
for (i=4;i<=7;i++) //Arduinio motor shield
    pinMode(i,OUTPUT); //Set digital ports 4, 5, 6 and 7 to
output mode
for (i=4;i<=7;i++)
    digitalWrite(i,HIGH); //Set digital ports 4, 5, 6 and 7 to
HIGH, and the motor remains stationary
    pinMode(10,OUTPUT);//Set digital ports 10 and 11 to
output mode
    pinMode(11,OUTPUT);
    Serial.begin(9600);
}

void loop()
{
    aa();//the two DC motors rotate clockwise, stop and
counterclockwise for 1s respectively.
}
```