

Actuators

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ELECTRONICS AND COMMUNICATION ENGINEERING

Actuators

An actuator is a component of a machine that is responsible for moving and controlling a mechanism or system.

An actuator is a device that produces a motion by converting energy and signals going into the system.

The motion it produces can be either rotary or linear.

The actuator could be electrical, pneumatic or hydraulic.

Examples: Motor, Pneumatic Valve, Hydraulic Press etc.

DC Motor

A **DC motor** is any of a class of rotary electrical motors that converts direct current electrical energy into mechanical energy.



Servo Motor

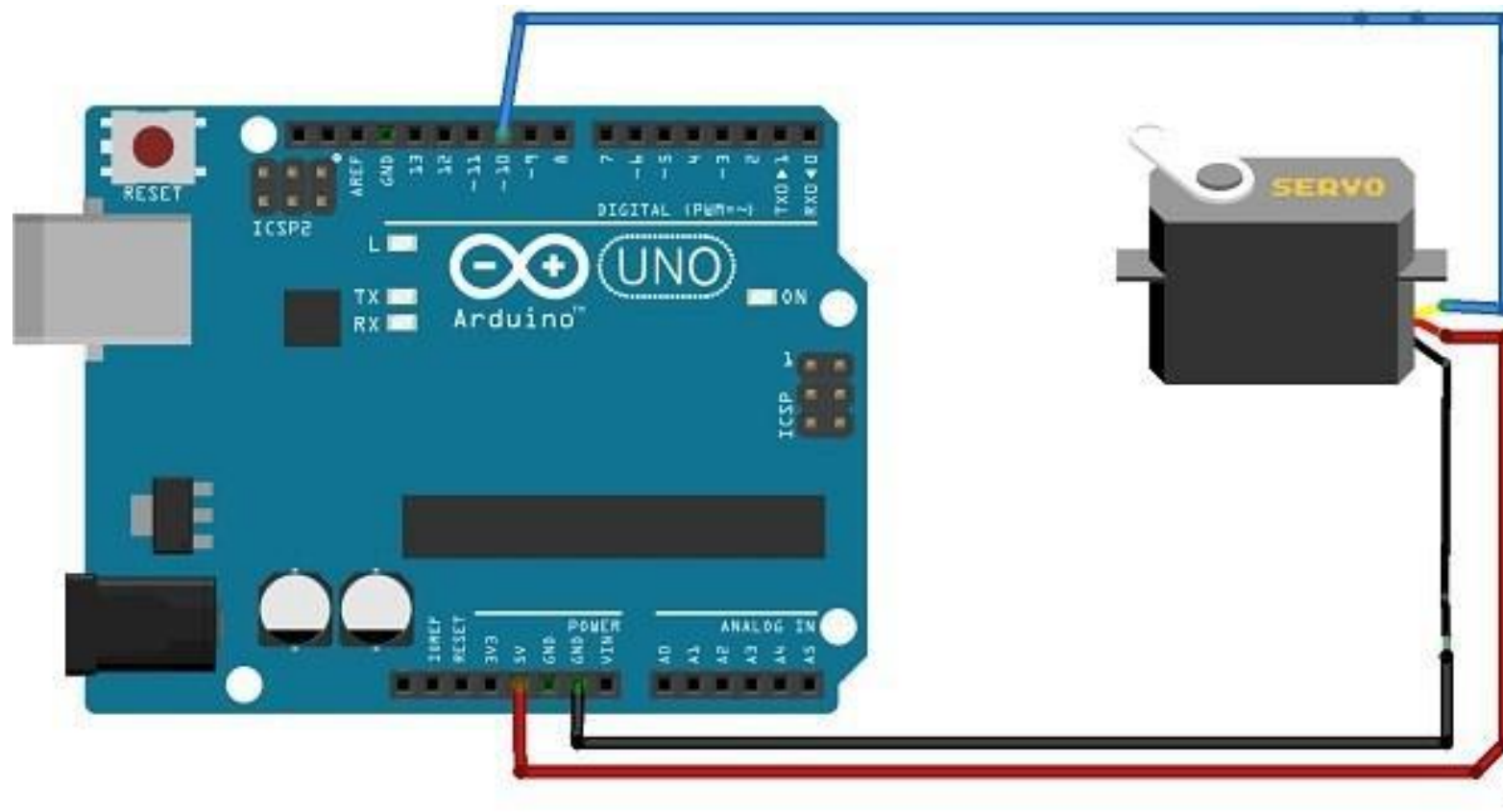
A **servo motor** is a type of motor that can rotate with great precision.

Normally this type of motor consists of a control circuit that provides feedback on the current position of the motor shaft, this feedback allows the servo motors to rotate with great precision.

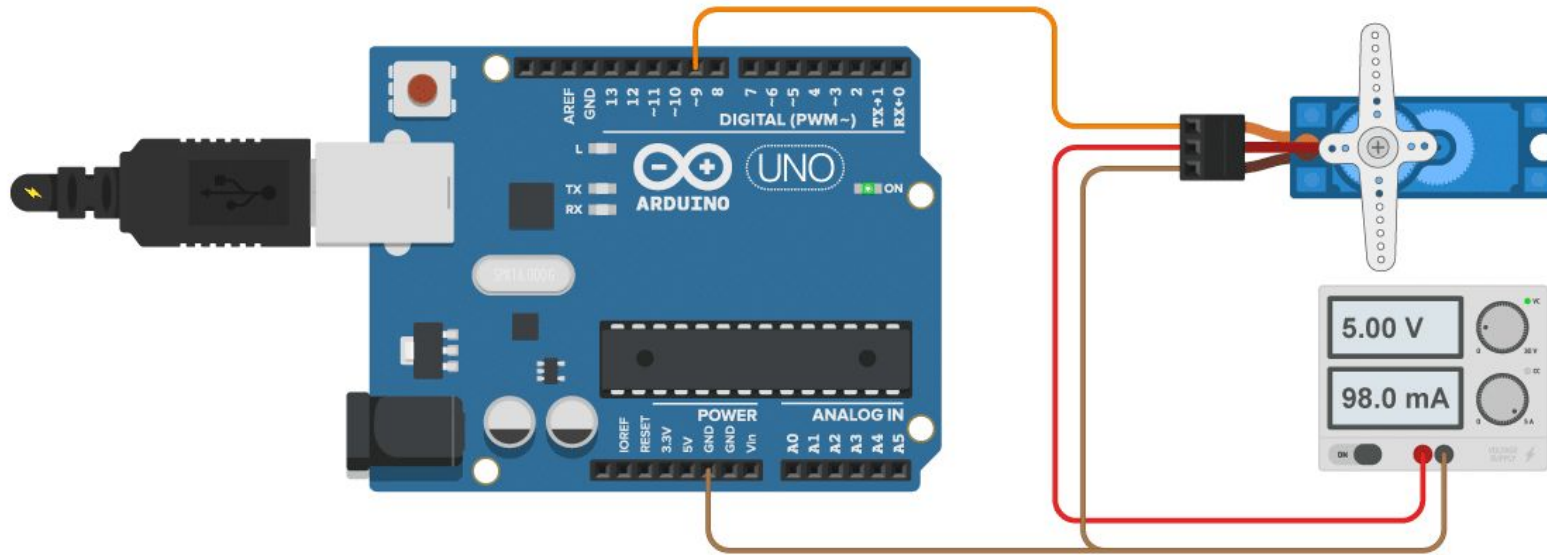
If we want to rotate an object at some specific angles , then you use a servo motor.



Servo Motor Control (Arduino as Source)



Servo Motor Control (External Source)

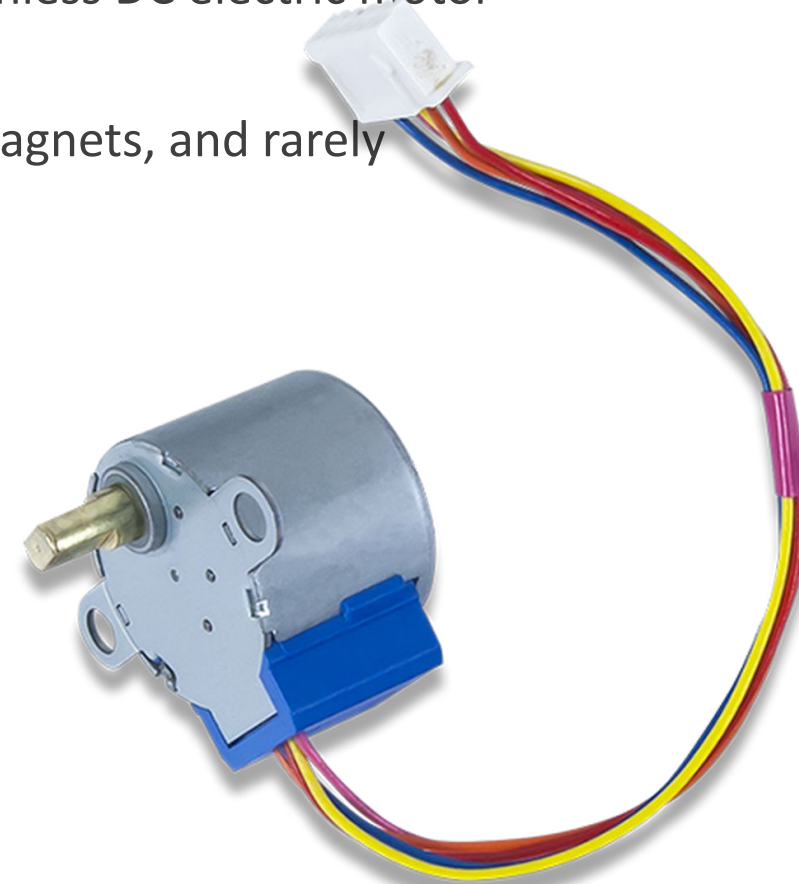
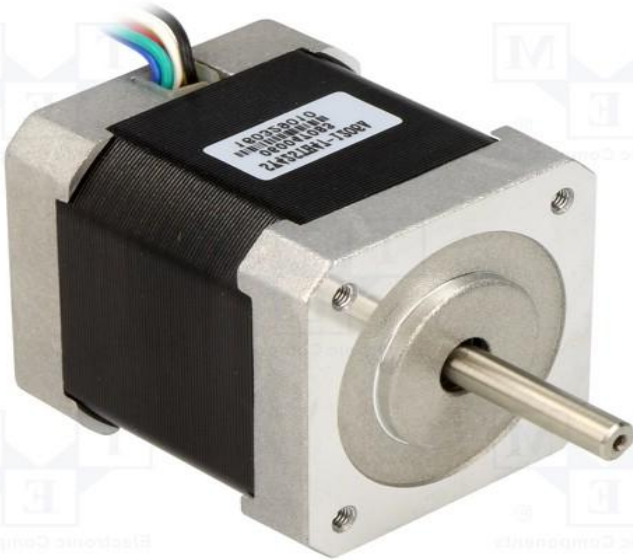


Let's Code

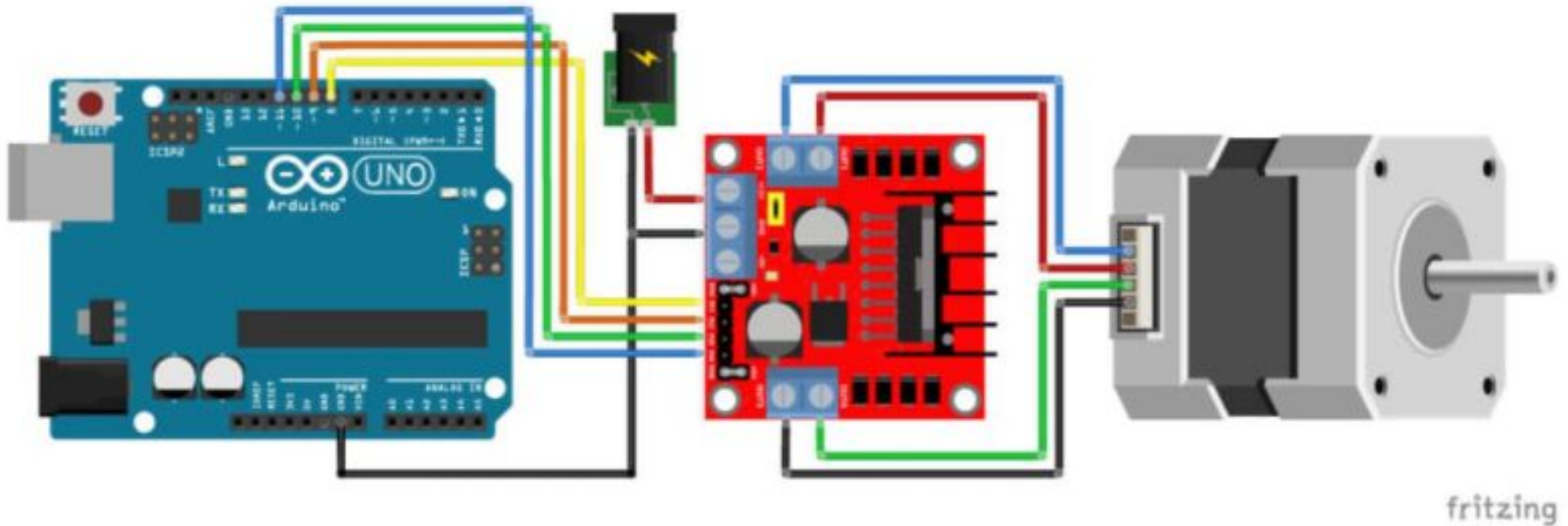
Stepper Motor

Stepper motor, also known as step motor or stepping motor, is a brushless DC electric motor that divides a full rotation into a number of equal steps.

Stepper motors typically don't require feedback, use less expensive magnets, and rarely incorporate gearboxes.



Stepper Motor Control



Let's Code

```
#include <Stepper.h>

const int stepsPerRevolution = 200;

Stepper myStepper = Stepper(stepsPerRevolution, 8, 9, 10, 11);

void setup() {
  myStepper.setSpeed(100);
}

void loop() {
  // Step one revolution in one direction:
  myStepper.step(200);
  delay(2000);

  // Step on revolution in the other direction:
  myStepper.step(-200);
  delay(2000);
}
```