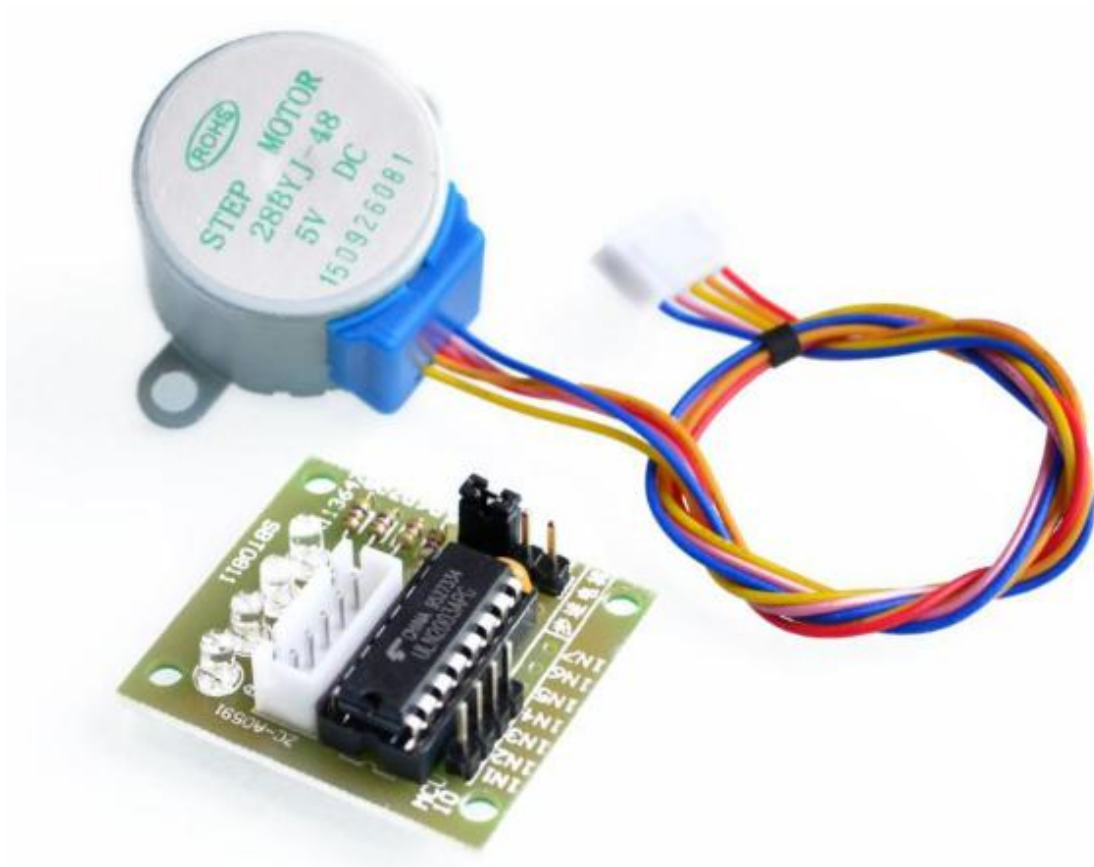


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## 5V stepping motor with ULN2003 driver board



### Description

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The Mini Stepper Driver is small size and easy to use. It used ULN2003A to amplify the control signal from the Arduino. The Drive voltage can up to 15v.

### Features

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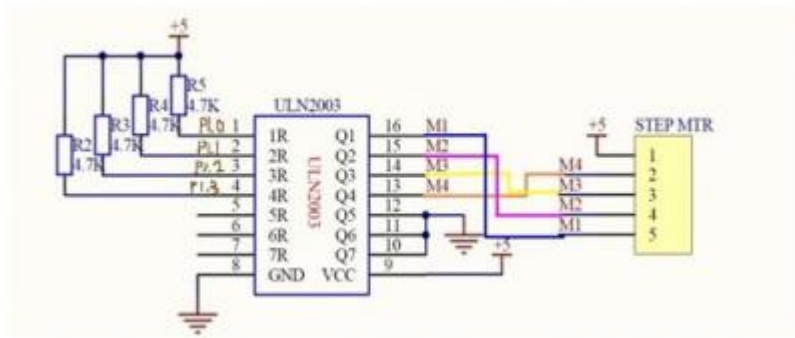
- The most easy module to learn how to control the Stepper and finish the simple project.
- The logic control voltage: 3~5.5V
- Motor Supply Voltage: 5~ 15V
- it can sink 500mA from a 50V supply, but you'd better limit the driver voltage under 15v.
- Operating temperature: -25 degree Celsius ~ +90 degree Celsius

### HOW TO CONTROL STEPPER

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Step motor is to a machine to convert pulse to angle displacement. So if you give stepper driver a certain pulse signal, it will drive step motor to a certain angle. you can control the angle the stepper moved by the number of the pulse. And you also

can control the speed of the stepper rotate by the frequency of the pulse. The following picture is the schematic of the stepper driver.



The following picture is the control signal to drive a 28BY48 stepper to rotate 1/4096 circle.

line	1	2	3	4	5	6	7	8
red	1	1	1	1	1	1	1	1
orange	1	1	0	0	0	0	0	1
yellow	0	1	1	1	0	0	0	0
pink	0	0	0	1	1	1	0	0
blue	0	0	0	0	0	1	1	1

So we defined the time series in a array

```
<br>byte CCW[8] = {0x09,0x01,0x03,0x02,0x06,0x04,0x0c,0x08}; //CouterClockWise
```

```
<br>byte CW[8]= {0x08,0x0c,0x04,0x06,0x02,0x03,0x01,0x09}; //ClockWise
```

and in the following usage it will run, and then you must know how to drive a stepper.

### Example Code:

```
/******
```

---

This code is shared by Openplatform.cc

it is public domain, enjoy!

it is used to control 28BYJ stepper

it can be changed to control almost all the 4-wire or 5-wire stepper.

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/\*

The time Series to control the stepper

--make your making more easy!

\*/

byte CCW[8] = {0x09,0x01,0x03,0x02,0x06,0x04,0x0c,0x08};

byte CW[8] = {0x08,0x0c,0x04,0x06,0x02,0x03,0x01,0x09};

const int stop\_key = 14; //stop\_button connect to Arduino-A0

byte change\_angle=64; //change the parameter to change the angle of the stepper

void Motor\_CCW() //the stepper move 360/64 angle at CounterClockwise

{

for(int i = 0; i < 8; i++)

for(int j = 0; j < 8; j++)

{

if(digitalRead(stop\_key)==0)

{

PORTB = 0xf0;

break;

}

PORTB = CCW[j];

delayMicroseconds(1150);

}

}

void Motor\_CW() //the stepper move 360/64 angle at Clockwise

{

for(int i = 0; i < 8; i++)

for(int j = 0; j < 8; j++)

{

if(digitalRead(stop\_key)==0)

{

PORTB = 0xf0;

break;

}

PORTB = CW[j];

---

```
        delayMicroseconds(1150);
    }
}

void setup()
{
    pinMode(stop_key,INPUT);
    digitalWrite(stop_key,HIGH);
    Serial.begin(57600);
    DDRB=0xff;
    PORTB = 0xf0;
    for(int k=0;k<change_angle;k++)
    {
        Motor_CCW();
    }
}

void loop()
{
    Motor_CCW(); //make the stepper to anticlockwise rotate
    // Motor_LR(); //make the stepper to clockwise rotate
}
```