

10. Servo Motor Control

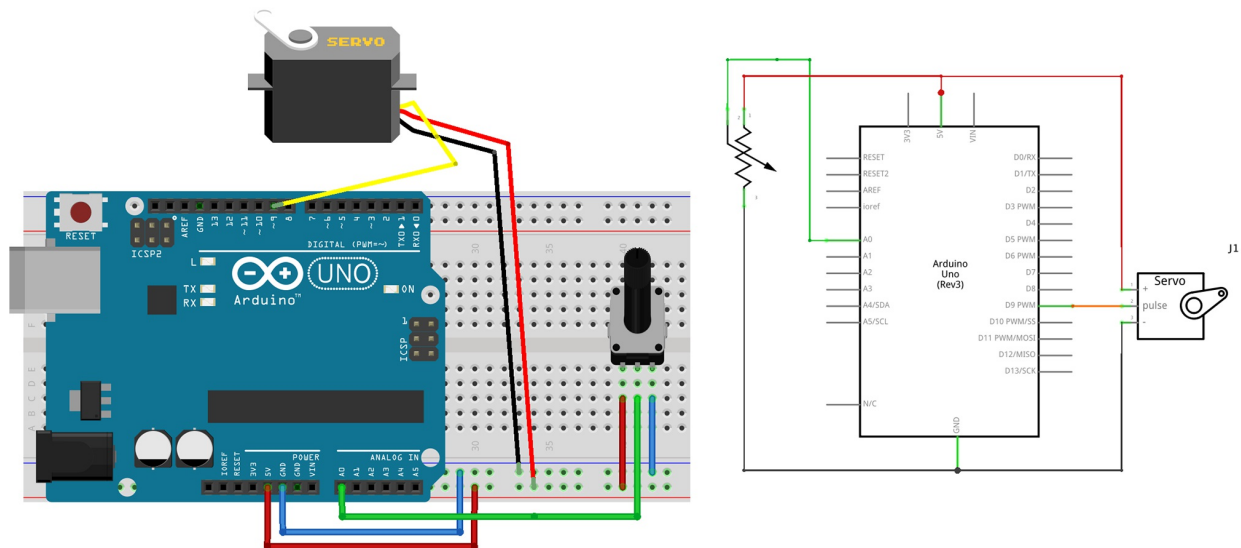
Now, lets substitute that LED for a Servo Motor.

Servos are motors with a shaft that can turn to a specified position. They usually have a range from 0 to 180 degrees. With an Arduino we can tell a servo to go to a specified position. We will see how to connect a servo motor and then how to turn it to different positions defined by the value of our potentiometer.

Circuit

Our servo motor has a female connector with three pins.

- The darkest, brown here, is usually the ground. Connect it to the Arduino GND.
- Connect the power cable that in all standards should be red to 5V on the Arduino.
- Connect the remaining line on the servo connector to a digital 9 (or 10) on the Arduino.



Note that servos can draw considerable power, so if you need to drive more than one or two, you'll probably need to power them from a separate supply (i.e. not the +5V pin on your Arduino).

Code

In this example we will use a specific servo library that will make coding a lot easier.

To use a library in a sketch, select it from Sketch > Import Library or just type in the `#include <name_of_library>` command.

```
#include <Servo.h>

Servo myservo;    // create servo object to control a servo

int potpin = A0;  // analog pin used to connect the potentiometer
int val;          // variable to read the value from the analog pin

void setup() {
  myservo.attach(9); // attaches the servo on pin 9 to the servo object
}

void loop() {
  // read the value of the potentiometer
  val = analogRead(potpin);
  // scale it to use it with the servo (value between 0 and 180)
  val = map(val, 0, 1023, 0, 180);
  // sets the servo position according to the scaled value
  myservo.write(val);
  // waits for the servo to get there
  delay(15);
}
```

See [the servo reference page](#) on how to use it.

The key functions used here are:

- `Servo objectname;`
- `objectname.attach(interface)` select the pin for servo. This can only use pin 9 or 10.
- `objectname.write(angle)` used to control the angle of the servo (0 to 180 degree).