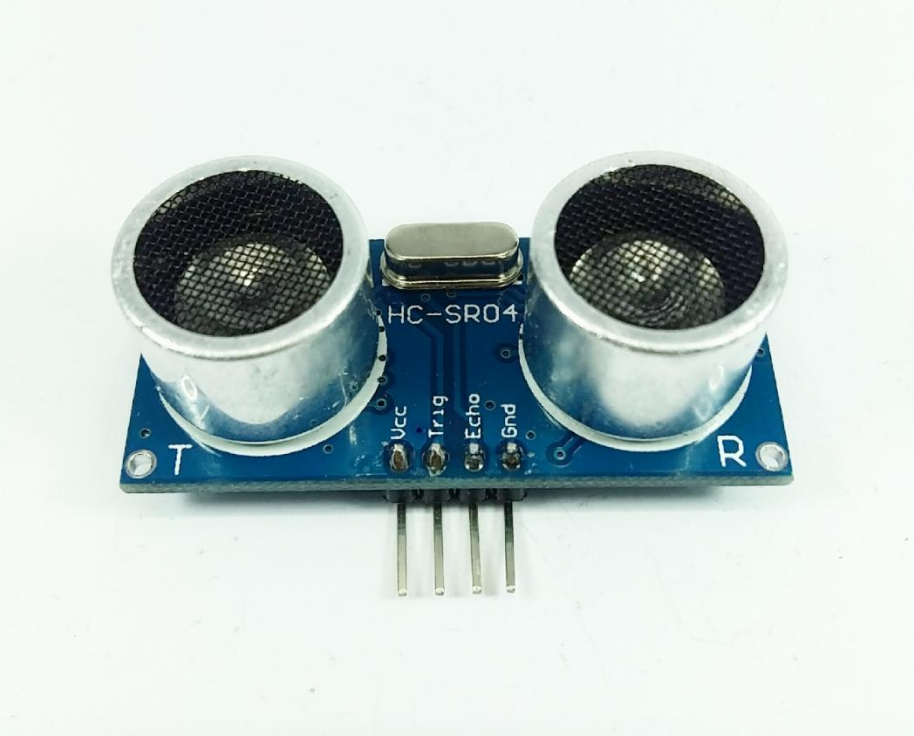
Ultrasonic Range/Distance/Proximity Sensor (HC-SR04) Quickstart Guide



DESCRIPTION

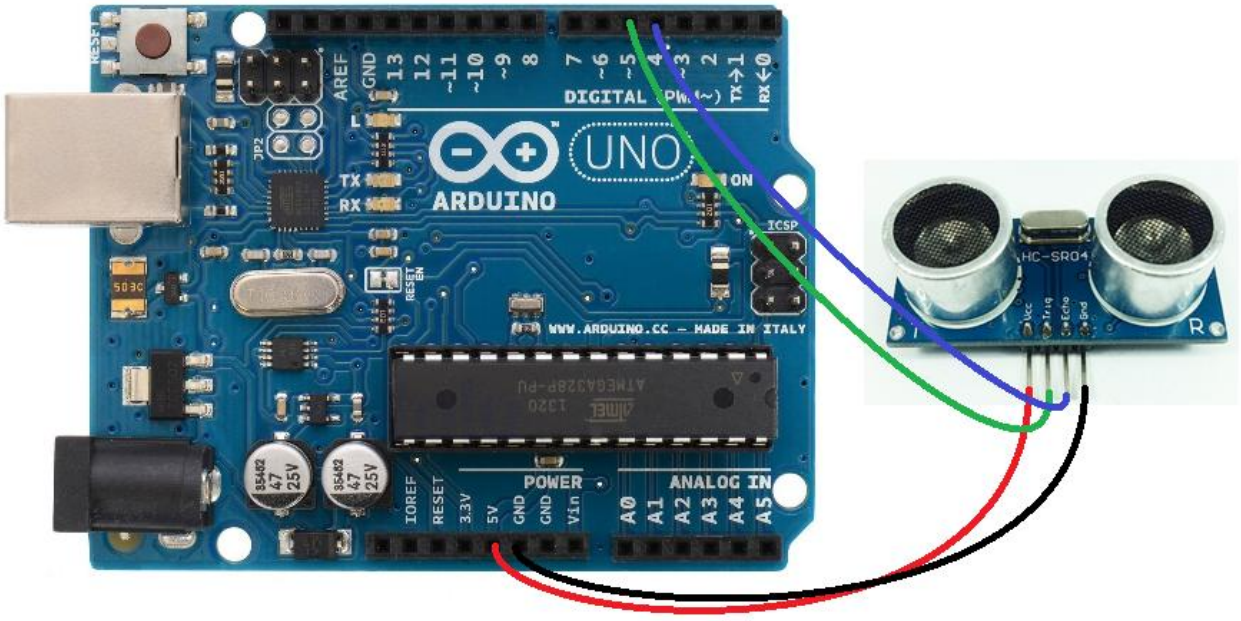
The Ultrasonic module detects the distance of the closest object in front of the sensor (from 2 cm up to 400cm). It works by sending out a burst of ultrasound and listening for the echo when it bounces off of an object. The module sends a short pulse through (Pin 'Trig') to trigger the detection, then listens for a pulse on the Pin 'Echo'. The duration of this second pulse is equal to the time taken by the ultrasound to travel to the object and back to the sensor. Using the speed of sound, this time can be converted to distance.

SPECIFICATION

- Operating voltage: +5V.
- Static current: less than 2mA.
- Detection angle: 15 degrees
- Range: 2cm ~ 400cm.
- Precision: 0.3cm.
- Operating Current 15mA
- Operating Frequency 40KHZ
- Dimensions 45mm x 20mm x 15mm

EXAMPLE WIRING CONNECTION

PIR Sensor	--->	**Arduino**
VCC	--->	5V
Trig	--->	DIGITAL PIN #5
Echo	--->	DIGITAL PIN #4
GND	--->	GND



ARDUINO CODE

Copy the code below and paste it in your Arduino IDE
Compile and Upload the code to your Arduino board.

```
/*
  Example for Ultrasonic Range Sensor

  Connection:
  Ultrasonic PIN ---> Arduino PIN
      VCC     --->   5V
      Trig    --->   D5
      Echo    --->   D4
      GND     --->   GND

*/

int inputPin=4; // define ultrasonic signal receiver pin ECHO to D4
int outputPin=5; // define ultrasonic signal transmitter pin TRIG to D5

void setup() {
    Serial.begin(9600);
    pinMode(inputPin, INPUT);
    pinMode(outputPin, OUTPUT);
}

void loop() {

    digitalWrite(outputPin, LOW);
    delayMicroseconds(2);
    digitalWrite(outputPin, HIGH); // Pulse for 10µ s to trigger ultrasonic detection
    delayMicroseconds(10);
    digitalWrite(outputPin, LOW);
    int distance = pulseIn(inputPin, HIGH); // Read receiver pulse time
    distance= distance/58; // Transform pulse time to distance

    /* The SRF04 provides an echo pulse proportional to distance.
    If the width of the pulse is measured in uS,
    then dividing by 58 will give you the distance in cm,
    or dividing by 148 will give the distance in inches.
    uS/58=cm or uS/148=inches.

    The speed of sound is 340 m/s (or around 344) or 29 us per cm.
    The Ultrasonic burst travels out & back.
    So to find the distance of object we divide by 58 (29 x 2)
    */

    Serial.println(distance); //Ourtput distance
    delay(200);
}
```

OUTPUT

After uploading the code open your Arduino Serial Terminal. It will display an infinite number representing a certain distance/range.

Now place your hand or any plain object in front of the Ultrasonic sensor and it will display how much further this object is from the sensor. The sensor can detect up to around 200cm to 350cm.

You can get more information about this product from here:
http://www.bitstoc.com/index.php?route=product/product&product_id=61&search=ultrasonic