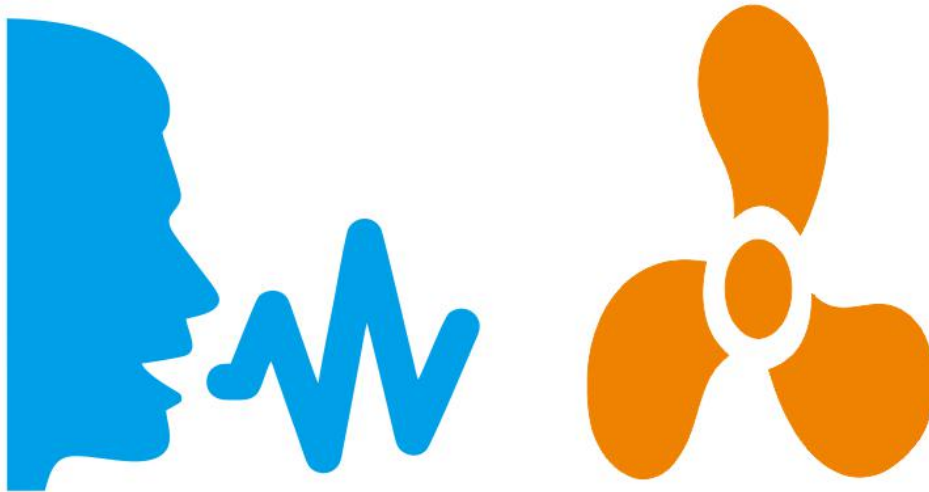


Project 23: Smart Fan

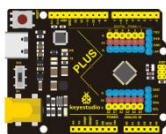


1. Project Introduction

The sound sensor has a built-in capacitive electret microphone and power amplifier. It can be used to detect the sound intensity of the environment.

In this project, we use a sound sensor and a DC motor to make a voice-activated smart fan.

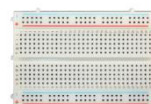
2. Project Hardware



Plus



Plus Board



400-Hole



USB Cable*1

Development

Holder

Breadboard

Board*1



Sound sensor

TIP122

1 KΩ Resistor

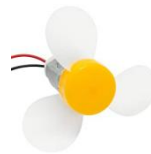
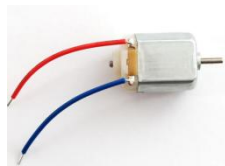
9V Battery

*1

Triode*1

*1

*1



9V Battery

Fan Motor *1

Fan Leaf *1

Jumper

holder *1

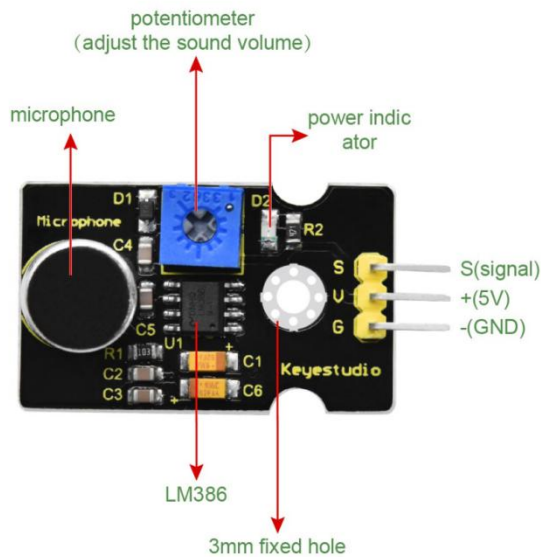
Wire*10+



Mic Paper

Card*1

3.Sound Sensor Little Knowledge



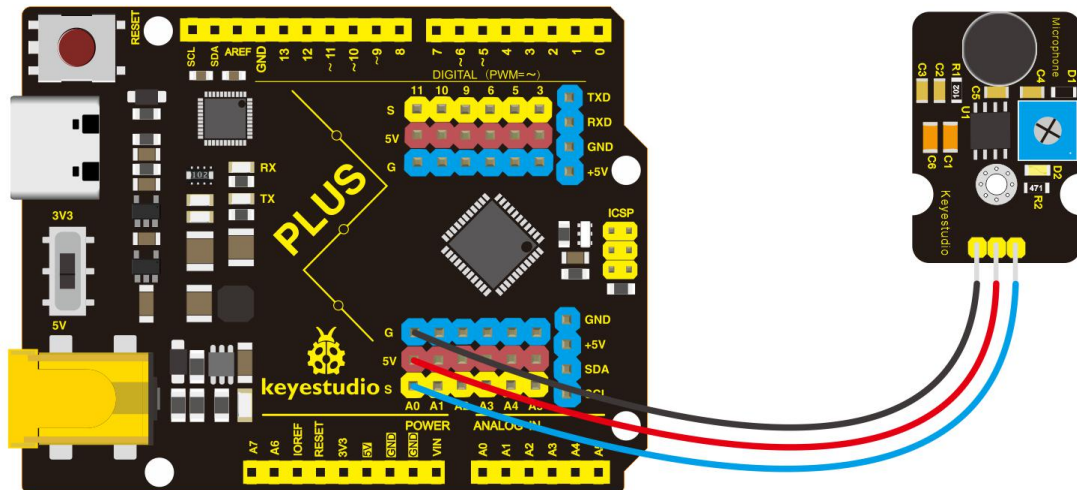
Sound sensor is typically used in detecting the loudness in ambient environment. The Arduino can collect its output signal by analog input interface.

The S pin is analog output that is voltage signal real-time output of microphone. The sensor comes with a potentiometer, so that you can adjust the signal gain.

It also has a fixed hole to mount the sensor on any other devices. You can use it to make some interactive works, such as a voice operated switch.

3. Read Sound Sensor Value

We first use a simple code to read the value of the sound sensor, print it in the serial monitor, and wire up.



/*

keyestudio STEM Starter Kit

Project 23.1

Read Sound Sensor Value

<http://www.keyestudio.com>

*/

int soundpin=0;// initialize analog pin 0, connected with
sound sensor

int val=0;// initialize variable va

void setup()

{

Serial.begin(9600);// set baud rate at "9600"

}

void loop()

{

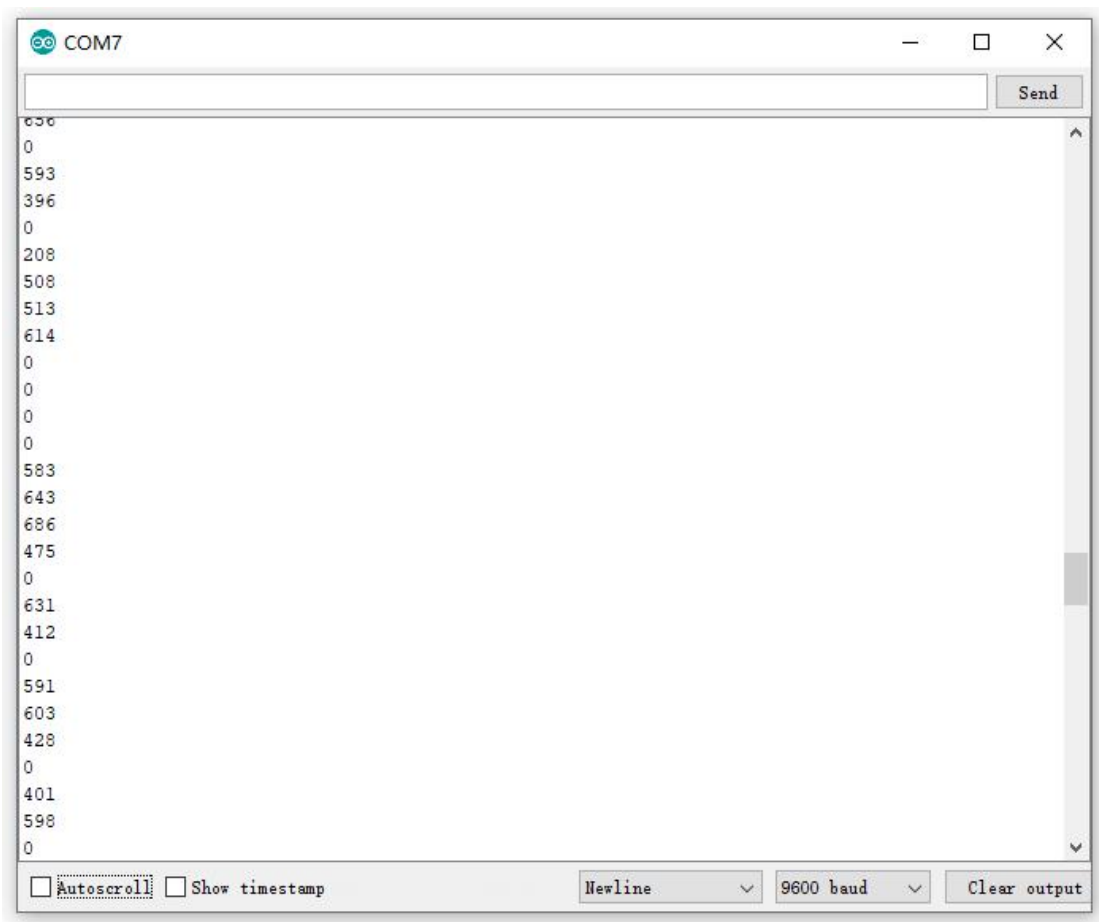
```

val=analogRead(soundpin);// read the value of the sensor
and assign it to val
Serial.println(val);// display the value of val
delay(1000);// wait for 1 s
}

////////////////////////////////////

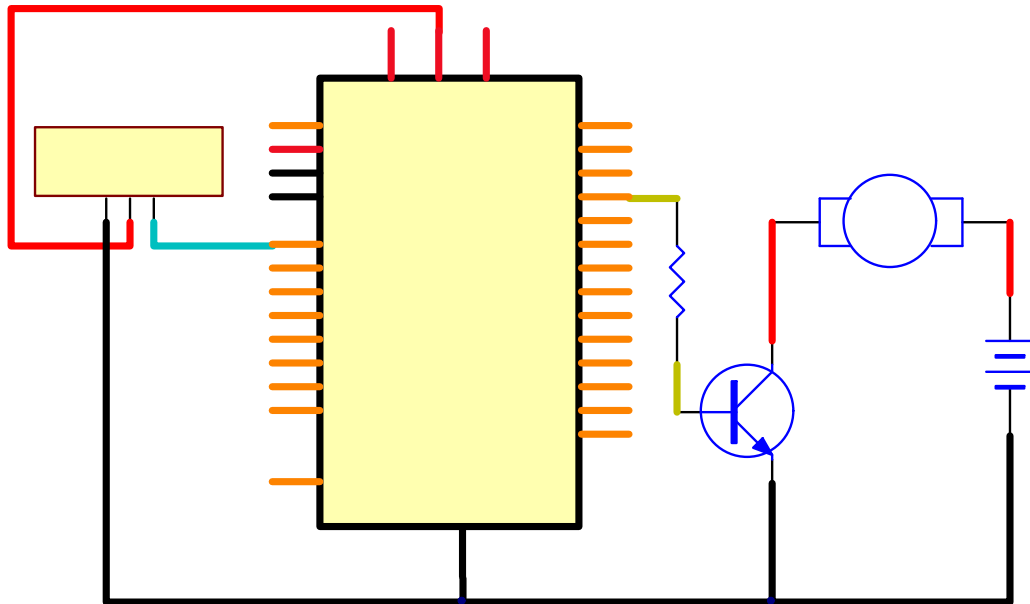
```

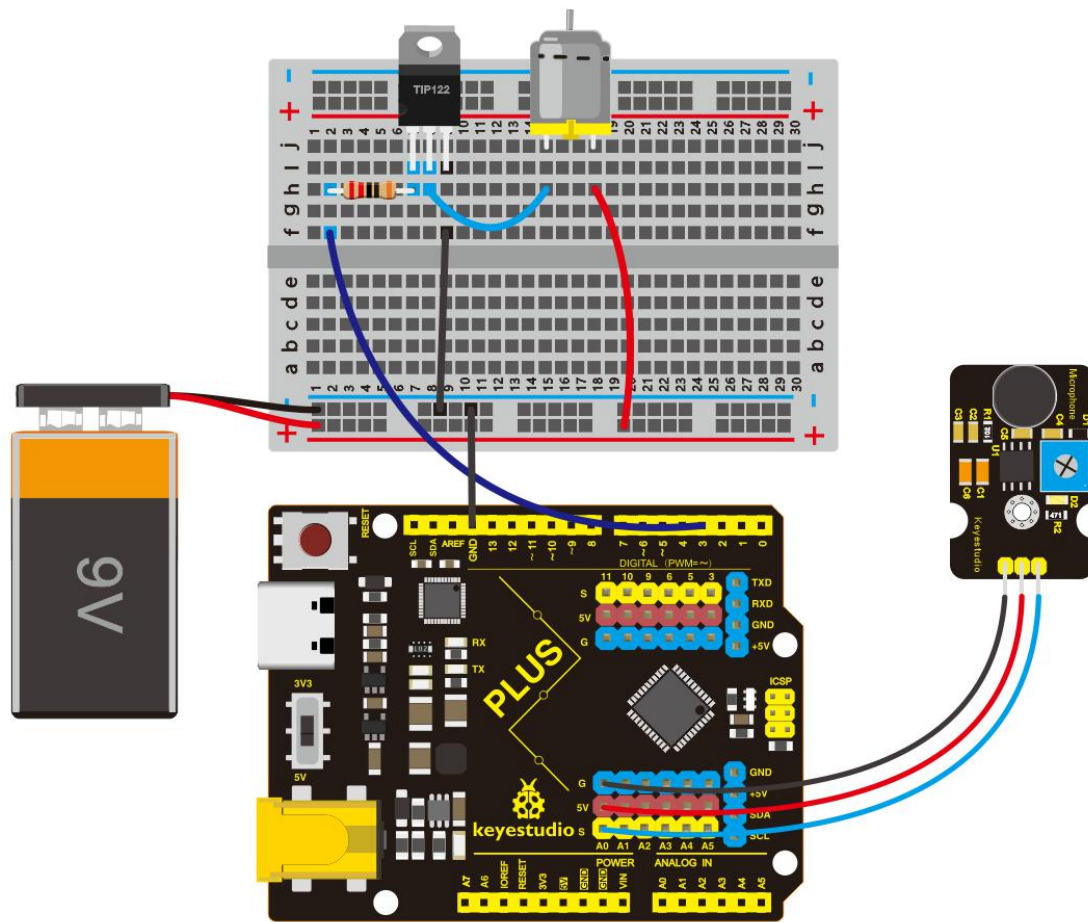
Upload the code to the Plus development board, open the serial monitor, blow or clap your hands at the sensor, you can see the sensor's value changes significantly.



4. Smart Fan Connection Diagram

Next, we formally enter this project. We use a sound sensor and a small motor to make a sound-activated fan. Connect to the circuit diagram below.





6. Project Code

/*

keystudio STEM Starter Kit

Project 23.2

Smart Fan

<http://www.keyestudio.com>

*/

int motorpin = 3; // set pin for motor

void setup() {

```

Serial.begin(9600);

pinMode(motorpin,OUTPUT);

}

void loop() {

    int Soundvalue = analogRead(A0);    // read the input
analog value

    Serial.println(Soundvalue);

    if(Soundvalue>700)

    {

        digitalWrite(motorpin,HIGH); // when the analog value is
bigger than the set value, turn on the motor

        for(int i=0;i<5;i++){

            delay(1000);                // wait for 5s

        }

    }

    else{

        digitalWrite(motorpin,LOW);    // turn off the motor

    }

}

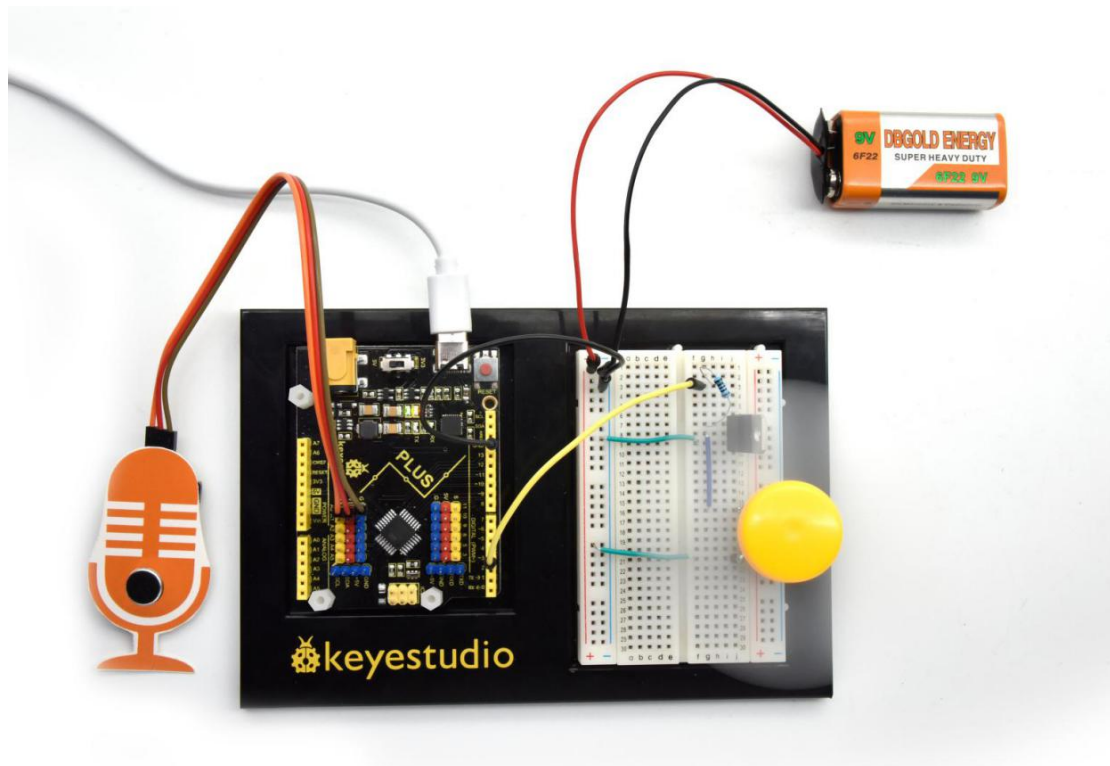
////////////////////////////////////

```


7.Project Result

Upload the code to the PLUS development board. After success, open the serial monitor, set the baud rate to 9600, and the monitor displays the value of the sound.

We blow to the sound sensor. When the sound is louder, the value displayed on the serial monitor is larger. When the value is greater than 700, the fan starts to work.



*****next

project*****