

Project 18: Car Speed Dial

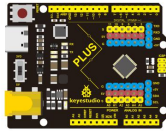


1. Project Introduction

A servo motor is a type of motor that can rotate with great precision. It has been widely used in many applications like toy car, RC helicopters and planes, Robotics, etc.

In this project, we will use a servo motor and a paper card to DIY a car speed dial.

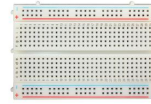
2. Project Hardware



Plus
Development
Board*1



Plus Board
Holder



400-Hole
Breadboard



USB Cable*1



9G
Motor*1

Servo
Dial

Car
Paper
Card*1

Speed



3. Working Principle of the Servo

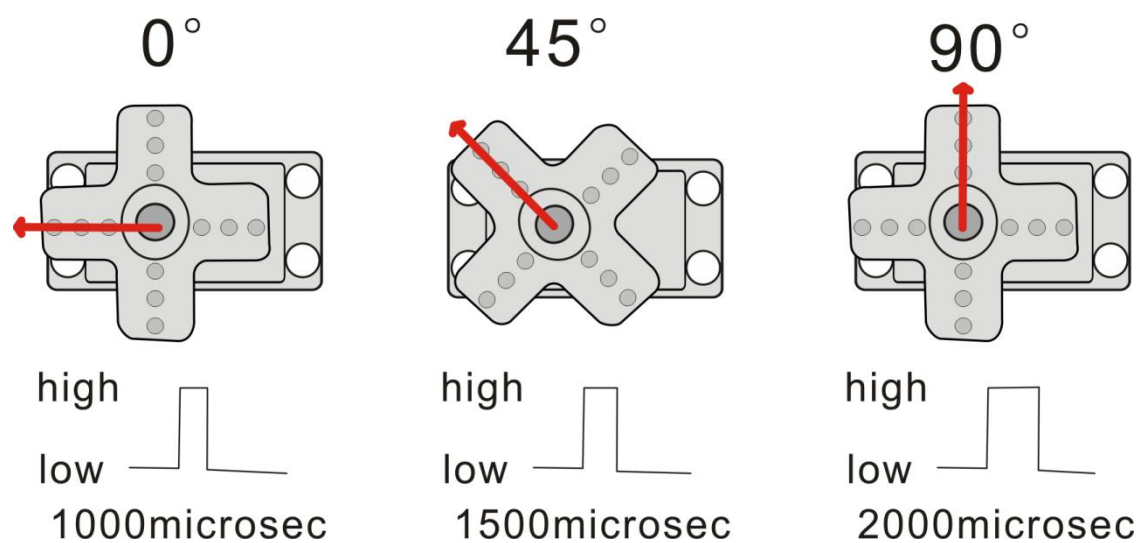


Servo is composed of a rudder disc, position feedback potentiometer, reduction gear set, DC motor, and control

circuit. A DC motor drives the reduction gear set, and its output shaft drives a position feedback potentiometer with linear proportional characteristics as position detection. According to the potentiometer feedback voltage, the control circuit compares with the external input control pulse, generates a correction pulse, controls and drives the DC motor to rotate forward or reverse so that the output position of the reduction gear is combined with the desired value. To achieve the purpose of accurately controlling the steering angle.

The control pulse cycle of the servo is 20ms, and the pulse width ranges from 0.5ms to 2.5ms, corresponding to positions from -90 degrees to +90 degrees.

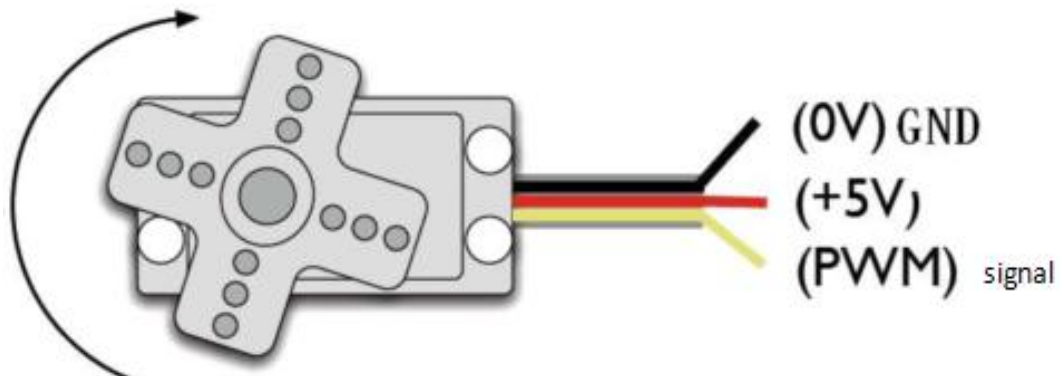
Let us take a 180-degree angle servo as an example



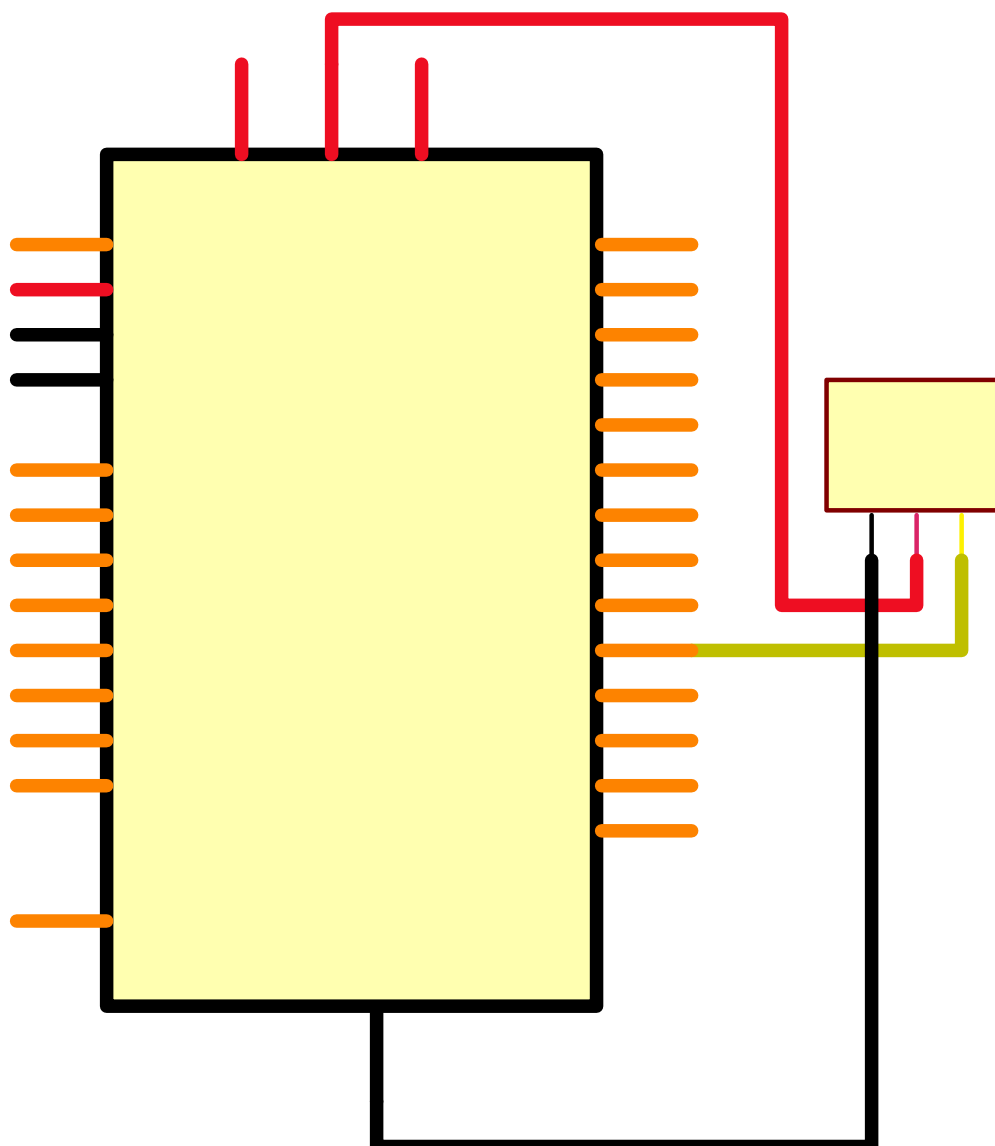
Servo motor comes with many specifications. But all of them

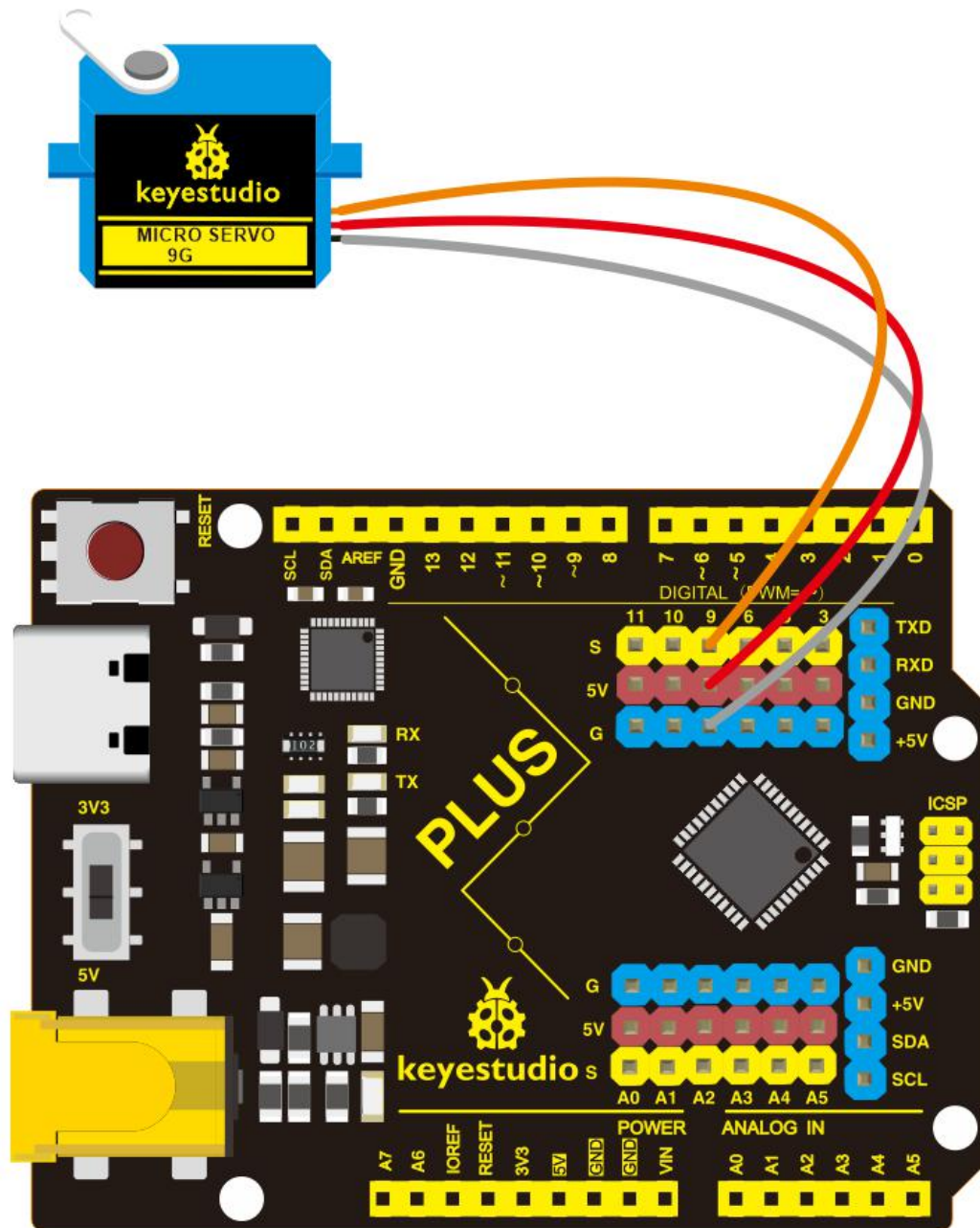
have three connection wires, distinguished by brown, red, orange (different brand may have different color).

Brown one is for GND, red one for power positive, orange one for signal line.



4.Connection Diagram





5. Project Code

/*

keyestudio STEM Starter Kit

Project 18

Car Speed Dial

<http://www.keyestudio.com>

```
*/
```

```
#include <Servo.h>
```

```
Servo myservo;// define servo variable name
```

```
void setup()
```

```
{
```

```
myservo.attach(9);// select servo pin(9 )
```

```
}
```

```
void loop()
```

```
{
```

```
myservo.write(0);// set rotate angle of the motor
```

```
delay(500);
```

```
myservo.write(45);// set rotate angle of the motor
```

```
delay(500);
```

```
myservo.write(90);// set rotate angle of the motor
```

```
delay(500);
```

```
myservo.write(135);// set rotate angle of the motor
```

```
delay(500);
```

```
myservo.write(180);// set rotate angle of the motor
```

```
delay(500);
```

```
}
```

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

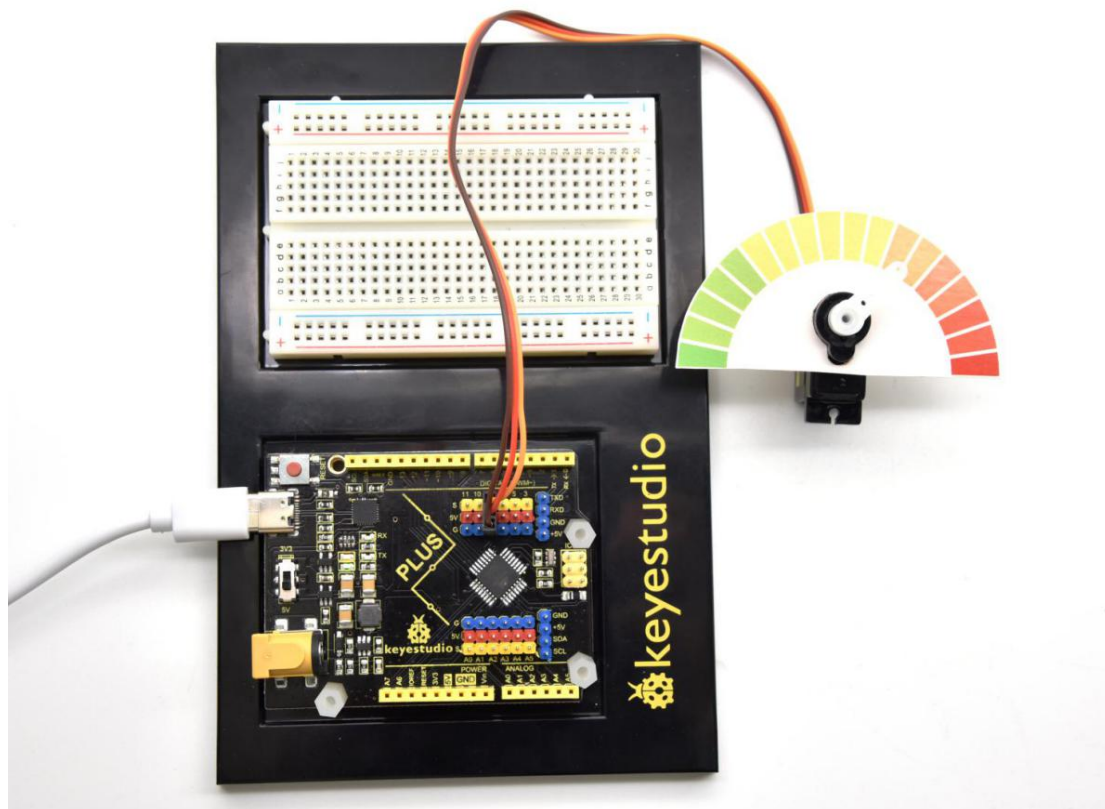
6. Project Result

Put the card of the car speed dial to the servo and insert the plastic arm of the servo into the its rotating shaft.

Upload the project code to the Plus development board.

The plastic arm of the servo will move at an angle of 0 degrees, 45 degrees, 90 degrees, 135 degrees, and 180 degrees.

A car speed dial model is completed.



*****next

project*****