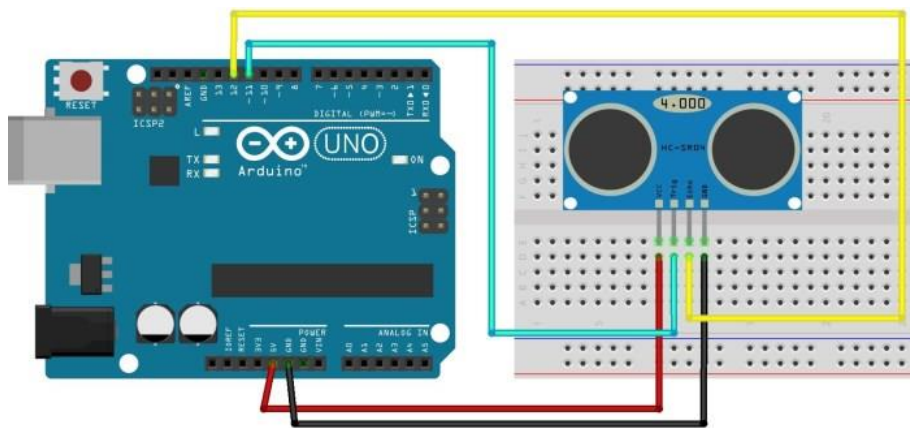


## HC-SR04 ultrasonic sensor

This sensor is very popular among the Arduino tinkerers. So, here we provide an example on how to use the HC-SR04 ultrasonic sensor with the Arduino. In this project the ultrasonic sensor reads and writes the distance to an object in the serial monitor.

The goal of this project is to help you understand how this sensor works. Then, you should be able to use this example in your own projects.



The following table shows the connections you need to make:

Ultrasonic Sensor HC-SR04	Arduino
VCC	5V
Trig	Pin 11
Echo	Pin 12
GND	GND

```
/*
 * created by Rui Santos, https://randomnerdtutorials.com
 *
 * Complete Guide for Ultrasonic Sensor HC-SR04
 */
```

```

    Ultrasonic sensor Pins:
        VCC: +5VDC
        Trig : Trigger (INPUT) - Pin11
        Echo: Echo (OUTPUT) - Pin 12
        GND: GND
    */

int trigPin = 11;    // Trigger
int echoPin = 12;    // Echo
long duration, cm, inches;

void setup() {
    //Serial Port begin
    Serial.begin (9600);
    //Define inputs and outputs
    pinMode(trigPin, OUTPUT);
    pinMode(echoPin, INPUT);
}

void loop() {
    // The sensor is triggered by a HIGH pulse of 10 or more
    microseconds.
    // Give a short LOW pulse beforehand to ensure a clean HIGH pulse:
    digitalWrite(trigPin, LOW);
    delayMicroseconds(5);
    digitalWrite(trigPin, HIGH);
    delayMicroseconds(10);
    digitalWrite(trigPin, LOW);

    // Read the signal from the sensor: a HIGH pulse whose
    // duration is the time (in microseconds) from the sending
    // of the ping to the reception of its echo off of an object.
    pinMode(echoPin, INPUT);
    duration = pulseIn(echoPin, HIGH);

    // Convert the time into a distance
    cm = (duration/2) / 29.1;    // Divide by 29.1 or multiply by 0.0343
    inches = (duration/2) / 74;    // Divide by 74 or multiply by 0.0135

    Serial.print(inches);
    Serial.print("in, ");
    Serial.print(cm);
    Serial.print("cm");
    Serial.println();

    delay(250);
}

```