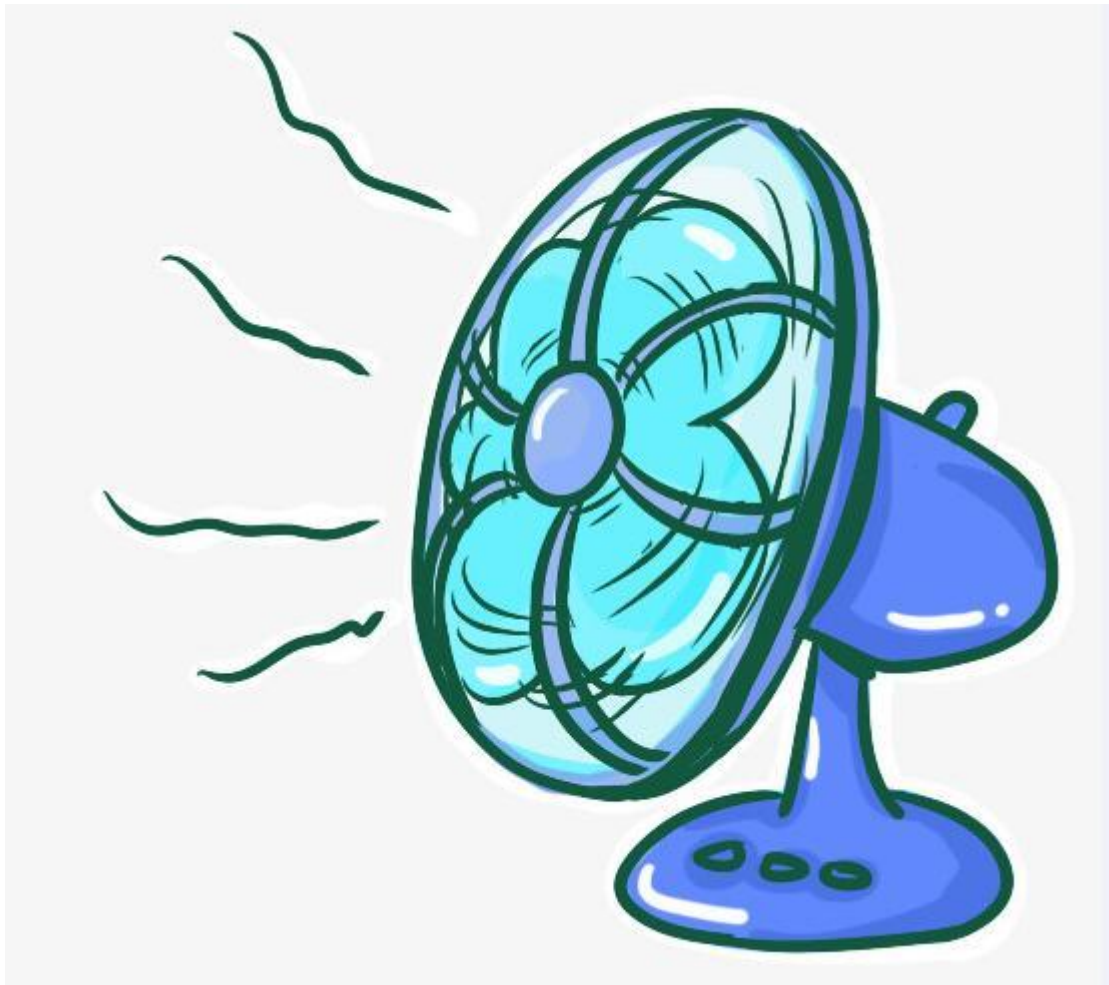


## Project 17: Small Fan

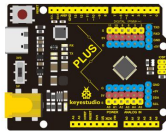


### 1. Project Introduction

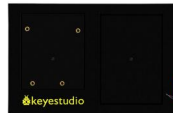
Usually, the GPIO pins of Arduino can only provide a maximum current of 40 mA. Since even a small 5V DC motor needs 50 mA or higher current to be driven, it is not recommended to use the Arduino GPIO pins to drive the DC motor.

In this project, we will use a Plus Development Board, a TIP122 triode, a motor and small fan leaf to make an electric fan.

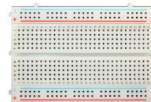
## 2.Project Hardware



Plus  
Development  
Board\*1



Plus Board  
Holder



400-Hole  
Breadboard



USB Cable\*1



TIP122  
Triode\*1



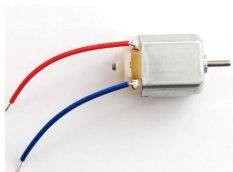
1 K $\Omega$   
Resistor \*1



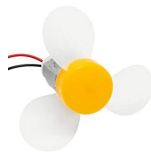
9V Battery  
\*1



9V Battery  
holder \*1



Fan Motor \*1

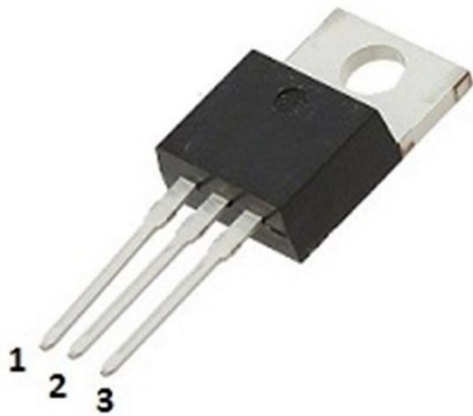


Fan Leaf \*1



Jumper  
Wire\*10+

## 3.TIP122 Parameters:



## TIP122 pinout

1. Base
2. Collector
3. Emitter

Voltage:  $V_{ce0}$ : 100V;

Power consumption,  $P_d$ : 65W;

Collector DC current: 5A;

DC current gain  $h_{FE}$ : 1000;

Package type: TO-220;

Number of pins: 3;

Total power,  $P_{tot}$ : 65W;

Number of transistors: 1;

Transistor type: Power Darlington;

Maximum continuous current,  $I_c$ : 5A;

Temperature: 25°C;

Voltage,  $V_{cbo}$ : 100V;

Current,  $I_c$   $h_{FE}$ : 3A;

Current,  $I_c$  maximum: 5A;

DC current gain  $h_{fe}$ , minimum value: 1000;

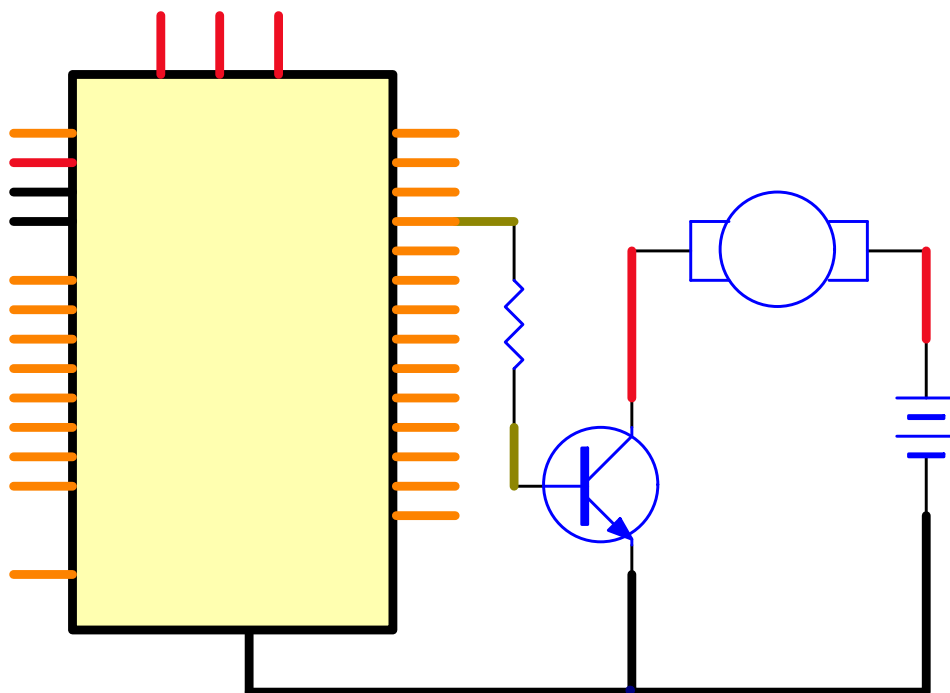
Surface mount devices: through-hole mounting;

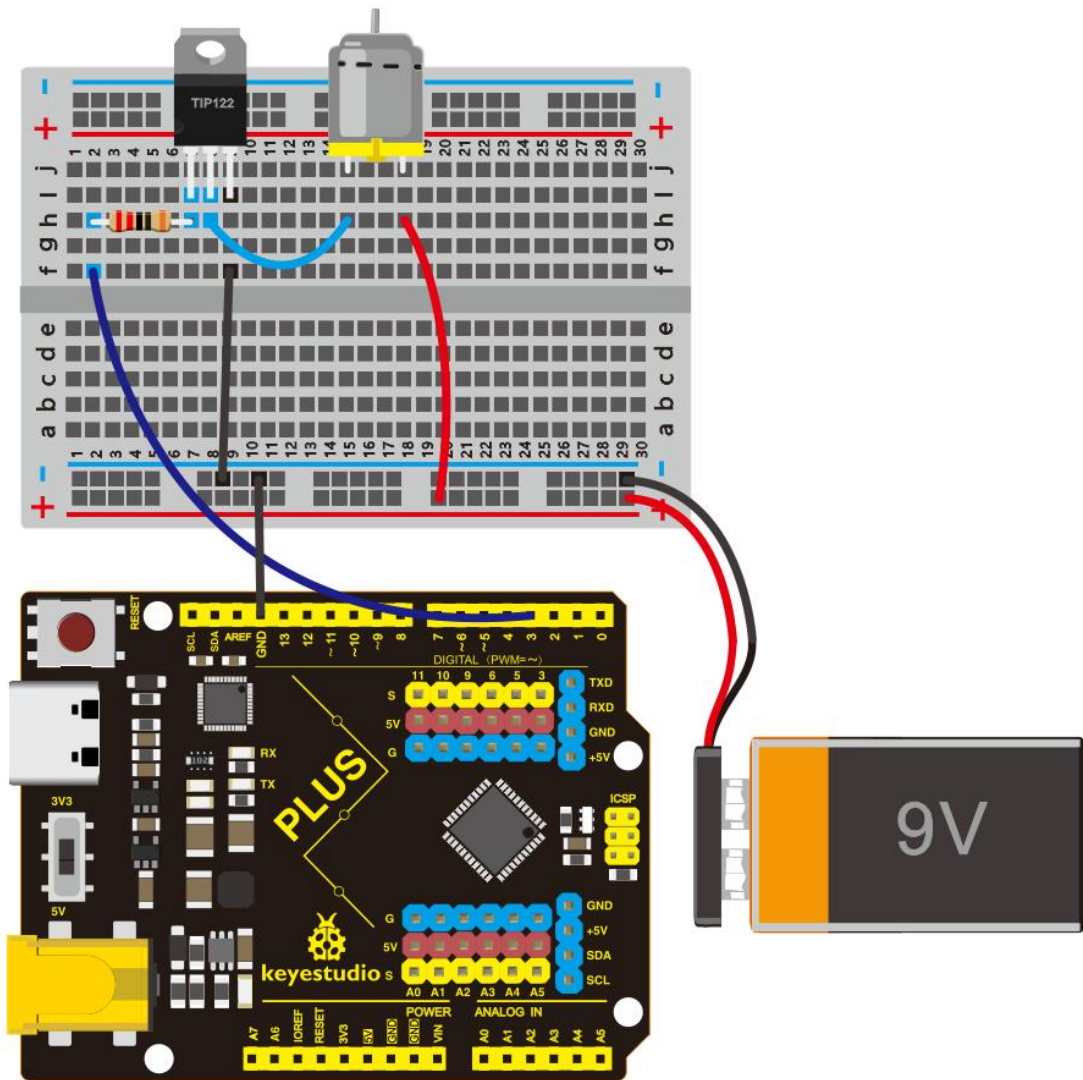
Collector current, average value of  $I_c$ : 5A;

Saturation voltage,  $V_{ce\ sat}$  maximum: 2V



#### 4.Connection Diagram





## 5.Project Code

/\*

keyestudio Maker learning kit

Project 17

Small Fan

<http://www.keyestudio.com>

```

*/
// the setup function runs once when you press reset or
power the board
void setup() {
    // initialize digital pin 3 as an output.
    pinMode(3, OUTPUT);
}
// the loop function runs over and over again forever
void loop() {
    digitalWrite(3, HIGH);    // turn the motor on (HIGH is the
voltage level)
    delay(2000);              // wait for 2 seconds
    digitalWrite(3, LOW);    // turn the motor off by making
the voltage LOW
    delay(3000);              // wait for 3 second
}
////////////////////////////////////

```

## 6.Project Result

Upload the project code to the Plus development board.

Insert the fan blade into the motor shaft, you will get a small fan that rotates for 2 seconds, and stops for 3 seconds, then

restart.

